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The Code of Federal Regulations is sold by the Superintendent of Documents.

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

7 CFR Part 27

[Doc. No. AMS-CN-22-0061]

Redefining Bona Fide Cotton Spot Markets

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Technical amendment.

SUMMARY: On August 1, 2023, the Agricultural Marketing Service (AMS) published a rule amending the regulation that redefines two of the seven designated spot markets and changing the names of the affected markets. The amendatory language in this rule did not provide instructions necessary to effectuate the changes in the Code of Federal Regulations. This action corrects the names and definitions of the two affected cotton spot markets.

DATES: Effective October 6, 2023.

FOR FURTHER INFORMATION CONTACT:

Barbara Meredith, Division Director, Cotton Market News, Cotton & Tobacco Program, AMS, USDA, 3275 Appling Road, Room 10, Memphis, TN 38133. Telephone: (901) 384-3300, or Email: Barbara.Meredith@usda.gov.

SUPPLEMENTARY INFORMATION: A final rule published in the **Federal Register** on August 1, 2023 (88 FR 49993) revised the regulations concerning bona fide spot market definitions, redefining which counties and states compose each of these spot markets. Specifically, the rule removed the terms “East Texas and Oklahoma” and “West Texas”, and added the terms “East Texas and South Texas” and “West Texas, Kansas, and Oklahoma.” Furthermore, the rule removed the definitions of “East Texas and Oklahoma” and “West Texas” and added the definitions of “East Texas and South Texas” and “West Texas, Kansas, and Oklahoma” in their place. This

action corrects the names and definitions of the two spot markets.

List of Subjects in 7 CFR Part 27

Commodity futures, Cotton.

For the reasons set forth in the preamble, the Agricultural Marketing Service amends 7 CFR part 27 with the following technical amendment:

PART 27—[Amended]

■ 1. The authority citation for 7 CFR part 27 continues to read as follows:

Authority: 7 U.S.C. 15b, 7 U.S.C. 473b, 7 U.S.C. 1622(g).

■ 2. Amend § 27.93:

■ a. Revising the introductory paragraph of the extract;

■ b. By removing the definitions of “East Texas and Oklahoma” and “West Texas” and;

■ c. By adding the definitions of “East Texas and South Texas” and “West Texas, Kansas, and Oklahoma” in their place.

The additions and revision read as follows:

§ 27.93 Bona fide spot markets.

The following markets have been determined, after investigation, and are hereby designated to be bona fide spot markets within the meaning of the act:

Southeastern; North Delta; South Delta; East Texas and South Texas; West Texas, Kansas and Oklahoma; Desert Southwest; and San Joaquin Valley. Such markets will comprise the following areas:

* * * * *

East Texas and South Texas

Texas counties east of and including Montague, Wise, Parker, Erath, Comanche, Mills, San Saba, Mason, Sutton, Edwards, Kinney, Maverick, Webb, Zapata, Star, and Hidalgo counties.

West Texas, Kansas, and Oklahoma

All counties in Kansas and Oklahoma, all Texas counties not included in the East Texas, South Texas, and Desert Southwest Markets, and the New

Mexico counties of Union, Quay, Curry, Roosevelt, and Lea.

* * * * *

Melissa Bailey,

Associate Administrator, Agricultural Marketing Service.

[FR Doc. 2023-22180 Filed 10-5-23; 8:45 am]

BILLING CODE P

SMALL BUSINESS ADMINISTRATION

[Docket No. SBA-2023-0012]

13 CFR Part 120

ALP Express Pilot Program

AGENCY: U.S. Small Business Administration (SBA).

ACTION: Notification of ALP Express Pilot Program.

SUMMARY: SBA is introducing a new pilot loan program (ALP Express Pilot) to provide to Certified Development Companies (CDCs) participating in the Accredited Lenders Program (ALP) increased delegated authority for 504 loans of \$500,000 or less. These increased delegated authorities (ALP Express authority) were previously authorized under the Economic Aid to Hard-hit Small Businesses, Nonprofits, and Venues Act (Economic Aid Act), but they expire on September 30, 2023. SBA will evaluate the use of the ALP Express Pilot and will make a recommendation to Congress as to whether these increased authorities should become permanent. SBA will limit the number of ALP Express Pilot loans to not more than fifteen percent (15%) of the total dollar amount of 504 loans made in any fiscal year.

DATES:

Availability date: The ALP Express Pilot is available on October 1, 2023, and will remain in effect for up to two years, but not to extend beyond September 30, 2025.

Comment date: Send comments by December 5, 2023.

ADDRESSES: You may submit comments, identified by SBA docket number SBA-2023-0012, by any of the following methods:

- **Federal eRulemaking Portal:** <https://www.regulations.gov/>. Follow the instructions for submitting comments.
- **Mail:** Gregorius Suryadi, Office of Financial Assistance, U.S. Small

Business Administration, 409 Third Street SW, Washington, DC 20416.

- *Hand Delivery/Courier*: Gregorius Suryadi, Office of Financial Assistance, U.S. Small Business Administration, 409 Third Street SW, Washington, DC 20416.

SBA will post all comments on <https://www.regulations.gov>.

If you wish to submit confidential business information (“CBI”) as defined in the User Notice at <https://www.regulations.gov>, please submit the information to Gregorius Suryadi, Office of Financial Assistance, U.S. Small Business Administration, 409 Third Street SW, Washington, DC 20416; or send an email to gregorius.suryadi@sba.gov. Highlight the information that you consider to be CBI and explain why you believe SBA should hold this information as confidential. SBA will review the information and make the final determination as to whether it will publish the information.

FOR FURTHER INFORMATION CONTACT:

Gregorius Suryadi, Office of Financial Assistance, U.S. Small Business Administration at (202) 205-6806 or gregorius.suryadi@sba.gov. The phone number above may also be reached by individuals who are deaf or hard of hearing, or who have speech disabilities, through the Federal Communications Commission’s TTY-Based Telecommunications Relay Service teletype service at 711.

SUPPLEMENTARY INFORMATION:

1. Background

The 504 Loan Program is an SBA financing program authorized under title V of the Small Business Investment Act of 1958, as amended, 15 U.S.C. 695 *et seq.* (Small Business Investment Act). The core mission of the 504 Loan Program is to provide long-term financing to small businesses for the purchase or improvement of land, buildings, and major equipment, to facilitate the creation or retention of jobs and local economic development. Under the 504 Loan Program, loans are made to small business applicants by Certified Development Companies (“CDCs”), which are certified and regulated by SBA to promote economic development within their community. In general, a project in the 504 Loan Program (a “504 Project”) includes: A loan obtained from a private sector lender with a senior lien covering at least 50 percent of the project cost; a loan obtained from a CDC (a “504 Loan”) with a junior lien covering up to 40 percent of the total cost (backed by a 100 percent SBA guaranteed debenture); and a contribution from the Borrower of at least 10 percent equity.

There are three types of CDCs that participate in the 504 Loan Program. This notification relates to the temporary increased delegated authority that was granted, in accordance with section 328(b) of the Economic Aid Act, to CDCs that are approved by SBA to participate in the Accredited Lenders Program (hereafter “ALP CDCs”), which is authorized under section 507(a) of the Small Business Investment Act. Under section 507(c) of the Small Business Investment Act, SBA is authorized to develop an expedited procedure for processing a loan application or servicing action submitted by ALP CDCs. 15 U.S.C. 697d.

Prior to the Economic Aid Act, ALP CDCs were required to obtain SBA’s approval to make a 504 loan, including with respect to both the loan’s eligibility and creditworthiness. With respect to closing, ALP CDCs only had delegated authority to make certain “No Adverse Change” certifications prior to loan closing without SBA’s review and approval, and were authorized to close 504 loans under the expedited loan closing procedures applicable to a Priority CDC. Further, ALP CDCs were required to obtain SBA’s approval for most servicing actions.

The ALP Express Pilot will temporarily provide increased delegated authority to ALP CDCs with respect to loans made under ALP authority (hereafter referred to as “ALP Express Pilot Loans”). Although ALP CDCs have had the option to use these new delegated authorities since the publication of the interim final rule implementing section 328(b) of the Economic Aid Act, they expire on September 30, 2023. 87 FR 37979 (June 27, 2022). The ALP Express Pilot’s new delegated authorities represent a continuation of the ALP Express authority provided by the Economic Aid Act, which themselves are the most substantial changes to an ALP CDC’s authority to approve, authorize, close and service loans made under ALP authority since the onset of the Accredited Lender’s Program, while also incorporating new elements. For the ALP Express Pilot SBA has declined to include the prohibition in section 328(b) of the Economic Aid Act against making loans with ALP Express authority to a borrower in an industry with a high rate of default (defined as an industry that for the past 5 fiscal years has 50 or more approvals per year and an annualized default rate of 5% or above) because SBA has determined there are no industries with a high rate of default in the 504 program based on prior SBA 504 portfolio performance. Further, as of May 11, 2023, SBA instituted a

technology compliance check on all loans, including those with ALP Express authority, and streamlined the affiliation policy guidance that reduces the amount of paperwork required for submitting loan packages. As these changes are recent the ALP Express Pilot will enable SBA to season the ALP Express Pilot and observe the impact of these recent changes.

Under the ALP Express Pilot, SBA will delegate to ALP CDCs the authority to make the final decision with respect to the applicant’s creditworthiness on ALP Express Pilot Loans. SBA continues to be responsible for reviewing each loan to ensure that it meets all Loan Program Requirements for program eligibility.

SBA will delegate to ALP CDCs the authority to approve certain servicing actions after closing on ALP Express Pilot Loans. ALP CDCs must promptly notify the appropriate SBA servicing center of their approval of any servicing action on ALP Express Pilot Loans. SBA will consider prompt notification to be within five (5) business days of approval. Finally, SBA will delegate to ALP CDCs the responsibility to undertake all actions necessary to close the ALP Express Pilot Loan and Debenture in accordance with the expedited loan closing procedures applicable to a Priority CDC and with 13 CFR 120.960.

In their own discretion, ALP CDCs may decide not to exercise their delegated authority with respect to an ALP Express Pilot Loan and may instead submit the loan to SBA under nondelegated procedures. ALP CDCs may not use their ALP Express authority to service a loan that was approved under non-delegated authority that could have been made as an ALP Express Pilot Loan. In addition, PCLP CDCs may decide to process an ALP Express Pilot Loan under their status as an ALP CDC instead of as a PCLP CDC, thereby not requiring the CDC to comply with Loan Loss Reserve Fund requirements for that loan.

In making, closing, servicing, or liquidating an ALP Express Pilot Loan, CDCs must follow all Loan Program Requirements under the 504 Loan Program. This includes the loan closing and disbursement procedures in SOP 50 10 7 and the servicing and liquidation requirements in 13 CFR 120.535, 120.536, 120.540, 120.842 and 120.960, as well as SOP 50 55.

To implement this ALP Express Pilot Program, SBA is relying on 13 CFR 120.3, which permits the SBA suspend, modify, or waive rules for a limited period of time to test new programs or ideas. SBA wishes to implement this

pilot to evaluate the use of this increased delegated authority by ALP CDCs and to identify opportunities for further modification.

For further guidance on ALP Express authority, see the Economic Aid Act and the ALP Express Pilot Program Guide.

2. Application Terms and Conditions and Forms

CDCs must use the application forms required for current 504 loan processing and execute an SBA Terms and Conditions document for each ALP Express Pilot Loan, as set forth in SOP 50 10 7. For further guidance on the SBA Terms and Conditions and the required forms, see SOP 50 10 7 and the ALP Express Pilot Program Guide.

Reporting Requirements

CDCs must document on SBA Form 1244 (by checking the ALP Express box on page 12) whether the ALP CDC is using its ALP Express authority when submitting an application for an ALP Express Pilot Loan. This will allow SBA to track ALP CDCs' use of this increased delegated authority. CDCs must also continue to comply with the reporting requirements in 13 CFR 120.830.

Lender Oversight

ALP CDC oversight procedures shall follow the requirements set forth in 13 CFR part 120—Subpart I and SOPs 50 53 (Lender Supervision and Enforcement) and 51 00 (On-Site Lender Reviews and Examinations). The SOPs can be found at: <https://archive.sba.gov/tools/resource/library/sops/index.html>. ALP CDCs will be monitored both for performance and other risk characteristics as well as for compliance with the requirements of the ALP Express Pilot Program. The ALP CDC must maintain compliance with the requirement that it only makes ALP Express Pilot Loans in an amount of \$500,000 or less, along with all other Loan Program Requirements. ALP CDCs also will be subject to 13 CFR 120.1400 through 120.1600 and the provisions of SOP 50 53 concerning supervision and enforcement.

Evaluation Criteria for ALP Express Pilot

SBA is reviewing the following data related to ALP CDCs and their use of ALP Express authority and will use the same evaluation criteria for the ALP Express Pilot:

(1.) Did the number and/or percentage of 504 loans in the portfolio under \$500,000 increase as a result of the availability of ALP Express authority?

(2.) How do the default rates of ALP Express loans compare with similarly

sized loans not processed and serviced using this authority?

(3.) Did ALP Express loan approvals and servicing turn times improve, resulting in enhanced customer service?

For data collections to evaluate the effectiveness of this pilot, SBA will use ETran, SBA's electronic system for loan submission and servicing.

Authority: 13 CFR 120.3.

Isabella Casillas Guzman,
Administrator.

[FR Doc. 2023–22171 Filed 10–5–23; 8:45 am]

BILLING CODE 8026–09–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

45 CFR Part 102

RIN 0991–AC34

Annual Civil Monetary Penalties Inflation Adjustment

AGENCY: Office of the Assistant Secretary for Financial Resources, Department of Health and Human Services.

ACTION: Final rule.

SUMMARY: The Department of Health and Human Services (HHS) is updating its regulations to reflect required annual inflation-related increases to the civil monetary penalty (CMP) amounts in its regulations, under the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 and adds references to new penalty authorities.

DATES:

Effective date: This final rule is effective October 6, 2023.

Applicability date: The adjusted civil monetary penalty amounts apply to penalties assessed on or after the date of publication to the **Federal Register**, if the violation occurred on or after November 2, 2015.

FOR FURTHER INFORMATION CONTACT: Katrina Brisbon, Deputy Assistant Secretary, Office of Acquisitions, Office of the Assistant Secretary for Financial Resources, Room 536–H, Hubert Humphrey Building, 200 Independence Avenue SW, Washington DC 20201; (202)260–6677.

SUPPLEMENTARY INFORMATION:

I. Background

The Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015 (section 701 of Pub. L. 114–74) (the “2015 Act”) amended the Federal Civil Penalties Inflation Adjustment Act of 1990 (Pub. L. 101–410, 104 Stat. 890 (1990)), which is intended to improve

the effectiveness of CMPs and to maintain the deterrent effect of such penalties, requires agencies to adjust the CMPs for inflation annually.

HHS lists the CMP authorities and the amounts administered by all of its agencies in tabular form in 45 CFR 102.3, which was issued in an interim final rule published in the September 6, 2016, **Federal Register** (81 FR 61538). Annual adjustments were subsequently published on February 3, 2017 (82 FR 9175), October 11, 2018 (83 FR 51369), November 5, 2019 (84 FR 59549), January 17, 2020 (85 FR 2869), November 15, 2021 (86 FR 62928), and March 17, 2022 (87 FR 15100).

II. Calculation of Annual Inflation Adjustment and Other Updates

The annual inflation adjustment for each applicable CMP is determined using the percent increase in the Consumer Price Index for all Urban Consumers (CPI–U) for the month of October of the year in which the amount of each CMP was most recently established or modified. In the December 15, 2022, Office of Management and Budget (OMB) Memorandum for the Heads of Executive Agencies and Departments, M–23–05, “Implementation of Penalty Inflation Adjustments for 2023, Pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015,” OMB published the multiplier for the required annual adjustment. The cost-of-living adjustment multiplier for 2023, based on the CPI–U for the month of October 2022, not seasonally adjusted, is 1.07745. The multiplier is applied to each applicable penalty amount that was updated and published for fiscal year (FY) 2022 and is rounded to the nearest dollar.

In addition to the inflation adjustments for 2023, this final rule updates the table in 45 CFR 102.3 to add references to new, applicable CMP authorities that were established or implemented since the publication of the March 17, 2022, update and that are being updated in this rule.

First, in the final rule, “Medicare and Medicaid Program: Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs; Price Transparency of Hospital Standard Charges; Radiation Oncology Model” final rule with comment period (86 FR 63548, November 16, 2021), the Centers for Medicare & Medicaid Services (CMS) finalized a new provision, effective January 1, 2022, at 45 CFR 180.90(c)(ii) to increase the CMP amounts associated with a hospital's noncompliance with

price transparency disclosure and display requirements at 45 CFR 180.40, 180.50, and 180.60.

Second, in the final rule, “Medicare and Medicaid Programs; CY 2022 Home Health Prospective Payment System Rate Update; Home Health Value-Based Purchasing Model Requirements and Model Expansion; Home Health and Other Quality Reporting Program Requirements; Home Infusion Therapy Services Requirements; Survey and Enforcement Requirements for Hospice Programs; Medicare Provider Enrollment Requirements; and COVID-19 Reporting Requirements for Long-Term Care Facilities” final rule (86 FR 62240, November 9, 2021), CMS finalized a new provision, effective January 1, 2022, establishing enforcement remedies for noncompliant hospice programs, including a CMP remedy at 42 CFR 488.1245. This final rule implemented Division CC, section 407 of the Consolidated Appropriations Act, 2021 which added a new section 1822 of the Social Security Act for hospice program survey and enforcement requirements, specifically authorizing the Secretary to establish CMPs in an amount not to exceed \$10,000 for each day of noncompliance by a hospice program (see 42 U.S.C. 1395i-6(c)(5)(B)(i)).

The table has been modified to reflect these new regulatory and statutory amounts.

III. Statutory and Executive Order Reviews and Waiver of Proposed Rulemaking

The 2015 Act requires Federal agencies to publish annual penalty

inflation adjustments notwithstanding section 553 of the Administrative Procedure Act (APA). Section 4(a) of the 2015 Act directs Federal agencies to publish annual adjustments no later than January 15th of each year thereafter. In accordance with section 553 of the APA, most rules are subject to notice and comment and are effective no earlier than 30 days after publication in the **Federal Register**. However, section 4(b)(2) of the 2015 Act provides that each agency shall make the annual inflation adjustments “notwithstanding section 553” of the APA. According to OMB’s Memorandum M-23-05, the phrase “notwithstanding section 553” in section 4(b)(2) of the 2015 Act means that “the public procedure the APA generally requires—notice, an opportunity for comment, and a delay in effective date—is not required for agencies to issue regulations implementing the annual adjustment.”

Consistent with the language of the 2015 Act and OMB’s implementation guidance, the inflation adjustments set out in this rule are not subject to notice and an opportunity for public comment and will be effective immediately upon publication. Additionally, HHS finds that notice and comment procedures would be impracticable and unnecessary under the APA for making the statutorily required inflation updates to newly established penalty amounts.

Pursuant to OMB Memorandum M-23-05, HHS has determined that the annual inflation adjustment to the civil monetary penalties in its regulations does not trigger any requirements under

procedural statutes and Executive Orders that govern rulemaking procedures.

IV. Effective and Applicability Dates

This rule is effective on the date specified in the **DATES** section of this final rule. The adjusted civil monetary penalty amounts apply to penalties assessed on or after the date specified in the **DATES** section of this final rule, if the violation occurred on or after November 2, 2015. If the violation occurred before November 2, 2015, or a penalty was assessed before September 6, 2016, the pre-adjustment civil penalty amounts in effect before September 6, 2016, will apply.

List of Subjects in 45 CFR Part 102

Administrative practice and procedure, Penalties.

For reasons discussed in the preamble, the Department of Health and Human Services amends subtitle A, title 45 of the Code of Federal Regulations as follows:

PART 102—ADJUSTMENT OF CIVIL MONETARY PENALTIES FOR INFLATION

■ 1. The authority citation for part 102 continues to read as follows:

Authority: Pub. L. 101-410, Sec. 701 of Pub. L. 114-74, 31 U.S.C. 3801-3812.

■ 2. Amend § 102.3 by revising table 1 to read as follows:

§ 102.3 Penalty adjustment and table.

* * * * *

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
21 U.S.C.:						
333(b)(2)(A)	FDA	Penalty for violations related to drug samples resulting in a conviction of any representative of manufacturer or distributor in any 10-year period.	2022	115,054	123,965
333(b)(2)(B)	FDA	Penalty for violation related to drug samples resulting in a conviction of any representative of manufacturer or distributor after the second conviction in any 10-yr period.	2022	2,301,065	2,479,282
333(b)(3)	FDA	Penalty for failure to make a report required by 21 U.S.C. 353(d)(3)(E) relating to drug samples.	2022	230,107	247,929
333(f)(1)(A)	FDA	Penalty for any person who violates a requirement related to devices for each such violation.	2022	31,076	33,483
		FDA	Penalty for aggregate of all violations related to devices in a single proceeding.	2022	2,071,819	2,232,281

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
333(f)(2)(A)	FDA	Penalty for any individual who introduces or delivers for introduction into interstate commerce food that is adulterated per 21 U.S.C. 342(a)(2)(B) or any individual who does not comply with a recall order under 21 U.S.C. 350l.	2022	87,362	94,128
		FDA	Penalty in the case of any other person (other than an individual) for such introduction or delivery of adulterated food.	2022	436,809	470,640
		FDA	Penalty for aggregate of all such violations related to adulterated food adjudicated in a single proceeding.	2022	873,618	941,280
333(f)(3)(A)	FDA	Penalty for all violations adjudicated in a single proceeding for any person who violates 21 U.S.C. 331(j) by failing to submit the certification required by 42 U.S.C. 282(j)(5)(B) or knowingly submitting a false certification; by failing to submit clinical trial information under 42 U.S.C. 282(j); or by submitting clinical trial information under 42 U.S.C. 282(j) that is false or misleading in any particular under 42 U.S.C. 282(j)(5)(D).	2022	13,237	14,262
333(f)(3)(B)	FDA	Penalty for each day any above violation is not corrected after a 30-day period following notification until the violation is corrected.	2022	13,237	14,262
333(f)(4)(A)(i)	FDA	Penalty for any responsible person that violates a requirement of 21 U.S.C. 355(o) (post-marketing studies, clinical trials, labeling), 21 U.S.C. 355(p) (risk evaluation and mitigation (REMS)), or 21 U.S.C. 355-1 (REMS).	2022	330,948	356,580
		FDA	Penalty for aggregate of all such above violations in a single proceeding.	2022	1,323,791	1,426,319
333(f)(4)(A)(ii)	FDA	Penalty for REMS violation that continues after written notice to the responsible person for the first 30-day period (or any portion thereof) the responsible person continues to be in violation.	2022	330,948	356,580
		FDA	Penalty for REMS violation that continues after written notice to responsible person doubles for every 30-day period thereafter the violation continues, but may not exceed penalty amount for any 30-day period.	2022	1,323,791	1,426,319
		FDA	Penalty for aggregate of all such above violations adjudicated in a single proceeding.	2022	13,237,910	14,263,186
333(f)(9)(A)	FDA	Penalty for any person who violates a requirement which relates to tobacco products for each such violation.	2022	19,192	20,678
		FDA	Penalty for aggregate of all such violations of tobacco product requirement adjudicated in a single proceeding.	2022	1,279,448	1,378,541
333(f)(9)(B)(i)(I)	FDA	Penalty per violation related to violations of tobacco requirements.	2022	319,863	344,636
		FDA	Penalty for aggregate of all such violations of tobacco product requirements adjudicated in a single proceeding.	2022	1,279,448	1,378,541
333(f)(9)(B)(i)(II)	FDA	Penalty in the case of a violation of tobacco product requirements that continues after written notice to such person, for the first 30-day period (or any portion thereof) the person continues to be in violation.	2022	319,863	344,636

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
		FDA	Penalty for violation of tobacco product requirements that continues after written notice to such person shall double for every 30-day period thereafter the violation continues, but may not exceed penalty amount for any 30-day period.	2022	1,279,448	1,378,541
		FDA	Penalty for aggregate of all such violations related to tobacco product requirements adjudicated in a single proceeding.	2022	12,794,487	13,785,420
333(f)(9)(B)(ii)(I)	FDA	Penalty for any person who either does not conduct post-market surveillance and studies to determine impact of a modified risk tobacco product for which the HHS Secretary has provided them an order to sell, or who does not submit a protocol to the HHS Secretary after being notified of a requirement to conduct post-market surveillance of such tobacco products.	2022	319,863	344,636
		FDA	Penalty for aggregate of for all such above violations adjudicated in a single proceeding.	2022	1,279,448	1,378,541
333(f)(9)(B)(ii)(II)	FDA	Penalty for violation of modified risk tobacco product post-market surveillance that continues after written notice to such person for the first 30-day period (or any portion thereof) that the person continues to be in violation.	2022	319,863	344,636
		FDA	Penalty for post-notice violation of modified risk tobacco product post-market surveillance shall double for every 30-day period thereafter that the tobacco product requirement violation continues for any 30-day period, but may not exceed penalty amount for any 30-day period.	2022	1,279,448	1,378,541
		FDA	Penalty for aggregate above tobacco product requirement violations adjudicated in a single proceeding.	2022	12,794,487	13,785,420
333(g)(1)	FDA	Penalty for any person who disseminates or causes another party to disseminate a direct-to-consumer advertisement that is false or misleading for the first such violation in any 3-year period.	2022	330,948	356,580
		FDA	Penalty for each subsequent above violation in any 3-year period.	2022	661,896	713,160
333 note	FDA	Penalty to be applied for violations of 21 U.S.C. 387f(d)(5) or of violations of restrictions on the sale or distribution of tobacco products promulgated under 21 U.S.C. 387f(d) (e.g., violations of regulations in 21 CFR part 1140) with respect to a retailer with an approved training program in the case of a second regulation violation within a 12-month period.	2022	320	345
		FDA	Penalty in the case of a third violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 24-month period.	2022	638	687
		FDA	Penalty in the case of a fourth violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 24-month period.	2022	2,559	2,757
		FDA	Penalty in the case of a fifth violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 36-month period.	2022	6,397	6,892

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
		FDA	Penalty in the case of a sixth or subsequent violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 48-month period as determined on a case-by-case basis.	2022	12,794	13,785
		FDA	Penalty to be applied for violations of 21 U.S.C. 387f(d)(5) or of violations of restrictions on the sale or distribution of tobacco products promulgated under 21 U.S.C. 387f(d) (e.g., violations of regulations in 21 CFR part 1140) with respect to a retailer that does not have an approved training program in the case of the first regulation violation.	2022	320	345
		FDA	Penalty in the case of a second violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 12-month period.	2022	638	687
		FDA	Penalty in the case of a third violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 24-month period.	2022	1,280	1,379
		FDA	Penalty in the case of a fourth violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 24-month period.	2022	2,559	2,757
		FDA	Penalty in the case of a fifth violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 36-month period.	2022	6,397	6,892
		FDA	Penalty in the case of a sixth or subsequent violation of 21 U.S.C. 387f(d)(5) or of the tobacco product regulations within a 48-month period as determined on a case-by-case basis.	2022	12,794	13,785
335b(a)	FDA	Penalty for each violation for any individual who made a false statement or misrepresentation of a material fact, bribed, destroyed, altered, removed, or secreted, or procured the destruction, alteration, removal, or secretion of, any material document, failed to disclose a material fact, obstructed an investigation, employed a consultant who was debarred, debarred individual provided consultant services.	2022	487,638	525,406
		FDA	Penalty in the case of any other person (other than an individual) per above violation.	2022	1,950,548	2,101,618
360pp(b)(1)	FDA	Penalty for any person who violates any such requirements for electronic products, with each unlawful act or omission constituting a separate violation.	2022	3,198	3,446
		FDA	Penalty imposed for any related series of violations of requirements relating to electronic products.	2022	1,090,241	1,174,680
42 U.S.C.			2022	0	.....
262(d)	FDA	Penalty per day for violation of order of recall of biological product presenting imminent or substantial hazard.	2022	250,759	270,180
263b(h)(3)	FDA	Penalty for failure to obtain a mammography certificate as required.	2022	19,507	21,018
300aa–28(b)(1)	FDA	Penalty per occurrence for any vaccine manufacturer that intentionally destroys, alters, falsifies, or conceals any record or report required.	2022	250,759	270,180
256b(d)(1)(B)(vi)	HRSA	Penalty for each instance of overcharging a 340B covered entity.	2022	6,323	6,813

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
299c-3(d) .....	.....	AHRQ	Penalty for using or disclosing identifiable information obtained in the course of activities undertaken pursuant to Title IX of the Public Health Service Act, for a purpose other than that for which the information was supplied, without consent to do so.	2022	16,443	17,717
653(l)(2)	45 CFR 303.21(f)	ACF	Penalty for Misuse of Information in the National Directory of New Hires.	2022	1,687	1,818
262a(l)(1)	42 CFR 1003.910	OIG	Penalty for each individual who violates safety and security procedures related to handling dangerous biological agents and toxins.	2022	381,393	410,932
		OIG	Penalty for any other person who violates safety and security procedures related to handling dangerous biological agents and toxins.	2022	762,790	821,868
300j-51 .....	.....	OIG	Penalty per violation for committing information blocking.	2022	1,162,924	1,252,992
1320a-7a(a)	42 CFR 1003.210(a)(1) ...	OIG	Penalty for knowingly presenting or causing to be presented to an officer, employee, or agent of the United States a false claim.	2022	22,427	24,164
		OIG	Penalty for knowingly presenting or causing to be presented a request for payment which violates the terms of an assignment, agreement, or PPS agreement.	2022	22,427	24,164
	42 CFR 1003.210(a)(2) ...	OIG	Penalty for knowingly giving or causing to be presented to a participating provider or supplier false or misleading information that could reasonably be expected to influence a discharge decision.	2022	33,641	36,246
	42 CFR 1003.210(a)(3) ...	OIG	Penalty for an excluded party retaining ownership or control interest in a participating entity.	2022	22,427	24,164
	42 CFR 1003.1010	OIG	Penalty for remuneration offered to induce program beneficiaries to use particular providers, practitioners, or suppliers.	2022	22,427	24,164
	42 CFR 1003.210(a)(4) ...	OIG	Penalty for employing or contracting with an excluded individual.	2022	22,427	24,164
	42 CFR 1003.310(a)(3) ...	OIG	Penalty for knowing and willful solicitation, receipt, offer, or payment of remuneration for referring an individual for a service or for purchasing, leasing, or ordering an item to be paid for by a Federal health care program.	2022	112,131	120,816
	42 CFR 1003.210(a)(1) ...	OIG	Penalty for ordering or prescribing medical or other item or service during a period in which the person was excluded.	2022	22,427	24,164
	42 CFR 1003.210(a)(6) ...	OIG	Penalty for knowingly making or causing to be made a false statement, omission or misrepresentation of a material fact in any application, bid, or contract to participate or enroll as a provider or supplier.	2022	112,131	120,816
	42 CFR 1003.210(a)(8) ...	OIG	Penalty for knowing of an overpayment and failing to report and return.	2022	22,427	24,164
	42 CFR 1003.210(a)(7) ...	OIG	Penalty for making or using a false record or statement that is material to a false or fraudulent claim.	2022	63,231	68,128
	42 CFR 1003.210(a)(9) ...	OIG	Penalty for failure to grant timely access to HHS OIG for audits, investigations, evaluations, and other statutory functions of HHS OIG.	2022	33,641	36,246
1320a-7a(b) .....	.....	OIG	Penalty for payments by a hospital or critical access hospital to induce a physician to reduce or limit services to individuals under direct care of physician or who are entitled to certain medical assistance benefits.	2022	5,606	6,040

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
		OIG	Penalty for physicians who knowingly receive payments from a hospital or critical access hospital to induce such physician to reduce or limit services to individuals under direct care of physician or who are entitled to certain medical assistance benefits.	2022	5,606	6,040
	42 CFR 1003.210(a)(10)	OIG	Penalty for a physician who executes a document that falsely certifies home health needs for Medicare beneficiaries.	2022	11,213	12,081
1320a-7a(o) .....	.....	OIG	Penalty for knowingly presenting or causing to be presented a false or fraudulent specified claim under a grant, contract, or other agreement for which the Secretary provides funding.	2022	10,937	11,784
		OIG	Penalty for knowingly making, using, or causing to be made or used any false statement, omission, or misrepresentation of a material fact in any application, proposal, bid, progress report, or other document required to directly or indirectly receive or retain funds provided pursuant to grant, contract, or other agreement.	2022	54,686	58,921
		OIG	Penalty for Knowingly making, using, or causing to be made or used, a false record or statement material to a false or fraudulent specified claim under grant, contract, or other agreement.	2022	54,686	58,921
		OIG	Penalty for knowingly making, using, or causing to be made or used, a false record or statement material to an obligation to pay or transmit funds or property with respect to grant, contract, or other agreement, or knowingly conceals or improperly avoids or decreases any such obligation.	2022	53,772 each false record or statement, 10,754 per day	61,458 each false record or statement, 12,308 per day
		OIG	Penalty for failure to grant timely access, upon reasonable request, to the I.G. for purposes of audits, investigations, evaluations, or other statutory functions of I.G. in matters involving grants, contracts, or other agreements.	2022	16,406	17,677
1320a-7e(b)(6)(A)	42 CFR 1003.810	OIG	Penalty for failure to report any final adverse action taken against a health care provider, supplier, or practitioner.	2022	42,788	46,102
1320b-10(b)(1)	42 CFR 1003.610(a)	OIG	Penalty for the misuse of words, symbols, or emblems in communications in a manner in which a person could falsely construe that such item is approved, endorsed, or authorized by HHS.	2022	11,506	12,397
1320b-10(b)(2)	42 CFR 1003.610(a)	OIG	Penalty for the misuse of words, symbols, or emblems in a broadcast or telecast in a manner in which a person could falsely construe that such item is approved, endorsed, or authorized by HHS.	2022	57,527	61,982
1395i-3(b)(3)(B)(ii)(1)	42 CFR 1003.210(a)(11)	OIG	Penalty for certification of a false statement in assessment of functional capacity of a Skilled Nursing Facility resident assessment.	2022	2,400	2,586
1395i-3(b)(3)(B)(ii)(2)	42 CFR 1003.210(a)(11)	OIG	Penalty for causing another to certify or make a false statement in assessment of functional capacity of a Skilled Nursing Facility resident assessment.	2022	11,995	12,924

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1395i-3(g)(2)(A)	42 CFR 1003.1310	OIG	Penalty for any individual who notifies or causes to be notified a Skilled Nursing Facility of the time or date on which a survey is to be conducted.	2022	4,799	5,171
1395w-27(g)(2)(A)	42 CFR 1003.410	OIG	Penalty for a Medicare Advantage organization that substantially fails to provide medically necessary, required items and services.	2022	43,678	47,061
		OIG	Penalty for a Medicare Advantage organization that charges excessive premiums.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization that improperly expels or refuses to reenroll a beneficiary.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization that engages in practice that would reasonably be expected to have the effect of denying or discouraging enrollment.	2022	171,156	184,412
		OIG	Penalty per individual who does not enroll as a result of a Medicare Advantage organization's practice that would reasonably be expected to have the effect of denying or discouraging enrollment.	2022	25,673	27,661
		OIG	Penalty for a Medicare Advantage organization misrepresenting or falsifying information to Secretary.	2022	171,156	184,412
		OIG	Penalty for a Medicare Advantage organization misrepresenting or falsifying information to individual or other entity.	2022	42,788	46,102
		OIG	Penalty for Medicare Advantage organization interfering with provider's advice to enrollee and non-MCO affiliated providers that balance bill enrollees.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization that employs or contracts with excluded individual or entity.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization enrolling an individual in without prior written consent.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization transferring an enrollee to another plan without consent or solely for the purpose of earning a commission.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization failing to comply with marketing restrictions or applicable implementing regulations or guidance.	2022	42,788	46,102
		OIG	Penalty for a Medicare Advantage organization employing or contracting with an individual or entity who violates 1395w-27(g)(1)(A)-(J).	2022	42,788	46,102
		1395w-141(i)(3)	OIG	Penalty for a prescription drug card sponsor that falsifies or misrepresents marketing materials, overcharges program enrollees, or misuse transitional assistance funds.	2022	14,950	16,108
1395cc(g)	42 CFR 1003.210(a)(5) ...	OIG	Penalty for improper billing by Hospitals, Critical Access Hospitals, or Skilled Nursing Facilities.	2022	5,816	6,266
1395dd(d)(1)	42 CFR 1003.510	OIG	Penalty for a hospital with 100 beds or more or responsible physician dumping patients needing emergency medical care.	2022	119,942	129,232
1395dd(d)(1)	42 CFR 1003.510	OIG	Penalty for a hospital with less than 100 beds dumping patients needing emergency medical care.	2022	59,973	64,618
			Penalty for a HMO or competitive medical plan if such plan substantially fails to provide medically necessary, required items or services.	2022	59,973	64,618

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
		OIG	Penalty for HMOs/competitive medical plans that charge premiums in excess of permitted amounts.	2022	59,973	64,618
		OIG	Penalty for a HMO or competitive medical plan that expels or refuses to reenroll an individual per prescribed conditions.	2022	59,973	64,618
		OIG	Penalty for a HMO or competitive medical plan that implements practices to discourage enrollment of individuals needing services in future.	2022	239,885	258,464
		OIG	Penalty per individual not enrolled in a plan as a result of a HMO or competitive medical plan that implements practices to discourage enrollment of individuals needing services in the future.	2022	34,517	37,190
		OIG	Penalty for a HMO or competitive medical plan that misrepresents or falsifies information to the Secretary.	2022	239,885	258,464
		OIG	Penalty for a HMO or competitive medical plan that misrepresents or falsifies information to an individual or any other entity.	2022	59,973	64,618
		OIG	Penalty for failure by HMO or competitive medical plan to assure prompt payment of Medicare risk sharing contracts or incentive plan provisions.	2022	59,973	64,618
		OIG	Penalty for HMO that employs or contracts with excluded individual or entity.	2022	55,052	59,316
1395nn(g)(3)	42 CFR 1003.310	OIG	Penalty for submitting or causing to be submitted claims in violation of the Stark Law's restrictions on physician self-referrals.	2022	27,750	29,899
1395nn(g)(4)	42 CFR 1003.310	OIG	Penalty for circumvention schemes in violation of the Stark Law's restrictions on physician self-referrals.	2022	185,009	199,338
1395ss(d)(1)	42 CFR 1003.1110	OIG	Penalty for a material misrepresentation regarding Medigap compliance policies.	2022	11,506	12,397
1395ss(d)(2)	42 CFR 1003.1110	OIG	Penalty for selling Medigap policy under false pretense.	2022	11,506	12,397
1395ss(d)(3)(A)(ii)	42 CFR 1003.1110	OIG	Penalty for an issuer that sells health insurance policy that duplicates benefits.	2022	51,796	55,808
		OIG	Penalty for someone other than issuer that sells health insurance that duplicates benefits.	2022	31,076	33,483
1395ss(d)(4)(A)	42 CFR 1003.1110	OIG	Penalty for using mail to sell a non-approved Medigap insurance policy.	2022	11,506	12,397
1396b(m)(5)(B)(i)	42 CFR 1003.410	OIG	Penalty for a Medicaid MCO that substantially fails to provide medically necessary, required items or services.	2022	57,527	61,982
		OIG	Penalty for a Medicaid MCO that charges excessive premiums.	2022	57,527	61,982
		OIG	Penalty for a Medicaid MCO that improperly expels or refuses to reenroll a beneficiary.	2022	230,107	247,929
		OIG	Penalty per individual who does not enroll as a result of a Medicaid MCO's practice that would reasonably be expected to have the effect of denying or discouraging enrollment.	2022	34,517	37,190
		OIG	Penalty for a Medicaid MCO misrepresenting or falsifying information to the Secretary.	2022	230,107	247,929
		OIG	Penalty for a Medicaid MCO misrepresenting or falsifying information to an individual or another entity.	2022	57,527	61,982
		OIG	Penalty for a Medicaid MCO that fails to comply with contract requirements with respect to physician incentive plans.	2022	51,796	55,808

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1396r(b)(3)(B)(ii)(I)	42 CFR 1003.210(a)(11)	OIG	Penalty for willfully and knowingly certifying a material and false statement in a Skilled Nursing Facility resident assessment.	2022	2,400	2,586
1396r(b)(3)(B)(ii)(II)	42 CFR 1003.210(a)(11)	OIG	Penalty for willfully and knowingly causing another individual to certify a material and false statement in a Skilled Nursing Facility resident assessment.	2022	11,995	12,924
1396r(g)(2)(A)(i)	42 CFR 1003.1310	OIG	Penalty for notifying or causing to be notified a Skilled Nursing Facility of the time or date on which a survey is to be conducted.	2022	4,799	5,171
1396r-8(b)(3)(B)	42 CFR 1003.1210	OIG	Penalty for the knowing provision of false information or refusing to provide information about charges or prices of a covered outpatient drug.	2022	207,183	223,229
1396r-8(b)(3)(C)(i)	42 CFR 1003.1210	OIG	Penalty per day for failure to timely provide information by drug manufacturer with rebate agreement.	2022	20,719	22,324
1396r-8(b)(3)(C)(ii)	42 CFR 1003.1210	OIG	Penalty for knowing provision of false information by drug manufacturer with rebate agreement.	2022	207,183	223,229
1396t(i)(3)(A)	42 CFR 1003.1310	OIG	Penalty for notifying home and community-based providers or settings of survey.	2022	4,144	4,465
11131(c)	42 CFR 1003.810	OIG	Penalty for failing to report a medical malpractice claim to National Practitioner Data Bank.	2022	25,076	27,018
11137(b)(2)	42 CFR 1003.810	OIG	Penalty for breaching confidentiality of information reported to National Practitioner Data Bank.	2022	25,076	27,018
299b-22(f)(1)	42 CFR 3.404	OCR	Penalty for violation of confidentiality provision of the Patient Safety and Quality Improvement Act.	2022	13,885	14,960
	45 CFR 160.404(b)(1)(i), (ii).	OCR	Penalty for each pre-February 18, 2009 violation of the HIPAA administrative simplification provisions.	2022	174	187
			Calendar Year Cap	2022	43,678	47,061
1320(d)-5(a)	45 CFR 160.404(b)(2)(i)(A), (B).	OCR	Penalty for each February 18, 2009 or later violation of a HIPAA administrative simplification provision in which it is established that the covered entity or business associate did not know and, by exercising reasonable diligence, would not have known that the covered entity or business associate violated such a provision:	2022		
			Minimum	2022	127	137
			Maximum	2022	63,973	68,928
			Calendar Year Cap	2022	1,919,173	2,067,813
	45 CFR 160.404(b)(2)(ii)(A), (B).	OCR	Penalty for each February 18, 2009 or later violation of a HIPAA administrative simplification provision in which it is established that the violation was due to reasonable cause and not to willful neglect:	2022		
			Minimum	2022	1,280	1,379
			Maximum	2022	63,973	68,928
			Calendar Year Cap	2022	1,919,173	2,067,813
	45 CFR 160.404(b)(2)(iii)(A), (B).	OCR	Penalty for each February 18, 2009 or later violation of a HIPAA administrative simplification provision in which it is established that the violation was due to willful neglect and was corrected during the 30-day period beginning on the first date the covered entity or business associate knew, or, by exercising reasonable diligence, would have known that the violation occurred:	2022		
			Minimum	2022	12,794	13,785
			Maximum	2022	63,973	68,928
			Calendar Year Cap	2022	1,919,173	2,067,813

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
	45 CFR 160.404(b)(2)(iv)(A), (B).	OCR	Penalty for each February 18, 2009 or later violation of a HIPAA administrative simplification provision in which it is established that the violation was due to willful neglect and was not corrected during the 30-day period beginning on the first date the covered entity or business associate knew, or, by exercising reasonable diligence, would have known that the violation occurred:	2022	.....	.....
			Minimum	2022	63,973	68,928
			Maximum	2022	1,919,173	2,067,813
			Calendar Year Cap	2022	1,919,173	2,067,813
42 U.S.C. 300gg–18, 42 U.S.C. 1302.	45 CFR 180.90	CMS	Penalty for a hospital's non-compliance with making public standard charges for hospital items and services.	2022	300	323
	45 CFR 180.90(c)(2)(i)	CMS	Per Day (Maximum)	2022	5,500	5,926
			Per day penalty for a hospital's non-compliance with making public standard charges for hospital items and services.	2022	304	328
	45 CFR 180.90(c)(2)(ii)(A).	CMS	Per day penalty for hospitals with equal to or less than 30 beds.	2022	300	323
	45 CFR 180.90(c)(2)(ii)(B).	CMS	Per day, per bed penalty for hospitals having at least 31 and up to and including 550 beds.	2022	10	11
	45 CFR 180.90(c)(2)(ii)(C).	CMS	Per day penalty for hospitals having greater than 550 beds.	2022	5,500	5,926
CARES Act, Public Law 116–136, section 3202(b)(2).	45 CFR 182.70	CMS	Penalty for a provider's non-compliance with price transparency requirements regarding diagnostic tests for COVID–19.	2022	.....	.....
			Per Day (Maximum)	2022	300	323
263a(h)(2)(B) & 1395w–2(b)(2)(A)(ii).	42 CFR 493.1834(d)(2)(i).	CMS	Penalty for a clinical laboratory's failure to meet participation and certification requirements and poses immediate jeopardy:	2022	.....	.....
			Minimum	2022	7,018	7,562
			Maximum	2022	23,011	24,793
	42 CFR 493.1834(d)(2)(ii)	CMS	Penalty for a clinical laboratory's failure to meet participation and certification requirements and the failure does not pose immediate jeopardy:	2022	.....	.....
			Minimum	2022	116	125
			Maximum	2022	6,902	7,437
	42 CFR 493.1834(d)(2)(iii).	CMS	Penalty for a clinical laboratory's failure to meet SARS–CoV–2 test reporting requirements:	2022	.....	.....
			First day of noncompliance	2022	.....	.....
			Each additional day of noncompliance	2022	.....	.....
300gg–15(f)	45 CFR 147.200(e)	CMS	Failure to provide the Summary of Benefits and Coverage.	2022	1,264	1,362
300gg–18	45 CFR 158.606	CMS	Penalty for violations of regulations related to the medical loss ratio reporting and rebating.	2022	126	136
	45 CFR 180.90	CMS	Price against hospital identified by CMS as noncompliant according to § 182.50 with respect to price transparency requirements regarding diagnostic tests for COVID–19.	2022	.....	.....
42 U.S.C. 300gg–118 note, 300gg–134.	.....	CMS	Penalties for failure to comply with No Surprises Act requirements on providers, facilities, providers of air ambulance services.	2022	10,622	11,445
1320a–7h(b)(1)	42 CFR 402.105(d)(5), 42 CFR 403.912(a) & (c).	CMS	Penalty for manufacturer or group purchasing organization failing to report information required under 42 U.S.C. 1320a–7h(a), relating to physician ownership or investment interests:	2022	.....	.....
			Minimum	2022	1,264	1,362
			Maximum	2022	12,646	13,625
			Calendar Year Cap	2022	189,692	204,384

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1320a–7h(b)(2)	42 CFR 402.105(h), 42 CFR 403.912(b) & (c).	CMS	Penalty for manufacturer or group purchasing organization knowingly failing to report information required under 42 U.S.C. 1320a–7h(a), relating to physician ownership or investment interests:	2022	.....	.....
			Minimum	2022	12,646	13,625
			Maximum	2022	126,463	136,258
			Calendar Year Cap	2022	1,264,622	1,362,567
		CMS	Penalty for an administrator of a facility that fails to comply with notice requirements for the closure of a facility.	2022	126,463	136,258
1320a–7j(h)(3)(A)	42 CFR 488.446(a)(1), (2), & (3).	CMS	Minimum penalty for the first offense of an administrator who fails to provide notice of facility closure.	2022	632	681
			Minimum penalty for the second offense of an administrator who fails to provide notice of facility closure.	2022	1,898	2,045
			Minimum penalty for the third and subsequent offenses of an administrator who fails to provide notice of facility closure.	2022	3,793	4,087
1320a–8(a)(1) .....	.....	CMS	Penalty for an entity knowingly making a false statement or representation of material fact in the determination of the amount of benefits or payments related to old-age, survivors, and disability insurance benefits, special benefits for certain World War II veterans, or supplemental security income for the aged, blind, and disabled.	2022	9,250	9,966
			Penalty for violation of 42 U.S.C. 1320a–8(a)(1) if the violator is a person who receives a fee or other income for services performed in connection with determination of the benefit amount or the person is a physician or other health care provider who submits evidence in connection with such a determination.	2022	8,723	9,399
1320a–8(a)(3) .....	.....	CMS	Penalty for a representative payee (under 42 U.S.C. 405(j), 1007, or 1383(a)(2)) converting any part of a received payment from the benefit programs described in the previous civil monetary penalty to a use other than for the benefit of the beneficiary.	2022	7,244	7,805
1320b–25(c)(1)(A) .....	.....	CMS	Penalty for failure of covered individuals to report to the Secretary and 1 or more law enforcement officials any reasonable suspicion of a crime against a resident, or individual receiving care, from a long-term care facility.	2022	252,925	272,514
1320b–25(c)(2)(A) .....	.....	CMS	Penalty for failure of covered individuals to report to the Secretary and 1 or more law enforcement officials any reasonable suspicion of a crime against a resident, or individual receiving care, from a long-term care facility if such failure exacerbates the harm to the victim of the crime or results in the harm to another individual.	2022	379,386	408,769
1320b–25(d)(2) .....	.....	CMS	Penalty for a long-term care facility that retaliates against any employee because of lawful acts done by the employee, or files a complaint or report with the State professional disciplinary agency against an employee or nurse for lawful acts done by the employee or nurse.	2022	252,925	272,514

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴	
1395b–7(b)(2)(B)	42 CFR 402.105(g)	CMS	Penalty for any person who knowingly and willfully fails to furnish a beneficiary with an itemized statement of items or services within 30 days of the beneficiary's request.	2022	171	184	
1395i–3(h)(2)(B)(ii)(I)	42 CFR 488.408(d)(1)(iii)	CMS	Penalty per day for a Skilled Nursing Facility that has a Category 2 violation of certification requirements:	Minimum	2022	120	129
				Maximum	2022	7,195	7,752
	42 CFR 488.408(d)(1)(iv)	CMS	Penalty per instance of Category 2 noncompliance by a Skilled Nursing Facility:	Minimum	2022	2,400	2,586
				Maximum	2022	23,989	25,847
	42 CFR 488.408(e)(1)(iii)	CMS	Penalty per day for a Skilled Nursing Facility that has a Category 3 violation of certification requirements:	Minimum	2022	7,317	7,884
				Maximum	2022	23,989	25,847
	42 CFR 488.408(e)(1)(iv)	CMS	Penalty per instance of Category 3 noncompliance by a Skilled Nursing Facility:	Minimum	2022	2,400	2,586
				Maximum	2022	23,989	25,847
	42 CFR 488.408(e)(2)(ii)	CMS	Penalty per day and per instance for a Skilled Nursing Facility that has Category 3 noncompliance with Immediate Jeopardy:	Per Day (Minimum)	2022	7,317	7,884
				Per Day (Maximum)	2022	23,989	25,847
				Per Instance (Minimum)	2022	2,400	2,586
				Per Instance (Maximum)	2022	23,989	25,847
	42 CFR 488.438(a)(1)(i)	CMS	Penalty per day of a Skilled Nursing Facility that fails to meet certification requirements. These amounts represent the upper range per day:	Minimum	2022	7,317	7,884
				Maximum	2022	23,989	25,847
42 CFR 488.438(a)(1)(ii)	CMS	Penalty per day of a Skilled Nursing Facility that fails to meet certification requirements. These amounts represent the lower range per day:	Minimum	2022	120	129	
			Maximum	2022	7,195	7,752	
42 CFR 488.438(a)(2)	CMS	Penalty per instance of a Skilled Nursing Facility that fails to meet certification requirements:	Minimum	2022	2,400	2,586	
			Maximum	2022	23,989	25,847	
42 CFR 488.447	CMS	Penalty imposed for failure to comply with infection control weekly reporting requirements at 42 CFR 483.80(g)(1) and (2).	First occurrence	2022	1,075	1,158	
			Incremental increases for each subsequent occurrence.	2022	537	579	
1395i–6(c)(5)(B)(i)	42 CFR 488.1245	CMS	Penalty for noncompliance by hospice program with requirements specified in section 1395x(dd) of 42 USC.	2022	10,000	10,775	
	42 CFR 488.1245(b)(2)(iii).	CMS	Adjustment to penalties. Maximum penalty assessment for each day a hospice is not in substantial compliance with one or more conditions of participation.	2022	10,000	10,775	
	42 CFR 488.1245(b)(3)	CMS	Penalty imposed for hospice condition-level deficiency that is immediate jeopardy. These amounts represent the upper range of penalty.	Minimum	2022	8,500	9,158
				Maximum	2022	10,000	10,775
42 CFR 488.1245(b)(3)(i)	CMS	Penalty imposed for hospice condition-level deficiency that is immediate jeopardy. These amounts represent the upper range of penalty.	2022	10,000	10,775		

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
	42 CFR 488.1245(b)(3)(ii)	CMS	Penalty imposed for hospice condition-level deficiency that is immediate jeopardy. These amounts represent the upper range of penalty.	2022	9,000	9,697
	42 CFR 488.1245(b)(3)(iii).	CMS	Penalty imposed for hospice condition-level deficiency that is immediate jeopardy. These amounts represent the upper range of penalty.	2022	8,500	9,158
	42 CFR 488.1245(b)(4) ...	CMS	Penalty imposed for hospice repeat or condition-level deficiency or both that does not constitute immediate jeopardy but is directly related to poor quality patient care outcomes. These amounts represent the middle range of penalty.	2022	.....	.....
			Minimum	2022	1,500	1,616
			Maximum	2022	8,500	9,158
	42 CFR 488.1245(b)(5) ...	CMS	Penalty imposed for hospice repeat or condition-level deficiency or both that does not constitute immediate jeopardy and are related predominantly to structure or process-oriented conditions rather than directly related to patient outcomes. These amounts represent the lower range of penalty.	2022	.....	.....
			Minimum	2022	500	539
			Maximum	2022	4,000	4,310
	42 CFR 488.1245(b)(6) ...	CMS	Penalty range imposed for per instance of hospice noncompliance.	2022	.....	.....
		CMS	Minimum	2022	1,000	1,077
		CMS	Maximum	2022	10,000	10,775
	42 CFR 488.1245(d)(1)(ii)	CMS	Penalty for each per instance of hospice noncompliance, maximum per day per hospice program.	2022	10,000	10,775
1395(h)(5)(D)	42 CFR 402.105(d)(2)(i)	CMS	Penalty for knowingly, willfully, and repeatedly billing for a clinical diagnostic laboratory test other than on an assignment-related basis. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395(i)(6) .....	.....	CMS	Penalty for knowingly and willfully presenting or causing to be presented a bill or request for payment for an intraocular lens inserted during or after cataract surgery for which the Medicare payment rate includes the cost of acquiring the class of lens involved.	2022	4,603	4,960
1395(q)(2)(B)(i)	42 CFR 402.105(a)	CMS	Penalty for knowingly and willfully failing to provide information about a referring physician when seeking payment on an unassigned basis.	2022	4,404	4,745
1395m(a)(11)(A)	42 CFR 402.1(c)(4), 402.105(d)(2)(ii).	CMS	Penalty for any durable medical equipment supplier that knowingly and willfully charges for a covered service that is furnished on a rental basis after the rental payments may no longer be made. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395m(a)(18)(B)	42 CFR 402.1(c)(5), 402.105(d)(2)(iii).	CMS	Penalty for any nonparticipating durable medical equipment supplier that knowingly and willfully fails to make a refund to Medicare beneficiaries for a covered service for which payment is precluded due to an unsolicited telephone contact from the supplier. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1395m(b)(5)(C)	42 CFR 402.1(c)(6), 402.105(d)(2)(iv).	CMS	Penalty for any nonparticipating physician or supplier that knowingly and willfully charges a Medicare beneficiary more than the limiting charge for radiologist services. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a–7a(a)).	2022	17,472	18,825
1395m(h)(3)	42 CFR 402.1(c)(8), 402.105(d)(2)(vi).	CMS	Penalty for any supplier of prosthetic devices, orthotics, and prosthetics that knowingly and willfully charges for a covered prosthetic device, orthotic, or prosthetic that is furnished on a rental basis after the rental payment may no longer be made. (Penalties are assessed in the same manner as 42 U.S.C. 1395m(a)(11)(A), that is in the same manner as 1395u(j)(2)(B), which is assessed according to 1320a–7a(a)).	2022	17,472	18,825
1395m(j)(2)(A)(iii) .....	.....	CMS	Penalty for any supplier of durable medical equipment including a supplier of prosthetic devices, prosthetics, orthotics, or supplies that knowingly and willfully distributes a certificate of medical necessity in violation of Section 1834(j)(2)(A)(i) of the Act or fails to provide the information required under Section 1834(j)(2)(A)(ii) of the Act.	2022	1,850	1,993
1395m(j)(4)	42 CFR 402.1(c)(10), 402.105(d)(2)(vii).	CMS	Penalty for any supplier of durable medical equipment, including a supplier of prosthetic devices, prosthetics, orthotics, or supplies that knowingly and willfully fails to make refunds in a timely manner to Medicare beneficiaries for series billed other than on an assignment-related basis under certain conditions. (Penalties are assessed in the same manner as 42 U.S.C. 1395m(j)(4) and 1395u(j)(2)(B), which is assessed according to 1320a–7a(a)).	2022	17,472	18,825
1395m–1(a)	42 CFR 414.504(e)	CMS	Penalty for an applicable entity that has failed to report or made a misrepresentation or omission in reporting applicable information with respect to a clinical diagnostic laboratory test.	2022	11,649	12,551
	42 CFR 402.1(c)(31), 402.105(d)(3).	CMS	Penalty for any person or entity who knowingly and willfully bills or collects for any outpatient therapy services or comprehensive outpatient rehabilitation services on other than an assignment-related basis. (Penalties are assessed in the same manner as 42 U.S.C. 1395m(k)(6) and 1395u(j)(2)(B), which is assessed according to 1320a–7a(a)).	2022	17,472	18,825
1395m(l)(6)	42 CFR 402.1(c)(32), 402.105(d)(4).	CMS	Penalty for any supplier of ambulance services who knowingly and willfully fills or collects for any services on other than an assignment-related basis. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(b)(18)(B), which is assessed according to 1320a–7a(a)).	2022	17,472	18,825

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1395u(b)(18)(B)	42 CFR 402.1(c)(11), 402.105(d)(2)(viii).	CMS	Penalty for any practitioner specified in Section 1842(b)(18)(C) of the Act or other person that knowingly and willfully bills or collects for any services by the practitioners on other than an assignment-related basis. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395u(j)(2)(B)	42 CFR 402.1(c)	CMS	Penalty for any physician who charges more than 125% for a non-participating referral. (Penalties are assessed in the same manner as 42 U.S.C. 1320a-7a(a)).	2022	17,472	18,825
1395u(k)	42 CFR 402.1(c)(12), 402.105(d)(2)(ix), 1834A(a)(9) and 42 CFR 414.504(e).	CMS	Penalty for any physician who knowingly and willfully presents or causes to be presented a claim for bill for an assistant at a cataract surgery performed on or after March 1, 1987, for which payment may not be made because of section 1862(a)(15). (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395u(l)(3)	42 CFR 402.1(c)(13), 402.105(d)(2)(x).	CMS	Penalty for any nonparticipating physician who does not accept payment on an assignment-related basis and who knowingly and willfully fails to refund on a timely basis any amounts collected for services that are not reasonable or medically necessary or are of poor quality under 1842(l)(1)(A). (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395u(m)(3)	42 CFR 402.1(c)(14), 402.105(d)(2)(xi).	CMS	Penalty for any nonparticipating physician charging more than \$500 who does not accept payment for an elective surgical procedure on an assignment related basis and who knowingly and willfully fails to disclose the required information regarding charges and coinsurance amounts and fails to refund on a timely basis any amount collected for the procedure in excess of the charges recognized and approved by the Medicare program. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395u(n)(3)	42 CFR 402.1(c)(15), 402.105(d)(2)(xii).	CMS	Penalty for any physician who knowingly, willfully, and repeatedly bills one or more beneficiaries for purchased diagnostic tests any amount other than the payment amount specified by the Act. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395u(o)(3)(B)	42 CFR 414.707(b)	CMS	Penalty for any practitioner specified in Section 1842(b)(18)(C) of the Act or other person that knowingly and willfully bills or collects for any services pertaining to drugs or biologics by the practitioners on other than an assignment-related basis. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(b)(18)(B) and 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1395u(p)(3)(A) .....	.....	CMS	Penalty for any physician or practitioner who knowingly and willfully fails promptly to provide the appropriate diagnosis codes upon CMS or Medicare administrative contractor request for payment or bill not submitted on an assignment-related basis.	2022	4,603	4,960
1395w-3a(d)(4)(A)	42 CFR 414.806	CMS	Penalty for a pharmaceutical manufacturer's misrepresentation of average sales price of a drug, or biologic.	2022	14,950	16,108
1395w-4(g)(1)(B)	42 CFR 402.1(c)(17), 402.105(d)(2)(xii).	CMS	Penalty for any nonparticipating physician, supplier, or other person that furnishes physician services not on an assignment-related basis who either knowingly and willfully bills or collects in excess of the statutorily-defined limiting charge or fails to make a timely refund or adjustment. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395w-4(g)(3)(B)	42 CFR 402.1(c)(18), 402.105(d)(2)(xiv).	CMS	Penalty for any person that knowingly and willfully bills for statutorily defined State-plan approved physicians' services on any other basis than an assignment-related basis for a Medicare/Medicaid dual eligible beneficiary. (Penalties are assessed in the same manner as 42 U.S.C. 1395u(j)(2)(B), which is assessed according to 1320a-7a(a)).	2022	17,472	18,825
1395w-27(g)(3)(A); 1857(g)(3); 1860D-12(b)(3)(E).	42 CFR 422.760(b); 42 CFR 423.760(b).	CMS	Penalty for each termination determination the Secretary makes that is the result of actions by a Medicare Advantage organization or Part D sponsor that has adversely affected (or has the substantial likelihood of adversely affecting) an individual covered under the organization's contract.	2022	42,788	46,102
1395w-27(g)(3)(B); 1857(g)(3); 1860D-12(b)(3)(E).	.....	CMS	Penalty for each week beginning after the initiation of civil money penalty procedures by the Secretary because a Medicare Advantage organization or Part D sponsor has failed to carry out a contract, or has carried out a contract inconsistently with regulations.	2022	17,116	18,442
1395w-27(g)(3)(D); 1857(g)(3); 1860D-12(b)(3)(E).	.....	CMS	Penalty for a Medicare Advantage organization's or Part D sponsor's early termination of its contract.	2022	158,947	171,257
1395y(b)(3)(C)	42 CFR 411.103(b)	CMS	Penalty for an employer or other entity to offer any financial or other incentive for an individual entitled to benefits not to enroll under a group health plan or large group health plan which would be a primary plan.	2022	10,360	11,162
1395y(b)(5)(C)(ii)	42 CFR 402.1(c)(20), 42 CFR 402.105(b)(2).	CMS	Penalty for any non-governmental employer that, before October 1, 1998, willfully or repeatedly failed to provide timely and accurate information requested relating to an employee's group health insurance coverage.	2022	1,687	1,818
1395y(b)(6)(B)	42 CFR 402.1(c)(21), 402.105(a).	CMS	Penalty for any entity that knowingly, willfully, and repeatedly fails to complete a claim form relating to the availability of other health benefits in accordance with statute or provides inaccurate information relating to such on the claim form.	2022	3,701	3,988

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
1395y(b)(7)(B)(i) .....	.....	CMS	Penalty for any entity serving as insurer, third party administrator, or fiduciary for a group health plan that fails to provide information that identifies situations where the group health plan is or was a primary plan to Medicare to the HHS Secretary.	2022	1,325	1,428
1395y(b)(8)(E) .....	.....	CMS	Penalty for any non-group health plan that fails to identify claimants who are Medicare beneficiaries and provide information to the HHS Secretary to coordinate benefits and pursue any applicable recovery claim.	2022	1,325	1,428
1395nn(g)(5)	42 CFR 411.361	CMS	Penalty for any person that fails to report information required by HHS under Section 1877(f) concerning ownership, investment, and compensation arrangements.	2022	22,021	23,727
1395pp(h)	42 CFR 402.1(c)(23), 402.105(d)(2)(xv).	CMS	Penalty for any durable medical equipment supplier, including a supplier of prosthetic devices, prosthetics, orthotics, or supplies, that knowingly and willfully fails to make refunds in a timely manner to Medicare beneficiaries under certain conditions. (42 U.S.C. 1395(m)(18) sanctions apply here in the same manner, which is under 1395u(j)(2) and 1320a-7a(a)).	2022	17,472	18,825
1395ss(a)(2)	402.102(f)(1)	CMS	Penalty for any person that issues a Medicare supplemental policy that has not been approved by the State regulatory program or does not meet Federal standards after a statutorily defined effective date.	2022	59,972	64,617
1395ss(d)(3)(A)(vi)(II)	42 CFR 402.1(c)(25), 402.105(e), 402.105(f)(2).	CMS	Penalty for someone other than issuer that sells or issues a Medicare supplemental policy to beneficiary without a disclosure statement.	2022	31,076	33,483
		CMS	Penalty for an issuer that sells or issues a Medicare supplemental policy without disclosure statement.	2022	51,796	55,808
1395ss(d)(3)(B)(iv) .....	.....	CMS	Penalty for someone other than issuer that sells or issues a Medicare supplemental policy without acknowledgement form.	2022	31,076	33,483
		CMS	Penalty for issuer that sells or issues a Medicare supplemental policy without an acknowledgement form.	2022	51,796	55,808
1395ss(p)(8)	42 CFR 402.1(c)(25), 402.105(e).	CMS	Penalty for someone other than issuer that sells or issues Medicare supplemental policies after a given date that fail to conform to the NAIC or Federal standards established by statute.	2022	31,076	33,483
	42 CFR 402.1(c)(25), 405402.105(f)(2).	CMS	Penalty for an issuer that sells or issues Medicare supplemental policies after a given date that fail to conform to the NAIC or Federal standards established by statute.	2022	51,796	55,808
1395ss(p)(9)(C)	42 CFR 402.1(c)(26), 402.105(e), 402.105(f)(3), (4).	CMS	Penalty for someone other than issuer that sells a Medicare supplemental policy and fails to make available for sale the core group of basic benefits when selling other Medicare supplemental policies with additional benefits or fails to provide the individual, before selling the policy, an outline of coverage describing benefits.	2022	31,076	33,483

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
	402.105(f)(3), (4)	CMS	Penalty for an issuer that sells a Medicare supplemental policy and fails to make available for sale the core group of basic benefits when selling other Medicare supplemental policies with additional benefits or fails to provide the individual, before selling the policy, an outline of coverage describing benefits.	2022	51,796	55,808
1395ss(q)(5)(C)	402.105(f)(5)	CMS	Penalty for any person that fails to suspend the policy of a policyholder made eligible for medical assistance or automatically reinstates the policy of a policyholder who has lost eligibility for medical assistance, under certain circumstances.	2022	51,796	55,808
1395ss(r)(6)(A)	402.105(f)(6)	CMS	Penalty for any person that fails to provide refunds or credits as required by section 1882(r)(1)(B).	2022	51,796	55,808
1395ss(s)(4)	42 CFR 402.1(c)(29), 402.105(c).	CMS	Penalty for any issuer of a Medicare supplemental policy that does not waive listed time periods if they were already satisfied under a preceding Medicare supplemental policy, or denies a policy, or conditions the issuances or effectiveness of the policy, or discriminates in the pricing of the policy base on health status or other specified criteria.	2022	21,989	23,692
1395ss(t)(2)	42 CFR 402.1(c)(30), 402.105(f)(7).	CMS	Penalty for any issuer of a Medicare supplemental policy that fails to fulfill listed responsibilities.	2022	51,796	55,808
1395ss(v)(4)(A) .....	.....	CMS	Penalty someone other than issuer who sells, issues, or renews a medigap Rx policy to an individual who is a Part D enrollee.	2022	22,426	24,163
		CMS	Penalty for an issuer who sells, issues, or renews a Medigap Rx policy who is a Part D enrollee.	2022	37,377	40,272
1395bbb(c)(1)	42 CFR 488.725(c)	CMS	Penalty for any individual who notifies or causes to be notified a home health agency of the time or date on which a survey of such agency is to be conducted.	2022	4,799	5,171
1395bbb(f)(2)(A)(i)	42 CFR 488.845(b)(2)(iii), 42 CFR 488.845(b)(3)–(6); and 42 CFR 488.845(d)(1)(ii).	CMS	Maximum daily penalty amount for each day a home health agency is not in compliance with statutory requirements.	2022	23,011	24,793
	42 CFR 488.845(b)(3)	CMS	Penalty per day for home health agency's noncompliance (Upper Range):			
			Minimum	2022	19,559	21,074
			Maximum	2022	23,011	24,793
	42 CFR 488.845(b)(3)(i)	CMS	Penalty for a home health agency's deficiency or deficiencies that cause immediate jeopardy and result in actual harm.	2022	23,011	24,793
	42 CFR 488.845(b)(3)(ii)	CMS	Penalty for a home health agency's deficiency or deficiencies that cause immediate jeopardy and result in potential for harm.	2022	20,709	22,313
	42 CFR 488.845(b)(3)(iii)	CMS	Penalty for an isolated incident of non-compliance in violation of established HHA policy.	2022	19,559	21,074
	42 CFR 488.845(b)(4)	CMS	Penalty for a repeat and/or condition-level deficiency that does not constitute immediate jeopardy, but is directly related to poor quality patient care outcomes (Lower Range):			
			Minimum	2022	3,453	3,720
			Maximum	2022	19,559	21,074
	42 CFR 488.845(b)(5)	CMS	Penalty for a repeat and/or condition-level deficiency that does not constitute immediate jeopardy and that is related predominately to structure or process-oriented conditions (Lower Range):			
			Minimum	2022	1,151	1,240

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴	
1395eee(e)(6)(B); 1396u-4(e)(6)(B).	42 CFR 488.845(b)(6)	CMS	Maximum	2022	2,301	2,479	
			Penalty imposed for instance of non-compliance that may be assessed for one or more singular events of condition-level noncompliance that are identified and where the non-compliance was corrected during the onsite survey:	2022			
	42 CFR 488.845(d)(1)(ii)	CMS	Penalty for each day of noncompliance (Minimum).	2022	2,301	2,479	
			Penalty for each day of noncompliance (Maximum).	2022	23,011	24,793	
	1396r(h)(3)(C)(ii)(I)	42 CFR 460.46	CMS	Penalty for PACE organization that discriminates in enrollment or disenrollment, or engages in any practice that would reasonably be expected to have the effect of denying or discouraging enrollment, on the basis of health status or the need for services:	2022	42,788	46,102
				For each individual not enrolled as a result of the PACE organization's discrimination in enrollment or disenrollment or practice that would deny or discourage enrollment.	2022		
			CMS	Minimum	2022	16,121	17,370
				Maximum	2022	107,478	115,802
			CMS	Penalty for a PACE organization that charges excessive premiums.	2022	42,788	46,102
			CMS	Penalty for a PACE organization misrepresenting or falsifying information to CMS or the State.	2022	171,156	184,412
			CMS	Penalty for any other violation specified in 42 C.F.R. 460.40.	2022	42,788	46,102
		42 CFR 488.408(d)(1)(iii)	CMS	Penalty per day for a nursing facility's failure to meet a Category 2 Certification:	2022		
				Minimum	2022	120	129
		42 CFR 488.408(d)(1)(iv)	CMS	Maximum	2022	7,195	7,752
Penalty per instance for a nursing facility's failure to meet Category 2 certification:	2022						
42 CFR 488.408(e)(1)(iii)	CMS	Minimum	2022	2,400	2,586		
		Maximum	2022	23,989	25,847		
42 CFR 488.408(e)(1)(iv)	CMS	Penalty per day for a nursing facility's failure to meet Category 3 certification:	2022				
		Minimum	2022	7,317	7,884		
42 CFR 488.408(e)(2)(ii)	CMS	Maximum	2022	23,989	25,847		
		Penalty per instance for a nursing facility's failure to meet Category 3 certification, which results in immediate jeopardy:	2022				
42 CFR 488.438(a)(1)(i)	CMS	Minimum	2022	2,400	2,586		
		Maximum	2022	23,989	25,847		
42 CFR 488.438(a)(1)(ii)	CMS	Penalty per day for nursing facility's failure to meet certification (Upper Range):	2022				
		Minimum	2022	7,317	7,884		
42 CFR 488.438(a)(2)	CMS	Maximum	2022	23,989	25,847		
		Penalty per instance for nursing facility's failure to meet certification:	2022				
		Minimum	2022	2,400	2,586		
		Maximum	2022	23,989	25,847		

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
	42 CFR 488.447	CMS	Penalty imposed for failure to comply with infection control weekly reporting requirements at 42 CFR 483.80(g)(1) and (2). First occurrence (Minimum)	2022	.....	.....
			Incremental increases for each subsequent occurrence.	2022	1,075	1,158
				2022	537	579
1396r(f)(2)(B)(iii)(l)(c)	42 CFR 483.151(b)(2)(iv) and (b)(3)(iii).	CMS	Grounds to prohibit approval of Nurse Aide Training Program—if assessed a penalty in 1819(h)(2)(B)(i) or 1919(h)(2)(A)(ii) of “not less than \$5,000” [Not CMP authority, but a specific CMP amount (CMP at this level) that is the triggering condition for disapproval].	2022	11,995	12,924
1396r(h)(3)(C)(ii)(l)	42 CFR 483.151(c)(2)	CMS	Grounds to waive disapproval of nurse aide training program—reference to disapproval based on imposition of CMP “not less than \$5,000” [Not CMP authority but CMP imposition at this level determines eligibility to seek waiver of disapproval of nurse aide training program].	2022	11,995	12,924
1396t(j)(2)(C) .....	.....	CMS	Penalty for each day of noncompliance for a home or community care provider that no longer meets the minimum requirements for home and community care: Minimum	2022	.....	.....
			Maximum	2022	2	2
				2022	20,719	22,324
1396u–2(e)(2)(A)(i)	42 CFR 438.704	CMS	Penalty for a Medicaid managed care organization that fails substantially to provide medically necessary items and services.	2022	42,788	46,102
		CMS	Penalty for Medicaid managed care organization that imposes premiums or charges on enrollees in excess of the premiums or charges permitted.	2022	42,788	46,102
		CMS	Penalty for a Medicaid managed care organization that misrepresents or falsifies information to another individual or entity.	2022	42,788	46,102
		CMS	Penalty for a Medicaid managed care organization that fails to comply with the applicable statutory requirements for such organizations.	2022	42,788	46,102
1396u–2(e)(2)(A)(ii)	42 CFR 438.704	CMS	Penalty for a Medicaid managed care organization that misrepresents or falsifies information to the HHS Secretary.	2022	171,156	184,412
		CMS	Penalty for Medicaid managed care organization that acts to discriminate among enrollees on the basis of their health status.	2022	171,156	184,412
1396u–2(e)(2)(A)(iv)	42 CFR 438.704	CMS	Penalty for each individual that does not enroll as a result of a Medicaid managed care organization that acts to discriminate among enrollees on the basis of their health status.	2022	25,673	27,661
1396u(h)(2)	42 CFR Part 441, Subpart I.	CMS	Penalty for a provider not meeting one of the requirements relating to the protection of the health, safety, and welfare of individuals receiving community supported living arrangements services.	2022	23,989	25,847
1396w–2(c)(1)	42 U.S.C. 300gg–22(b)(2)(C)(i) 45 CFR 150.315.	CMS	Penalty for each day, for each individual affected by the failure of a health insurance issuer or non-Federal governmental group health plan to comply with federal market reform provisions in part A or D of title XXVII of the PHS Act | 2022 | 174 | 177.	2022	12,794	13,785

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
42 U.S.C. 300gg–22(b)(2)(C)(i)	45 CFR 150.315	CMS	Penalty for each day, for each individual affected by the failure of a health insurance issuer or non-Federal governmental group health plan to comply with federal market reform provisions in part A or D of title XXVII of the PHS Act.	2022	174	177
18041(c)(2)	45 CFR 156.805(c)	CMS	Failure to comply with ACA requirements related to risk adjustment, reinsurance, risk corridors, Exchanges (including QHP standards) and other ACA Subtitle D standards; Penalty for violations of rules or standards of behavior associated with issuer compliance with risk adjustment, reinsurance, risk corridors, Exchanges (including QHP standards) and other ACA Subtitle D standards.	2022	174	187
18081(h)(1)(A)(i)(II)	45 CFR 155.285	CMS	Penalty for providing false information on Exchange application.	2022	31,616	34,065
18081(h)(1)(B)	45 CFR 155.285	CMS	Penalty for knowingly or willfully providing false information on Exchange application.	2022	316,155	340,641
18081(h)(2)	45 CFR 155.260	CMS	Penalty for knowingly or willfully disclosing protected information from Exchange.	2022	.....	.....
18041(c)(2)	45 CFR 155.206(i)	CMS	Minimum	2022	31,616	34,065
		CMS	Maximum	2022	323	348
		CMS	Penalties for violation of applicable Exchange standards by consumer assistance entities in Federally-facilitated Exchanges.	2022	38,771	41,774
31 U.S.C. 1352	45 CFR 93.400(e)	HHS	Maximum (Per Day)	2022	107	115
			Penalty for the first time an individual makes an expenditure prohibited by regulations regarding lobbying disclosure, absent aggravating circumstances.	2022	323	348
31 U.S.C. 1352	45 CFR 93.400(e)	HHS	Penalty for the first time an individual makes an expenditure prohibited by regulations regarding lobbying disclosure, absent aggravating circumstances.	2022	22,021	23,727
			Penalty for second and subsequent offenses by individuals who make an expenditure prohibited by regulations regarding lobbying disclosure:	2022	.....	.....
			Minimum	2022	22,021	23,727
			Maximum	2022	220,213	237,268
			Penalty for the first time an individual fails to file or amend a lobbying disclosure form, absent aggravating circumstances.	2022	22,021	23,727
			Penalty for second and subsequent offenses by individuals who fail to file or amend a lobbying disclosure form, absent aggravating circumstances:	2022	.....	.....
			Minimum	2022	22,021	23,727
			Maximum	2022	220,213	237,268
			Penalty for failure to provide certification regarding lobbying in the award documents for all sub-awards of all tiers:	2022	.....	.....
			Minimum	2022	22,021	23,727
Maximum	2022	220,213	237,268			
3801–3812	45 CFR 79.3(a)(1)(iv)	HHS	Penalty for failure to provide statement regarding lobbying for loan guarantee and loan insurance transactions:	2022	.....	.....
			Minimum	2022	22,021	23,727
			Maximum	2022	220,213	237,268
3801–3812	45 CFR 79.3(a)(1)(iv)	HHS	Penalty against any individual who— with knowledge or reason to know— makes, presents or submits a false, fictitious or fraudulent claim to the Department.	2022	11,507	12,398
			.....	2022	.....	.....

TABLE 1 TO § 102.3—CIVIL MONETARY PENALTY AUTHORITIES ADMINISTERED BY HHS—Continued

U.S.C. section(s)	CFR ¹	HHS agency	Description ²	Date of last penalty figure or adjustment ³	2022 Maximum adjusted penalty (\$)	2023 Maximum adjusted penalty (\$) ⁴
	45 CFR 79.3(b)(1)(ii)	HHS	Penalty against any individual who— with knowledge or reason to know— makes, presents or submits a false, fictitious or fraudulent claim to the Department.	2022	11,507	12,398

¹ Some HHS components have not promulgated regulations regarding their civil monetary penalty-specific statutory authorities.
² The description is not intended to be a comprehensive explanation of the underlying violation; the statute and corresponding regulation, if applicable, should be consulted.
³ Statutory or Inflation Act Adjustment.
⁴ OMB Memorandum *M-16-06*, Implementation of the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, published February 24, 2016, guided agencies on initial “catch-up” adjustment requirements, and *M-17-11*, Implementation of the 2017 annual adjustment pursuant to the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, published December 16, 2016; followed by *M-18-03*, *M-19-04*, *M-20-05*, *M-21-10*, *M-22-07*, and *M-23-05* guided agencies on annual adjustment requirements.
⁵ *OMB Circular A-136*, Financial Reporting Requirements, Section II.4.9, directs that agencies must make annual inflation adjustments to civil monetary penalties and report on the adjustments in the Agency Financial Report (AFR) or Performance and Accountability Report (PAR).
⁶ Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, § 701(b)(1)(A) (codified as amended at 28 U.S.C. 2461 note).
⁷ Annual inflation adjustments are based on the percent change between each published October’s CPI-U. In this case, October 2022 CPI-U (298.012) / October 2021 CPI-U (276.589) = 1.07745.

Dated: October 2, 2023.
Xavier Becerra,
Secretary, Department of Health and Human Services.
 [FR Doc. 2023-22264 Filed 10-5-23; 8:45 am]
BILLING CODE 4150-24-P

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
50 CFR Part 622
[Docket No. 230427-0115]
RIN 0648-BL89

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Reef Fish Resources of the Gulf of Mexico; Temporary Measures To Reduce Overfishing of Gag

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.
ACTION: Temporary rule; interim measures extended.

SUMMARY: NMFS issues this temporary rule to extend the expiration date of interim measures to reduce overfishing of gag in Federal waters of the Gulf of Mexico. This temporary rule extends the commercial and recreational harvest levels and the revised recreational fishing season for gag for an additional 186 days. The purpose of this temporary rule extension is to reduce overfishing of gag while NMFS implements management measures to end overfishing of gag on a permanent basis.
DATES: As of October 6, 2023, the expiration date for the final temporary rule published at 88 FR 27701 on May

3, 2023, is extended from October 30, 2023, through May 2, 2024, unless NMFS publishes a superseding document in the **Federal Register**.
ADDRESSES: An electronic copy of the environmental assessment (EA) supporting these temporary measures may be obtained from the Southeast Regional Office website at <https://www.fisheries.noaa.gov/action/interim-action-reduce-overfishing-gag-gulf-mexico>. The EA includes a regulatory impact review and a Regulatory Flexibility Act (RFA) analysis.
FOR FURTHER INFORMATION CONTACT: Dan Luers, NMFS Southeast Regional Office, telephone: 727-824-5305, or email: daniel.luers@noaa.gov.
SUPPLEMENTARY INFORMATION: The reef fish fishery in the Gulf of Mexico (Gulf) is managed under the Fishery Management Plan for the Reef Fish Resources of the Gulf (FMP) and includes gag and other federally managed reef fish species. The FMP was prepared by the Gulf of Mexico Fishery Management Council (Council) and is implemented by NMFS through regulations at 50 CFR part 622 under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).
 All weights described in this temporary rule are in gutted weight.
 On May 3, 2023, NMFS published the final temporary rule for interim measures to reduce overfishing of gag in Gulf Federal waters (88 FR 27701). The final temporary rule reduced the total annual catch limit (ACL) for gag to 661,901 lb (300,233 kg). In addition, the final temporary rule specified the commercial and recreational ACLs, commercial quota, and recreational annual catch target (ACT) using the existing sector allocations of the total

ACL of 39 percent commercial and 61 percent recreational. Therefore, during the effectiveness of the final temporary rule and this temporary rule extension, the commercial ACL and commercial quota are 258,000 lb (117,027 kg) and 199,000 lb (90,265 kg), respectively. The recreational ACL and ACT are 403,759 lb (183,142 kg) and 362,374 lb (164,370 kg), respectively.
 In addition to the reduced catch limits for gag, the final temporary rule changed the gag recreational fishing season for the 2023 fishing year. This temporary rule extension continues the same recreational fishing season of September 1 through November 9, 2023, unless NMFS projects that recreational landings of gag will reach the recreational ACL sooner than November 9, 2023, and will close the recreational sector as required by the accountability measures specified in 50 CFR 622.41(r)(2).
 This temporary rule extension continues the measures in the final temporary rule unchanged for an additional 186 days, unless this temporary rule extension is superseded by subsequent rulemaking. The purpose of these interim measures is to reduce the overfishing of gag in Gulf Federal waters while NMFS implements long-term management measures to end overfishing and rebuild the Gulf gag stock.
 Amendment 56 was approved by the Council at the June 2023 meeting and includes management measures to end overfishing of gag on a long-term basis. NMFS is currently reviewing Amendment 56 and developing the proposed rule for Amendment 56 and, if approved, expects to implement a final rule before the expiration of the interim measures in this temporary rule extension in the 2024 fishing year.

Section 305(c)(2) of the Magnuson-Stevens Act provides the Council the authority to request interim measures, if necessary, to reduce overfishing. The Council sent a letter to NMFS, dated June 18, 2022, requesting that NMFS implement interim measures to immediately reduce overfishing of gag while long-term management measures were developed to end overfishing of gag. Section 305(c)(3)(B) of the Magnuson-Stevens Act allows for interim measures to be extended for one additional period of 186 days provided that the public has had an opportunity to comment on the interim measures and that the Council is actively preparing an FMP amendment to address the overfishing on a permanent basis. NMFS published in the **Federal Register** a proposed temporary rule on February 3, 2023, and requested public comments on these interim measures (88 FR 7388). NMFS responded to public comments in the final temporary rule that was published in the **Federal Register** on May 3, 2023 (88 FR 27701).

Classification

This action is issued pursuant to section 305(c) of the Magnuson-Stevens Act, 16 U.S.C. 1855(c). The NMFS Assistant Administrator has determined that this temporary rule extension is consistent with the Magnuson-Stevens Act and other applicable law.

This temporary rule extension has been determined to be not significant for purposes of Executive Order 12866.

This temporary rule extension is exempt from the procedures of the RFA, because this temporary rule extension is issued without the opportunity for prior notice and public comment.

NMFS prepared an EA for the interim measures contained in the January 2, 2018, final temporary rule (83 FR 65). The EA analyzed the impacts of reduced commercial and recreational harvest and the change to the 2023 recreational season through the 2023 fishing year, which includes the impacts related to extending the interim measures. If additional management measures are not implemented after the extension expires, the recreational season would open on June 1, 2024, and the commercial and recreational catch limits would increase to the levels in place prior to the final temporary rule. Impacts during the 2024 fishing year would be a result of the implementation of the management measures included in Amendment 56, which are considered in the EA supporting that

amendment. Therefore, the impacts of extending the interim measures through this temporary rule have already been considered. An electronic copy of the EA supporting the interim measures is available from NMFS (see the **ADDRESSES** section).

This temporary rule extension contains no information collection requirements under the Paperwork Reduction Act of 1995.

Pursuant to the authority set forth in 5 U.S.C. 553(b)(B), there is good cause to waive the requirements to provide prior notice and opportunity for public comment on this action as such procedures for this temporary rule extension are unnecessary and contrary to the public interest. Such procedures are unnecessary because NMFS already published a proposed temporary rule on February 3, 2023, and requested public comments on these interim measures, including their potential extension. NMFS responded to public comments in the final temporary rule published on May 3, 2023. This temporary rule extension continues the interim measures unchanged for up to an additional 186 days.

Additional notice and opportunity for public comment are contrary to the public interest because of the need to continue these interim measures without interruption to protect the gag stock until NMFS can implement management measures to end overfishing and rebuild the Gulf gag stock. Prior notice and opportunity for public comment would require additional time and could result in an interruption of the interim measures and, therefore, allow harvest in excess of the catch limits implemented by this temporary rule extension. Increased harvest of gag would be inconsistent with the purpose of implementing the interim measures under section 305(c) of the Magnuson-Stevens Act, which is to reduce overfishing while permanent measures can be developed and implemented.

For the reasons just stated, there is also good cause to waive the 30-day delay in the effectiveness of this action under 5 U.S.C. 553(d)(3).

Authority: 16 U.S.C. 1801 *et seq.*

Dated: September 29, 2023.

Samuel D. Rauch, III,
Deputy Assistant Administrator for
Regulatory Programs, National Marine
Fisheries Service.

[FR Doc. 2023–22263 Filed 10–5–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 665

[RTID 0648–XD434]

Pacific Island Fisheries; 2023 Northwestern Hawaiian Islands Lobster Harvest Guideline

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notification of lobster harvest guideline.

SUMMARY: NMFS establishes the annual harvest guideline for the commercial lobster fishery in the Northwestern Hawaiian Islands (NWHI) for calendar year 2023 at zero lobsters.

DATES: October 6, 2023.

FOR FURTHER INFORMATION CONTACT: Keith Kamikawa, NMFS PIRO Sustainable Fisheries, 808–725–5177.

SUPPLEMENTARY INFORMATION: NMFS manages the NWHI commercial lobster fishery under the Fishery Ecosystem Plan for the Hawaiian Archipelago. The regulations at 50 CFR 665.252(b) require NMFS to publish an annual harvest guideline for lobster Permit Area 1, comprised of Federal waters around the NWHI.

Regulations governing the Papahānaumokuākea Marine National Monument in the NWHI prohibit the unpermitted removal of monument resources (50 CFR 404.7), and establish a zero annual harvest guideline for lobsters (50 CFR 404.10(a)). Accordingly, NMFS establishes the harvest guideline for the NWHI commercial lobster fishery for calendar year 2023 at zero lobsters. Harvest of NWHI lobster resources is not allowed.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: October 3, 2023.

Jennifer M. Wallace,
Acting Director, Office of Sustainable
Fisheries, National Marine Fisheries Service.

[FR Doc. 2023–22288 Filed 10–5–23; 8:45 am]

BILLING CODE P

Proposed Rules

Federal Register

Vol. 88, No. 193

Friday, October 6, 2023

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

NUCLEAR REGULATORY COMMISSION

10 CFR Chapter I

[NRC-2023-0058]

Required Assessment of U.S. Department of Energy Laboratories by Licensees, Applicants, and Suppliers To Verify the Effective Implementation of Their Quality Assurance Programs

AGENCY: Nuclear Regulatory Commission.

ACTION: Draft regulatory issue summary; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is seeking public comment on a draft regulatory issue summary (RIS) that clarifies the agency's regulatory position regarding the required assessment of U.S. Department of Energy (DOE) national laboratories by licensees, applicants, and vendors to verify the effective implementation of the laboratories' quality assurance (QA) programs. This draft RIS requires no action or written response on the part of an addressee.

DATES: Submit comments by December 5, 2023. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods; however, the NRC encourages electronic comment submission through the Federal rulemaking website:

- *Federal Rulemaking Website:* Go to <https://www.regulations.gov> and search for Docket ID NRC-2023-0058. Address questions about Docket IDs in *Regulations.gov* to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- *Mail comments to:* Office of Administration, Mail Stop: TWFN-7-A60M, U.S. Nuclear Regulatory

Commission, Washington, DC 20555-0001, ATTN: Program Management, Announcements and Editing Staff.

For additional direction on obtaining information and submitting comments, see "Obtaining Information and Submitting Comments" in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT:

Phyllis Clark, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-415-6447, email: Phyllis.Clark@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC-2023-0058 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- *Federal Rulemaking Website:* Go to <https://www.regulations.gov> and search for Docket ID NRC-2023-0058.

- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. The draft RIS "Required Assessment of U.S. Department of Energy Laboratories by Licensees, Applicants, and Suppliers to Verify the Effective Implementation of Their Quality Assurance Programs," is available in ADAMS under Accession No. ML22080A051.

- *NRC's PDR:* The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

B. Submitting Comments

The NRC encourages electronic comment submission through the Federal rulemaking website (<https://www.regulations.gov>). Please include Docket ID NRC-2023-0058 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Background

The NRC staff has received several inquiries from nuclear industry stakeholders on what type of assessment is required for U.S. Department of Energy (DOE) national laboratories that provide basic components to the U.S. nuclear power industry. The NRC is issuing this draft regulatory issue summary (RIS) to clarify the agency's regulatory position regarding the required assessment of U.S. DOE national laboratories by licensees, applicants, and vendors to verify the effective implementation of the laboratories' quality assurance programs.

The NRC issues RISs to communicate with stakeholders on a broad range of matters. It provides guidance to applicants and licensees on the scope and detail of information that should be provided in licensing applications to facilitate NRC review.

As noted in the **Federal Register** on May 8, 2018 (83 FR 20858), this document is being published in the "Proposed Rules" section of the **Federal Register** to comply with publication requirements under 1 CFR chapter I.

III. Proposed Action

The NRC is requesting public comments on the draft RIS. All comments that are to receive consideration in the final RIS must still be submitted electronically or in writing as indicated in the **ADDRESSES** section of this document. The NRC staff will make a final determination regarding issuance of the RIS after it considers any public comments received in response to this request.

Dated: October 3, 2023.

For the Nuclear Regulatory Commission.

Lisa M. Regner,

Chief, Generic Communication and Operating Experience Branch, Division of Reactor Oversight, Office of Nuclear Reactor Regulation.

[FR Doc. 2023-22287 Filed 10-5-23; 8:45 am]

BILLING CODE 7590-01-P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1893; Project Identifier AD-2023-00389-A]

RIN 2120-AA64

Airworthiness Directives; FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc. Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc. (Piper) airplanes. This proposed AD was prompted by reports of broken rudders. This proposed AD would require replacing any rudder equipped with a rudder post made from a certain carbon steel with a rudder equipped with a rudder post made from a certain low-alloy steel. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by November 20, 2023.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *regulations.gov*. Follow the instructions for submitting comments.

- *Fax:* (202) 493-2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA-2023-1893; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (206) 231-3858; email: *joseph.r.zuklic@faa.gov*.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under **ADDRESSES**. Include “Docket No. FAA-2023-1893; Project Identifier AD-2023-00389-A” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to *regulations.gov*, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important

that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA received reports of two non-fatal accidents involving airplanes designed and built by Piper that were caused by broken rudder posts that structurally failed above the upper hinge in flight. Both accidents occurred in Anchorage, Alaska. The first accident occurred on June 8, 2020, and involved an FS 2003 Model PA-12 airplane and the second accident occurred on July 23, 2021, and involved an FS 2002 Model PA-14 airplane. Both airplanes sustained substantial damage when the rudder structurally failed.

The National Transportation Safety Board (NTSB) published the report *Structural Failure of Piper Part Number 40622 Rudder Posts Made of 1025 Carbon Steel*, NTSB/AIR-22/02, dated January 10, 2022, which provides information regarding the NTSB’s investigations of these two accidents. The NTSB accident investigation report included a recommendation (Safety Recommendation No. A-22-3) to the FAA to issue an airworthiness directive addressing this unsafe condition. The NTSB report can be found on *ntsb.gov*.

The NTSB examined the rudders involved in these accidents and determined that the rudder posts fractured above the upper hinge and the top portion of the rudder folded over the upper tail brace wires. The NTSB also determined that the rudder posts were made from 1025 carbon steel and fractured due to fatigue.

Prior to this proposed rulemaking action the FAA issued an Airworthiness Concern Sheet, dated September 4, 2020, that requested information from the aviation community regarding in-flight failure of the rudder just above the upper hinge on all Piper and FS2003 Corp (type certificate previously held by Piper) Model J-5A, J-5B, J-5C, J-5D, AE-1, HE-1, PA-12, PA-12S, PA-14, PA-16, PA-18, L-21, PA-20, and PA-22 airplanes. The responses revealed that there were five additional broken rudder incidents dating as far back as 1979.

Prior to 1974, all rudders installed on Piper model airplanes were equipped with rudder posts manufactured from 1025 carbon steel and starting in 1974, the rudder posts were manufactured from 4130N low-alloy steel (Chromoly). Most parts manufacturer approval rudders are equipped with rudder posts made from 4130N low-alloy steel.

The NTSB determined that the broken rudder incidents resulted from the combination of fatigue loading and corrosion affecting the rudder assemblies made from 1025 carbon steel. This condition, if not addressed,

could result in a broken rudder and consequent reduced ability of the flightcrew to maintain the safe flight and landing of the airplane.

FAA’s Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed AD Requirements in This NPRM

This proposed AD would require replacing any rudder equipped with a rudder post made from 1025 carbon steel with a rudder equipped with a rudder post made from 4130N low-alloy steel.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 30,992 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

ESTIMATED COSTS

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Replace rudder	8 work-hours × \$85 per hour = \$680	\$2,320	\$3,000	\$92,976,000

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the

States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

FS 2001 Corp, FS 2002 Corporation, FS 2003 Corporation, Piper, and Piper Aircraft, Inc.: Docket No. FAA–2023–1893; Project Identifier AD–2023–00389–A.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by November 20, 2023.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all airplane models specified in Table 1 to paragraph (c) of this AD, certificated in any category, that are not equipped with a rudder having a rudder post made from 4130N low-alloy steel.

Note 1 to paragraph (c): Most parts manufacturer approval (PMA) rudders are equipped with a rudder post made from 4130N low-alloy steel. This can be verified by reviewing the individual PMA.

Note 2 to paragraph (c): Piper Service Bulletin 1379, dated December 2, 2022, contains information related to this AD.

TABLE 1 TO PARAGRAPH (c)—APPLICABLE AIRPLANE MODELS

Type certificate holder	Airplane model
FS 2001 Corp	J5A (Army L–4F), J5A–80, J5B (Army L–4G), J5C, AE–1, HE–1.
FS 2002 Corporation	PA–14.
FS 2003 Corporation	PA–12, PA–12S.
Piper Aircraft, Inc	J3C–40, J3C–50, J3C–50S, J3C–65, J3C–65S, PA–11, PA–11S.
Piper Aircraft, Inc	J3F–50, J3F–50S, J3F–60, J3F–60S, (Army L–4D) J3F–65, J3F–65S.
Piper Aircraft, Inc	J3L, J3L–S, J3L–65 (ARMY L–4C), J3L–65S.
Piper Aircraft, Inc	J4, J4A, J4A–S.
Piper Aircraft, Inc	J4E (ARMY L–4E).
Piper	J4F.

TABLE 1 TO PARAGRAPH (c)—APPLICABLE AIRPLANE MODELS—Continued

Type certificate holder	Airplane model
Piper Aircraft, Inc	PA-15.
Piper Aircraft, Inc	PA-16, PA-16S.
Piper Aircraft, Inc	PA-17.
Piper Aircraft, Inc	PA-18, PA-18S, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-19 (Army L-18C), PA-19S.
Piper Aircraft, Inc	PA-18A (Restricted), PA-18A "135" (Restricted), PA-18A "150" (Restricted).
Piper Aircraft, Inc	PA-20, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135".
Piper Aircraft, Inc	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160.

(d) Subject

Joint Aircraft System Component (JASC) Code 5540, Rudder Structure.

(e) Unsafe Condition

This AD was prompted by reports of broken rudders. The FAA is issuing this AD to address fatigue loading and corrosion of rudder posts made from 1025 carbon steel

which, if not addressed, could result in a broken rudder and consequent reduced ability of the flightcrew to maintain the safe flight and landing of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) At the applicable compliance time for the category type for your airplane specified in Table 2 to paragraph (g) of this AD, replace the rudder with a rudder that is equipped with a rudder post made from 4130N low-alloy steel.

TABLE 2 TO PARAGRAPH (g)—COMPLIANCE TIMES

Airplane model	Category type	Compliance time
J-3, J3C-40, J3C-50, J3C-50S, J3C-65, J3C-65S, J3F-50, J3F-50S, J3F-60, J3F-60S, J3F-65 (Army L-4D), J3F-65S, J3L, J3L-S, J3L-65 (ARMY L-4C), J3L-65S.	Category I Airplanes: Airplanes having both a rudder post mounted beacon light and a 150 or greater horsepower (HP) engine installed.	Within 2 years after the effective date of this AD.
J-4, J4, J4A, J4A-S, J4E (ARMY L-4E), J4F.	Category II Airplanes: Airplanes having either a rudder post mounted beacon light or a 150 or greater HP engine installed.	Within 3 years after the effective date of this AD.
PA-11, PA-11S.	Category III Airplanes: All other airplanes not in Category I or Category II that do not have a rudder post mounted beacon light and have an engine less than 150 HP installed.	Within 5 years after the effective date of this AD.
PA-15.		
PA-16, PA-16S.		
PA-17.		
PA-18, PA-18S, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125" (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-18A (Restricted), PA-18A "135" (Restricted), PA-18A "150" (Restricted).		
PA-19, PA-19 (Army L-18C), PA-19S.		
PA-20, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135".		
PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160.		
J-5, J5A (Army L-4F), J5A-80, J5B (Army L-4G), J5C, AE-1, HE-1.		
PA-12, PA-12S.		
PA-14.		

(2) As of the effective date of this AD, do not install any rudder that is equipped with a rudder post made from 1025 carbon steel on any airplane.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, West Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the West Certification Branch, send it to the attention of the person identified in paragraph (i)(1) of this AD.

Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Related Information

(1) For more information about this AD, contact Joseph Zuklic, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (206) 231-3858; email: joseph.r.zuklic@faa.gov.

(2) For service information identified in this AD that is not incorporated by reference, contact Piper Aircraft, Inc., 2926 Piper Drive, Vero Beach, FL 32960; phone: (772) 299-2141; website: piper.com. You may view this

service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110.

(j) Material Incorporated by Reference

None.

Issued on September 27, 2023.

Victor Wicklund,

Deputy Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2023-22259 Filed 10-5-23; 8:45 am]

BILLING CODE 4910-13-P

DEPARTMENT OF THE TREASURY**Internal Revenue Service****26 CFR Part 1**

[REG–117614–14]

RIN 1545–BM19

Guidance Under Section 367(b) Related to Certain Triangular Reorganizations and Inbound Nonrecognition Transactions**AGENCY:** Internal Revenue Service (IRS), Treasury.**ACTION:** Notice of proposed rulemaking.

SUMMARY: This document proposes regulations announced and described in Notice 2014–32 and Notice 2016–73, with modifications. The proposed regulations relate to the treatment of property used to acquire parent stock or securities in connection with certain triangular reorganizations involving one or more foreign corporations; the consequences to persons that receive parent stock or securities pursuant to such reorganizations; and the treatment of certain subsequent inbound nonrecognition transactions following such reorganizations and certain other transactions. The proposed regulations affect corporations engaged in certain triangular reorganizations involving one or more foreign corporations, certain shareholders of foreign corporations acquired in such reorganizations, and foreign corporations that participate in certain inbound nonrecognition transactions.

DATES: Written or electronic comments and requests for a public hearing must be received by December 5, 2023. Requests for a public hearing must be submitted as prescribed in the “Comments and Request for Public Hearing” section.

ADDRESSES: Commenters are strongly encouraged to submit public comments electronically. Submit electronic submissions via the Federal eRulemaking Portal at www.regulations.gov (indicate IRS and REG–117614–14) by following the online instructions for submitting comments. Once submitted to the Federal eRulemaking Portal, comments cannot be edited or withdrawn. The Department of the Treasury (Treasury Department) and the IRS will publish for public availability any comments submitted electronically and on paper, to its public docket. Send paper submissions to: CC:PA:LPD:PR (REG–117614–14), Room 5203, Internal Revenue Service, P.O. Box 7604, Ben

Franklin Station, Washington, DC 20044.

FOR FURTHER INFORMATION CONTACT:

Concerning the proposed regulations, Brady Plastaras at (202) 317–6937; concerning submission of comments, requests for a public hearing, and access to a public hearing, Vivian Hayes at (202) 317–5306 (not toll-free numbers) or by email at publichearings@irs.gov (preferred).

SUPPLEMENTARY INFORMATION:**Background**

On May 19, 2011, the Treasury Department and the IRS published final regulations (TD 9526) in the **Federal Register** (76 FR 28890) under section 367(b) that relate to the treatment of property used to acquire parent stock or securities in certain triangular reorganizations involving one or more foreign corporations (the Final Regulations). On April 25, 2014, the Treasury Department and the IRS issued Notice 2014–32 (2014–20 IRB 1006), which identified transactions designed to exploit certain aspects of the Final Regulations and announced that regulations would be issued under section 367 to address these transactions. On December 2, 2016, the Treasury Department and the IRS issued Notice 2016–73 (2016–52 IRB 908), which identified other transactions designed to exploit the Final Regulations, as modified by the rules announced in Notice 2014–32, and announced that additional regulations would be issued under section 367. The Treasury Department and the IRS believe that the transactions described in each notice raise significant policy concerns.

This document sets forth the regulations described in Notice 2014–32 and Notice 2016–73, modified as discussed in this preamble. In response to a request for comments in Notice 2016–73, one comment was received and is discussed in this preamble. No comments were received on Notice 2014–32.

Explanation of Provisions; Summary of Comment in Response to Notice 2016–73**I. Overview***A. Section 367—In General*

Section 367(a)(1) provides that if, in connection with any exchange described in section 332, 351, 354, 356, or 361, a United States person transfers property to a foreign corporation, such foreign corporation shall not, for purposes of determining the extent to which gain shall be recognized on such

transfer, be considered to be a corporation. Under section 367(a)(5), the Secretary has broad authority to exempt transactions from the application of section 367(a)(1) in order to carry out the purposes of section 367(a).

Section 367(b)(1) provides that, in the case of any exchange described in section 332, 351, 354, 355, 356, or 361 in connection with which there is no transfer of property described in section 367(a)(1), a foreign corporation shall be considered to be a corporation except to the extent provided in regulations prescribed by the Secretary which are necessary or appropriate to prevent the avoidance of Federal income taxes. Section 367(b)(2) provides that the regulations prescribed pursuant to section 367(b)(1) shall include (but shall not be limited to) regulations dealing with the sale or exchange of stock or securities in a foreign corporation by a United States person, including regulations providing the circumstances under which gain is recognized currently, amounts are included in gross income as a dividend, or both; and the extent to which adjustments are made to earnings and profits, the basis of stock or securities, and the basis of assets.

B. Policies of Section 367(b)

Section 367(b) was enacted to help ensure that international tax considerations are adequately addressed when the provisions in chapter 1, subchapter C, of subtitle A of the Internal Revenue Code (the Code) apply to an exchange involving a foreign corporation. Thus, the regulations under section 367(b) require that adjustments or inclusions be made to prevent the material distortions of income that can occur when the subchapter C provisions apply to an exchange involving a foreign corporation.

The legislative history to section 367(b) describes Congress’s particular concern with the need “to protect against tax avoidance . . . upon the repatriation of previously untaxed foreign earnings” and its intent to grant the Treasury Department broad authority to promulgate regulations to prevent the avoidance of Federal income taxes. H.R. Rep. No. 94–658, at 241 (1975). Moreover, Congress specifically identified “transfers constituting a repatriation of foreign earnings” as a type of transfer to be covered by such regulations. *Id.* at 245. The Final Regulations were promulgated in part to address these concerns. More specifically, one of the purposes of the Final Regulations is to require adjustments to address the avoidance of U.S. tax, including the repatriation of foreign earnings without

being subject to U.S. tax, through the separation of earnings and profits of a corporation from property distributed by such corporation in connection with certain triangular reorganizations.

C. Effect of the Tax Cuts and Jobs Act

In 2017, Congress passed the Tax Cuts and Jobs Act (TCJA) (Pub. L. 115–97), which added and amended a number of international tax provisions. One effect of these new provisions, and in particular sections 951A and 965, was to increase the amount of foreign earnings or income subject to immediate U.S. taxation. Section 965 imposed a one-time transition tax on certain earnings and profits of foreign corporations, and section 951A subjects certain income of a controlled foreign corporation (CFC) (as defined in section 957(a)) to current U.S. taxation in the hands of the CFC's United States shareholders (as defined in section 951(b)). The TCJA also generally retained the existing anti-deferral rules in subpart F of the Code (sections 951 through 965, as amended), under which, for example, a CFC's passive income, subject to certain exceptions, is similarly subject to current U.S. taxation. The combined effect of sections 951, 951A, and 965 is that an increased amount of foreign earnings and profits will have been subject to U.S. tax regardless of whether the earnings and profits are in fact repatriated. Under section 959, such previously taxed earnings and profits (PTEP) are not again subject to U.S. tax upon their repatriation.

The TCJA also added section 245A to the Code, under which certain United States shareholders of a specified 10-percent owned foreign corporation (SFC) (as defined in section 245A(b)(1)) generally are entitled to a 100-percent dividends received deduction with respect to dividends received from the SFC. As a result of the TCJA, an increased amount of earnings and profits of foreign corporations are thus not taxable when distributed—either because the earnings and profits constitute PTEP or give rise to dividends (including deemed dividends under section 367(b)) that are eligible for the section 245A dividends received deduction.

Although as a result of the TCJA a lesser amount of earnings and profits of foreign corporations may give rise to taxable dividends when distributed, the Final Regulations remain necessary to carry out the policies of section 367(b). The adjustments required by the Final Regulations are intended to ensure that property transfers that are in substance distributions are treated as such, and thus give rise to income, capital gain, or

a reduction in basis under section 301(c). Furthermore, incentives to avoid treating property transfers as distributions remain. For example, a taxpayer may seek to avoid distribution treatment because the distribution would not qualify for the section 245A dividends received deduction due to the application of the hybrid dividend rules under section 245A(e) or the extraordinary disposition rules under § 1.245A–5, or because the taxpayer seeks to, for example, preserve PTEP or other earnings and profits to cover a future distribution.

D. The Final Regulations

The Final Regulations apply to certain triangular reorganizations in which a subsidiary (S) purchases, in connection with the reorganization, stock or securities of its parent corporation (P) in exchange for property and exchanges the stock or securities of P for the stock or property of a target corporation (T), but only if P or S (or both) is a foreign corporation. The Final Regulations and this preamble refer to such exchange of stock or securities of P for property as the “P acquisition.” This preamble also refers to the P acquisition together with the related triangular reorganization as an “applicable triangular reorganization.”

When applicable, the Final Regulations require that adjustments be made that have the effect of a distribution of property from S to P under section 301 (deemed distribution), followed by a contribution from P to S of an amount equal to the deemed distribution (deemed contribution). The amount of the deemed distribution is the sum of the amount of money transferred by S, the amount of any liabilities that are assumed by S and constitute property, and the fair market value of other property that S transferred to P in the P acquisition. The deemed distribution is treated as a dividend to the extent of S's earnings and profits.

There are several exceptions to the application of the Final Regulations. Under § 1.367(b)–10(a)(2)(iii) (the section 367(a) priority rule), the Final Regulations do not apply to transactions otherwise described in the Final Regulations if the amount of gain that T's shareholders would recognize under section 367(a)(1) is at least equal to the sum of the amount of the deemed distribution that P would treat as a dividend under section 301(c)(1) and the amount of the deemed distribution that P would treat as gain under section 301(c)(3) were the Final Regulations to apply. This preamble refers to the hypothetical amount of gain recognized

under section 367(a)(1) and the hypothetical amount of the deemed distribution treated either as dividend or gain under section 301(c) as “section 367(a) income” and “section 367(b) income,” respectively. Section 1.367(a)–3(a)(2)(iv) provides a similar priority rule (the section 367(b) priority rule) that turns off the application of section 367(a)(1) with respect to transactions described in the Final Regulations if the amount of section 367(a) income that T's shareholders would otherwise recognize under section 367(a)(1) (without regard to any exceptions thereto) is less than the amount of section 367(b) income that would result from the deemed distribution. In this way, the priority rules subject an applicable triangular reorganization to whichever section 367 regime would give rise to the most income under section 367.

Section 1.367(b)–10(a)(2)(ii) provides another exception to the application of the Final Regulations. Under this exception, the Final Regulations generally do not apply if S is a domestic corporation and P would not be subject to U.S. tax on a dividend received from S. This preamble refers to this exception as the “no-U.S.-tax exception.”

The Final Regulations also contain a broad anti-abuse rule under which appropriate adjustments are made if, in connection with a triangular reorganization, a transaction is engaged in with a view to avoid the purpose of the Final Regulations. See § 1.367(b)–10(d). The anti-abuse rule contains an example illustrating that the earnings and profits of S may, under certain circumstances, be deemed to include the earnings and profits of a corporation related to P or S for purposes of determining the consequences of the adjustments provided for in the Final Regulations.

E. Notice 2014–32

Notice 2014–32 identified transactions designed to exploit certain aspects of the Final Regulations. In particular, Notice 2014–32 described transactions in which taxpayers applied the section 367(a) and (b) priority rules and no-U.S.-tax exception in a manner that, contrary to their intended operation, resulted in the taxpayer being subject to the more favorable of the section 367(a) or (b) regimes. Notice 2014–32 accordingly announced that regulations would be issued under section 367(b) to (i) modify the priority rules such that only section 367(b) income that would actually be subject to U.S. tax would be considered and (ii) narrow the scope of the no-U.S.-tax exception. Notice 2014–32 further

announced that regulations would be issued to remove the deemed contribution rule in § 1.367(b)–10(b)(2) and clarify the broad application of the anti-abuse rule in § 1.367(b)–10(d).

F. Notice 2016–73

Notice 2016–73 identified additional transactions designed to exploit the Final Regulations, as modified by the rules announced in Notice 2014–32. The transactions identified in Notice 2016–73 include, as one example, a two-step transaction where an applicable triangular reorganization is followed by a purportedly unrelated inbound nonrecognition transaction to which § 1.367(b)–3 applies.

In that example, USP, a domestic corporation, owns all of the stock of FP, and FP owns all of the stock of FS. Both FP and FS are foreign corporations. USP also owns all of the stock of USS, a domestic corporation, and USS owns all of the stock of FT, a foreign corporation. In step one of the example transaction, FP, FS, and FT engage in an applicable triangular reorganization that is designed to result in no section 367(b) income and only a de minimis amount of section 367(a) income. Specifically, FS acquires newly issued stock of FP for property and transfers the stock of FP to USS in exchange for all the stock of FT in a triangular reorganization described in section 368(a)(1)(B). In addition, USS files a gain recognition agreement with respect to its transfer of the stock of FT. The taxpayer takes the position that the section 367(a) priority rule applies to turn off the Final Regulations with respect to the applicable triangular reorganization and therefore does not treat FP as having received a deemed distribution. Under this position, the effect of this first step of the transaction is a transfer of property from FS to FP without a distribution that would result in a corresponding decrease in the earnings and profits of FS and increase in the earnings and profits of FP associated with that property.

In step two of the example transaction, on a later date FP transfers its assets (including the cash, note, or other property received from FS) to USP or a domestic corporation whose stock is owned directly or indirectly by USP in a nonrecognition transaction described in § 1.367(b)–3. The taxpayer asserts that USP accordingly includes in its income a deemed dividend of the “all earnings and profits amount” (as described in § 1.367(b)–2(d)) with respect to its stock in FP, but, because that amount does not take into account the earnings and profits of lower-tier foreign corporations, the deemed dividend does not include the earnings

and profits associated with the property that FP received from FS in the P acquisition (because such earnings and profits remain at FS under the position taken by the taxpayer). The desired effect of the overall transaction is a repatriation of property from FS to USP (or a domestic corporation held by USP) without a corresponding income inclusion attributable to untaxed earnings and profits of FS.

Notice 2016–73 announced that additional regulations would be issued under section 367(b) to address transactions such as these types of two-step transactions. To address step one of the transaction, the regulations would, in addition to the modifications described in Notice 2014–32, prevent the section 367(a) priority rule from applying where T is foreign and instead subject certain T shareholders to rules under § 1.367(b)–4 that could result in an income inclusion or gain recognition with respect to their exchange of T stock. To address step two of the transaction, the regulations would subject any inbound nonrecognition transaction to a new set of “excess asset basis” (EAB) rules to be issued under § 1.367(b)–3 that, for purposes of determining the all earnings and profits amount, would take into account certain earnings and profits of lower-tier foreign corporations. Step two of the transaction was subject to the EAB rules because a taxpayer may have completed an applicable triangular reorganization described in step one (but not yet an inbound nonrecognition transaction described in step two) before the issuance of Notice 2016–73. Such partially completed transactions would go unaddressed if the regulations were limited to modifying the section 367(a) priority rule. Notice 2016–73 further announced that the EAB rules would apply to any inbound nonrecognition transaction, regardless of whether the taxpayer had previously engaged in an applicable triangular reorganization, out of concern that transactions other than applicable triangular reorganizations might also position taxpayers to achieve an improper repatriation of property through a subsequent inbound nonrecognition transaction.

Notice 2016–73 also described a variation of the foregoing two-step transaction where the P acquisition is between FP and USP. In this variation of the transaction, FP (which has no earnings and profits) acquires stock of USP in exchange for nonqualified preferred stock of FP, and FP uses the stock of USP to acquire the stock of FT in an applicable triangular reorganization. After the applicable triangular reorganization, the taxpayer

causes FP to redeem its nonqualified preferred stock from USP in exchange for cash or a note. The taxpayer takes the position that (i) the Final Regulations do not apply to FP’s transfer of nonqualified preferred stock to USP because nonqualified preferred stock is not “property” under the Final Regulations, and (ii) FP’s redemption of the nonqualified preferred stock does not cause USP to have an income inclusion because FP has no earnings and profits. The desired effect of this variation is similarly a repatriation of property from FP to USP at no U.S. tax cost.

To address this type of transaction, Notice 2016–73 announced that future regulations would modify the definition of property in § 1.367(b)–10(a)(3)(ii) to include stock of S that is nonqualified preferred stock (as defined in section 351(g)(2)).

II. Rules Applicable to Inbound Nonrecognition Transactions

A. § 1.367(b)–3 and Notice 2016–73

Section 1.367(b)–3 generally applies to an acquisition by a domestic corporation (the domestic acquiring corporation) of the assets of a foreign corporation (the foreign acquired corporation) in a liquidation described in section 332 or an asset acquisition described in section 368(a)(1) (in each case, an inbound nonrecognition transaction). Upon an inbound nonrecognition transaction, § 1.367(b)–3 requires certain shareholders of the foreign acquired corporation to include in income as a deemed dividend the all earnings and profits amount with respect to their stock in the foreign acquired corporation.¹ Under § 1.367(b)–2(d), that amount is generally determined under the principles of section 1248 when computing the amount of earnings and profits attributable to stock, subject to certain adjustments. For example, the all earnings and profits amount does not take into account earnings and profits of subsidiaries of the foreign acquired corporation notwithstanding section 1248(c)(2). See § 1.367(b)–2(d)(3)(ii).

Section 1.367(b)–3 is intended to ensure the appropriate carryover of tax attributes from the foreign acquired corporation to the domestic acquiring corporation. The preamble to proposed regulations issued in 1991 describes the section 367(b) principles relevant to inbound nonrecognition transactions and specifically identifies the

¹ Certain other shareholders of the foreign acquired corporation may be required to recognize realized gain with respect to their exchanged stock. See § 1.367(b)–3(c)(2).

prevention of “the repatriation of earnings and profits without tax” as one such principle. 56 FR 41993, 41996. The 1991 proposed regulations accordingly introduced the concept of including in income the all earnings and profits amount, which was intended to reflect “the proper measure of the earnings and profits [of the foreign acquired corporation] that should be subject to tax.” *Id.* The preamble to final regulations issued in 2000 further explained that the inclusion of the all earnings and profit amount “generally ensures that the section 381 carryover basis reflects an after-tax amount” and describes “the appropriate carryover of attributes from foreign to domestic corporations” as “the principal policy consideration of section 367(b) with respect to inbound nonrecognition transactions.” TD 8862, 65 FR 3589, 3590. Section 1.367(b)–3 therefore ensures that when asset basis is repatriated the basis either reflects after-tax earnings and profits or is accompanied by an income inclusion attributable to the untaxed earnings and profits that gave rise to that basis.

As illustrated in Notice 2016–73 and summarized above in Part I.F of the Explanation of Provisions section of this preamble, there are some circumstances where the earnings and profits of the foreign acquired corporation do not accurately reflect the basis in its assets. In particular, the earnings and profits of the foreign acquired corporation may be insufficient to the extent that earnings and profits that gave rise to the foreign acquired corporation’s asset basis reside in lower-tier foreign corporations as a result of an applicable triangular reorganization that does not give rise to a deemed distribution. Because the all earnings and profits amount does not account for the earnings and profits of lower-tier foreign corporations, a deemed dividend of the all earnings and profits amount will not have the intended effect of ensuring the appropriate carryover of asset basis in such cases.

To address this concern, Notice 2016–73 announced that § 1.367(b)–3 would be modified to require certain shareholders of the foreign acquired corporation to adjust their all earnings and profits amount upon an inbound nonrecognition transaction. Specifically, an exchanging shareholder that exchanges stock in a foreign acquired corporation with respect to which there is EAB would increase its all earnings and profits amount by certain earnings and profits of lower-tier foreign corporations, referred to in Notice 2016–73 as “specified earnings.” Notice 2016–73 defined EAB as the amount by which

the inside asset basis of the foreign acquired corporation exceeded the sum of its earnings and profits, its outside stock basis, and its liabilities assumed by the domestic acquiring corporation. The EAB concept is in furtherance of a balanced tax-basis balance sheet. In other words, the EAB concept recognizes that the tax basis in a corporation’s assets generally is derived from these three sources, with outside stock basis serving as a proxy for contributed capital. While basis derived from contributed capital reflects after-tax amounts (or, in the case of liabilities assumed by the domestic acquiring corporation, is expected to be satisfied by after-tax amounts of the domestic acquiring corporation), basis derived from a foreign corporation’s untaxed earnings and profits might not be subject to U.S. tax until those earnings are repatriated. For this reason, a foreign corporation’s untaxed earnings and profits are subject to tax via a deemed dividend of the all earnings and profits amount. This deemed dividend inclusion in effect requires that the exchanging shareholder “pay for” the tax basis in repatriated assets before that basis is used within the U.S. tax system.

Specified earnings are defined in Notice 2016–73 as the least of the following amounts: (i) the aggregate earnings and profits of foreign subsidiaries of the foreign acquired corporation attributable to the exchanging shareholder, (ii) the amount of the foreign acquired corporation’s EAB attributable to the exchanging shareholder, and (iii) the exchanging shareholder’s built-in gain in the stock of the foreign acquired corporation. The addition of specified earnings to the all earnings and profits amount is thereby intended to correct the basis imbalance of the foreign acquired corporation by taking into account certain earnings and profits residing in foreign subsidiaries that are presumed to have given rise to the EAB. Thus, the all earnings and profits amount, after taking into account specified earnings, should more accurately reflect the asset basis of the foreign acquired corporation that is repatriated pursuant to the inbound nonrecognition transaction.

The proposed regulations generally would adopt the rules described in Notice 2016–73, modified as discussed in the remainder of this preamble. This preamble uses the term “EAB rules” to refer collectively to the modifications that are proposed to be made to § 1.367(b)–3.

B. General Scope of the EAB Rules

As described in Notice 2016–73, the EAB rules would apply to any inbound

nonrecognition transaction regardless of whether the taxpayer had previously engaged in an applicable triangular reorganization. This scope reflected the possibility that EAB policy concerns could arise as a result of other transactions and that taxpayers may attempt to achieve similar results through such other transactions.

The comment recommended that the EAB rules be applied to a narrower set of transactions, citing, among other reasons, the significant compliance burden that would otherwise be imposed on legitimate business transactions. The comment thus recommended that the EAB rules be applied only to taxpayers that had completed an applicable triangular reorganization before the issuance of Notice 2016–73 that involved a foreign target corporation; did not make adjustments that have the effect of a distribution of property from S to P; and engage in a future inbound nonrecognition transaction. If narrowed in this way, the comment further suggested that the EAB rules apply on only a transitional basis; for example, for the 10-year period following Notice 2016–73. The comment asserted that a broader application of the EAB rules would be unnecessary in light of Notice 2016–73’s proposed modification to the section 367(a) priority rule, which, by requiring adjustments for a deemed distribution whenever the target is a foreign corporation, should prevent taxpayers from separating basis from earnings and profits in future transactions. As an alternative, the comment suggested that the EAB rules be applied only to inbound nonrecognition transactions that follow an applicable triangular reorganization or other specifically enumerated transactions.

The Treasury Department and the IRS agree that it would be appropriate to narrow the scope of the EAB rules for the reasons noted in the comment. In general, the proposed regulations accordingly would limit the application of the EAB rules to those inbound nonrecognition transactions where (i) S previously acquired stock or securities of P in exchange for property in connection with a triangular reorganization and (ii) adjustments were not made that have the effect of a distribution of property from S to P under section 301. *See* proposed § 1.367(b)–3(g)(1)(i). However, to address avoidance situations that would have been subject to the EAB rules under the broad scope announced in Notice 2016–73 (which did not predicate the application of the EAB rules on there having been an applicable

triangular reorganization), the proposed regulations would also provide that the EAB rules apply to inbound nonrecognition transactions where EAB was previously created in connection with a transaction other than a triangular reorganization if the principal purpose of such other transaction was to create EAB. See proposed § 1.367(b)–3(g)(1)(ii). This more limited application of the EAB rules is anticipated to relieve taxpayers from the need to comply with the EAB rules with respect to non-tax motivated transactions while still addressing the policy concerns identified in Notice 2016–73.

The proposed regulations would not adopt the comment's suggestion to apply the EAB rules only to situations where an applicable triangular reorganization involving a foreign target was completed before the issuance of Notice 2016–73. The Treasury Department and the IRS are concerned that such a limitation would prevent the application of the EAB rules to future transactions designed to create EAB. For example, a subsequent applicable triangular reorganization could give rise to EAB where the target corporation is domestic because the section 367(a) priority rule continues to apply in that context. EAB could thus arise if the section 367(a) priority rule applies to prevent the application of the Final Regulations and P and S are both foreign corporations. An ongoing application of the EAB rules is also necessary to address the case where the target is a foreign corporation but the taxpayer asserts that its transaction is not subject to § 1.367(b)–10 under a novel or unforeseen theory. For this reason, the proposed regulations also would not condition the applicability of the EAB rules on the taxpayer having participated in an applicable triangular reorganization. The proposed regulations instead would provide that the EAB rules may apply to EAB created by any triangular reorganization (provided that the other conditions described in the preceding paragraph are met—that is, S acquired stock or securities of P for property in connection with the reorganization, and adjustments were not made that have the effect of a distribution of property from S to P under section 301) and to EAB created in other transactions that have a principal purpose of creating EAB. See proposed § 1.367(b)–3(g)(1).

C. EAB Reduction Rule

Under Notice 2016–73, all EAB with respect to a foreign acquired corporation is taken into account upon an inbound nonrecognition transaction, regardless of how the EAB arose. However, if the

taxpayer could demonstrate that EAB was not attributable to property provided by a foreign subsidiary, then EAB is reduced to the extent of such EAB (the EAB reduction rule).

The comment asserted that the EAB reduction rule amounted to a presumption that all EAB originated from the earnings and profits of foreign subsidiaries. The comment stated that overcoming this presumption would place a significant burden on taxpayers because it would require a comprehensive review of the foreign acquired corporation's historic transactions to determine the extent to which EAB should be reduced. The comment therefore recommended that the EAB rules be revised such that taxpayers be permitted to take into account only the EAB created by an applicable triangular reorganization (or any other specifically identified transaction).

The Treasury Department and the IRS expect that the more limited scope of the EAB rules set forth in the proposed regulations would address the concern reflected in the comment. As proposed in these regulations and discussed in Part II.B of the Explanation of Provisions section of this preamble, the EAB rules would apply only to those inbound nonrecognition transactions that follow certain triangular reorganizations (or other transactions having a principal purpose of creating EAB) as opposed to any inbound nonrecognition transaction. This narrower scope would substantially reduce the burden of complying with the proposed EAB rules by eliminating the need for many taxpayers to determine whether EAB exists with respect to a foreign acquired corporation.

This narrowed scope also would obviate the rationale for the EAB reduction rule, which was intended to provide relief where a taxpayer could demonstrate that EAB was not attributable to an avoidance transaction. Such a relief measure would not be appropriate under the proposed regulations, however, because the proposed regulations would apply only to tax-motivated transactions. The EAB reduction rule would therefore be removed with respect to transactions completed after the issuance of the proposed regulations. *But see* the EAB reduction rule in proposed § 1.367(b)–3(g)(7)(ii)(C) for certain transactions completed before the issuance of the proposed regulations. The proposed regulations accordingly would provide that a taxpayer subject to the EAB rules by reason of having engaged in a triangular reorganization must take into

account all EAB with respect to the foreign acquired corporation, regardless of how that EAB arose and without the ability to reduce EAB to the extent it is not attributable, directly or indirectly, to property provided by a foreign subsidiary of the foreign acquired corporation.

D. Treatment of Unrelated Minority Shareholders

As discussed in Part II.A of the Explanation of Provisions section of this preamble, one element of the EAB computation is the amount of aggregate outside basis in the stock of the foreign acquired corporation. An exchanging shareholder that would be subject to the EAB rules would thus potentially need to identify the outside bases of other, unrelated shareholders of the foreign acquired corporation to calculate the amounts of EAB and specified earnings. The comment asserted that it may not be possible for an exchanging shareholder to obtain this information and accordingly suggested that the outside bases of such unrelated minority shareholders be disregarded (along with any related share of inside basis, liabilities, and earnings and profits) when calculating EAB and specified earnings.

The Treasury Department and the IRS recognize that the presence of unrelated minority shareholders may create some uncertainty but expect that narrowing the application of the EAB rules to only a limited set of inbound nonrecognition transactions would appropriately address the concern reflected in the comment. The transactions of which the Treasury Department and the IRS are aware, and which the proposed regulations are generally intended to address, are typically internal restructurings that by their nature are unlikely to involve unrelated shareholders. See Notice 2016–73, Section 3. Moreover, modifying the EAB rules as the comment suggests would require additional rules to specify how an exchanging shareholder would disregard unrelated minority shareholders, thereby adding complexity to the EAB calculations to accommodate an unlikely fact pattern. Therefore, the proposed regulations would not adopt this suggestion.

E. Computation of Specified Earnings

As discussed in Part II.A of the Explanation of Provisions section of this preamble, the rules described in Notice 2016–73 seek to correct the basis imbalance of the foreign acquired corporation by increasing an exchanging shareholder's all earnings and profits amount by the amount of "specified

earnings.” Specified earnings are limited, in part, to the sum of the earnings and profits with respect to each foreign subsidiary of the foreign acquired corporation that are attributable under section 1248(c)(2) to the stock of the foreign acquired corporation that is exchanged pursuant to the inbound nonrecognition transaction. Accordingly, specified earnings under the notice are not sourced from PTEP of foreign subsidiaries of the foreign acquired corporation because PTEP is not included in earnings and profits for purposes of section 1248. See section 1248(d)(1). In other words, the rules described in Notice 2016–73 would not allow the foreign acquired corporation’s basis imbalance to be corrected by a deemed distribution of lower-tier PTEP, even though a taxpayer may have created EAB by separating asset basis from earnings and profits that are characterized as PTEP.

In light of the TCJA, which increased the prevalence of PTEP, the Treasury Department and the IRS are of the view that the policies of the EAB rules are better served if, instead of adjusting an exchanging shareholder’s all earnings and profits amount as described in Notice 2016–73, the foreign acquired corporation is treated as receiving a deemed distribution under section 301 from its foreign subsidiaries, and the exchanging shareholder then accounts for the effects of the deemed distribution in the inbound nonrecognition transaction. Such a deemed distribution more accurately addresses the basis imbalance of the foreign acquired corporation because the deemed distribution may be sourced from both PTEP and non-PTEP earnings and profits, reflecting that the basis imbalance may be associated with either type of earnings and profits. A deemed distribution from a foreign subsidiary to the foreign acquired corporation is also more likely to align the EAB rules with the substance of the taxpayer’s transaction because EAB generally arises where a taxpayer fails to treat a property transfer as a distribution under section 301. Furthermore, taking into account the effects of a section 301 distribution is consistent with the Final Regulations, which address applicable triangular reorganizations by taking into account the effects of a deemed distribution under section 301 from S to P.

The proposed regulations accordingly would modify the EAB rules by providing that an exchanging shareholder of the foreign acquired corporation computes its all earnings and profits amount after accounting for

the effects of a deemed distribution from the foreign subsidiaries of the foreign acquired corporation to the foreign acquired corporation. See proposed § 1.367(b)–3(g)(1). The deemed distribution, which occurs immediately before the inbound nonrecognition transaction, would be equal to the amount of “specified earnings.” The term specified earnings would be defined under the proposed regulations as the lesser of (i) the aggregate earnings and profits of foreign subsidiaries of the foreign acquired corporation (with no exclusion for those earnings and profits characterized as PTEP) (collectively, lower-tier earnings), and (ii) the EAB of the foreign acquired corporation. See proposed § 1.367(b)–2(g)(2)(vii). The limitations on specified earnings described in Notice 2016–73 and Part II.A of the Explanation of Provisions section of this preamble (other than the EAB limitation, which is retained with modification) are removed because those limitations, which were designed in part to approximate a reasonable allocation of EAB among the shareholders of the foreign acquired corporation, are not necessary where the foreign acquired corporation’s basis imbalance is addressed by a deemed distribution. Thus, for example, the definition of specified earnings in the proposed regulations would not be limited to the earnings and profits of each foreign subsidiary attributable under section 1248(c)(2) to the stock of the foreign acquired corporation exchanged, but instead would include all of the earnings and profits of lower-tier foreign subsidiaries (and therefore does not exclude PTEP). The proposed regulations would adopt this approach because under the deemed distribution model all such earnings and profits would be available to increase the earnings and profits of the foreign acquired corporation if actually distributed to it through the chain of ownership.

Where specified earnings are drawn from multiple foreign subsidiaries, specified earnings would be drawn from all foreign subsidiaries on a pro rata basis (in proportion to each foreign subsidiary’s share of aggregate earnings and profits of the foreign subsidiaries). See proposed § 1.367(b)–3(g)(3). In addition, and consistent with § 1.367(b)–2(e)(2), specified earnings drawn from foreign subsidiaries would be treated as being distributed to the foreign acquired corporation through all tiers of intermediate owners, rather than directly to the foreign acquired corporation. See proposed § 1.367(b)–3(g)(1).

The Treasury Department and the IRS are aware that limiting the amount of the deemed distribution by the amount of lower-tier earnings would preclude the deemed distribution from giving rise to a return of basis under section 301(c)(2) or gain recognition under section 301(c)(3) and in that respect would differ from the deemed distribution described in the Final Regulations. See § 1.367(b)–10(b). The approach taken in the proposed regulations reflects administrability concerns that could arise from adopting a more complete distribution model which could require, for example, rules to allocate the appropriate amount of basis recovery and section 301(c)(3) gain among tiers of foreign subsidiaries. That additional complexity may not be justified when balanced against the limited application of the EAB rules, which apply only where a taxpayer has previously engaged in a transaction described in proposed § 1.367(b)–3(g)(1). The Treasury Department and the IRS continue to study transactions that could give rise to EAB, including whether EAB principles should be applied to other types of inbound nonrecognition transactions.

F. Definition of Foreign Subsidiary

Notice 2016–73 used, but did not define, the term “foreign subsidiary” when referring to entities held by the foreign acquired corporation for purposes of computing specified earnings and making adjustments to EAB. The proposed regulations similarly use the term “foreign subsidiary” for purposes of the EAB rules and would define the term based, in part, on the ownership rules in section 1248(c)(2)(B). See proposed § 1.367(b)–3(g)(2)(ii).

G. EAB Anti-Abuse Rule and Prohibition Against Affirmative Use

Notice 2016–73 announced that an anti-abuse rule would address transactions engaged in with a view to avoid the purposes of the EAB rules. As described in Notice 2016–73, the anti-abuse rule would provide for adjustments, including disregarding the effects of transactions, to carry out the purposes of the EAB rules. As one example, the anti-abuse rule stated that a transaction engaged in with a view to reduce EAB would be disregarded for purposes of computing EAB.

The comment requested that the Treasury Department and the IRS clarify the scope of the anti-abuse rule and purpose of the EAB rules. While the comment acknowledged that § 1.367(b)–3 is intended to ensure that a domestic acquiring corporation does not succeed

to the asset basis of the foreign acquired corporation unless the earnings and profits associated with such basis have been subject to U.S. tax, the comment asserted that it was unclear if certain transactions that would reduce EAB would violate this purpose. The comment provided several examples of such transactions, including a section 332 liquidation of a foreign subsidiary into the foreign acquired corporation. The comment explained that, if the liquidated subsidiary has high outside basis in its stock but low inside basis in its assets, then the liquidation would reduce the foreign acquired corporation's EAB because the subsidiary's high outside stock basis would be eliminated and replaced with its low inside asset basis.

The Treasury Department and the IRS are of the view that the more limited scope of the EAB rules set forth in the proposed regulations would largely mitigate the concern reflected in the comment, because under the proposed regulations, the EAB rules would apply only where a taxpayer has created EAB in an earlier tax-motivated transaction, thereby significantly narrowing the context in which the anti-abuse rule may apply. With respect to the limited cases that would be subject to the EAB rules, the Treasury Department and the IRS continue to see a need to prevent transactions engaged in with a view to reducing EAB, which could lead to results inconsistent with the purposes articulated in Notice 2016-73 and in Part II.A of the Explanation of Provisions section of this preamble; that is, ensuring the appropriate carryover of tax attributes from the foreign acquired corporation to the domestic acquiring corporation.

The Treasury Department and the IRS are also aware of transactions that may attempt to affirmatively apply the EAB rules to avoid Federal income tax. The proposed regulations accordingly would provide that a taxpayer may not apply the EAB rules to a transaction if the taxpayer created EAB with a principal purpose of avoiding any tax imposed under the Code. *See* proposed § 1.367(b)-3(g)(5).

H. Notice Reporting

Section 1.367(b)-1(c) requires that certain participants to a "section 367(b) exchange" (as defined in § 1.367(b)-1(a)) disclose information concerning such exchange on a statement attached to a timely filed Federal tax return or Form 5471 (Information Return of U.S. Persons With Respect to Certain Foreign Corporations), as applicable, in the taxable year in which income is realized in the exchange (such statement, the

section 367(b) notice). To enhance compliance and administration with respect to the EAB rules, the proposed regulations would require that the section 367(b) notice include certain information related to EAB, including how it arose and how the amount was determined. *See* proposed § 1.367(b)-1(c)(4)(ix). The proposed regulations also would extend the section 367(b) notice requirement to participants in transactions that implicate § 1.367(b)-10, as discussed in Part III.E of the Explanation of Provisions section of this preamble.

I. Exchange Gain or Loss With Respect to PTEP

In general, § 1.367(b)-2(j)(2)(ii) provides that, if an exchanging shareholder that is a foreign corporation includes in income a deemed dividend of either the all earnings and profits amount under § 1.367(b)-3 or the section 1248 amount under § 1.367(b)-4, the exchanging shareholder is treated as receiving a deemed distribution of PTEP from the appropriate foreign corporation (deemed PTEP distribution). However, if the exchanging shareholder that has an income inclusion is a United States person, the exchanging shareholder is treated as receiving the deemed PTEP distribution solely for the purpose of computing exchange gain or loss under section 986(c). *See* § 1.367(b)-2(j)(2)(i). Because the deemed PTEP distribution is created where there is an income inclusion, however, a taxpayer might assert that no exchange gain or loss is recognized under § 1.367(b)-2(j)(2)(i) where the all earnings and profits amount or section 1248 amount is zero, even though the exchange gain or loss would have been recognized had all the earnings and profits or the section 1248 amount been a positive number. The proposed regulations therefore would clarify that there is a deemed PTEP distribution under § 1.367(b)-2(j)(2)(i) regardless of whether the all earnings and profits amount or the section 1248 amount is greater than zero. A similar change would be made to § 1.367(b)-2(j)(2)(ii).

The Treasury Department and the IRS are studying more broadly the treatment of section 986(c) amounts and PTEP in transactions subject to section 367(b) and request comments on the application of § 1.367(b)-2(j)(2) more generally.

J. Calculation of Net Investment Income Under Section 1411

The Treasury Department and the IRS are also concerned that in certain exchanges subject to section 367(b), earnings and profits that are

characterized as PTEP might not be taken into account for purposes of calculating net investment income (NII) under section 1411. In cases where an exchanging shareholder does not make the election described in § 1.1411-10(g), a distribution that would otherwise constitute a distribution of PTEP under section 959(a)—and thus would not be treated as a dividend for purposes of chapter 1 of the Code under section 959(d)—generally is treated as a dividend for purposes of calculating NII. *See* § 1.1411-10(c)(1)(i)(A)(1). This rule seeks to preserve the NII tax base, as amounts that are characterized as PTEP will not also have been previously taxed under section 1411 (absent the election in § 1.1411-10(g)) and so should be included in NII.

The NII tax base may not be fully preserved, however, in certain exchanges subject to section 367(b). For example, an inbound asset reorganization subject to § 1.367(b)-3 will eliminate earnings and profits that are characterized as PTEP without creating a deemed distribution of those earnings, because PTEP is excluded from the all earnings and profits amount. *See* § 1.367(b)-2(d)(2)(ii). An exchanging shareholder would thus never recognize a dividend of those earnings for purposes of calculating NII; further, gain that the exchanging shareholder may recognize on a subsequent sale of stock of the domestic acquiring corporation may be netted against certain losses (as NII includes net gains, but gross income from dividends). Certain foreign-to-foreign transactions described in § 1.367(b)-4, or section 355 distributions described in § 1.367(b)-5, could similarly fail to preserve the NII tax base because PTEP is also excluded from the section 1248 amount. *See* § 1.367(b)-2(c)(1). For example, while an exchanging shareholder's annual PTEP accounts would not be eliminated as a result of a foreign-to-foreign transaction that results in a loss of section 1248 shareholder or CFC status, an exchanging shareholder could nevertheless distort the character of its NII by selling its stock in the foreign acquirer before its PTEP is distributed. The proposed regulations therefore would modify § 1.1411-10(c)(3) such that (with respect to stock of a foreign corporation for which an election under § 1.1411-10(g) is not in effect) the all earnings and profits amount and the section 1248 amount include PTEP for purposes of section 1411, consistent with how section 1248 is applied in this context. *See* proposed § 1.1411-10(c)(3)(ii). The proposed regulations

also would provide for conforming basis adjustments for purposes of section 1411. See proposed § 1.1411–10(d)(5).²

III. Rules Applicable to Triangular Reorganizations

A. Priority Rules

As discussed in Notice 2016–73 and summarized in Part I.F of the Explanation of Provisions section of this preamble, the Treasury Department and the IRS are aware of transactions that are designed to repatriate basis without a corresponding repatriation of the earnings and profits associated with that basis. As part of these transactions, the taxpayer exploits the section 367(a) priority rule by filing a gain recognition agreement with respect to all, or all but a de minimis amount, of the foreign target corporation stock exchanged in the applicable triangular reorganization. The taxpayer accordingly recognizes no, or a de minimis amount of, section 367(a) income with respect to the target stock. Because the taxpayer also takes the position that a deemed distribution would not result in any section 367(b) income, the taxpayer applies the section 367(a) priority rule to prevent the application of the Final Regulations. The taxpayer also takes the position that the anti-abuse rule would not apply to cause this transaction to be subject to § 1.367(b)–10 and therefore does not make adjustments that have the effect of a distribution of property from S to P, with the result that S would have transferred property to P without a corresponding transfer of the earnings and profits associated with that property.

Notice 2016–73 announced that future regulations would modify the section 367(a) priority rule such that it would not apply to an applicable triangular reorganization involving a foreign target corporation. Any such applicable triangular reorganization would thus be subject to the Final Regulations with the result that adjustments would be made that have the effect of a distribution of property from S to P under section 301. A similar modification was announced with respect to the section 367(b) priority rule.

The comment supported the proposed modification to the section 367(a) priority rule. As an alternative, the comment suggested that the existing formulation of the section 367(a) priority rule (that is, without taking into

account the modifications described in Notice 2014–32 that would limit the “amount” of section 367(a) income to the amount giving rise to U.S. tax) be retained in cases where the target is a foreign corporation. Under that formulation, the “amount” of section 367(a) income is compared to the “amount” of section 367(b) income, regardless of whether such amounts are subject to U.S. tax. The comment asserted that this formulation would cause a greater amount of section 367(b) income to be taken into account, thereby making it more difficult for taxpayers to exploit the section 367(a) priority rule to avoid the Final Regulations.

The Treasury Department and the IRS expect that the modification to the section 367(a) priority rule described in Notice 2016–73 would best address such exploitation by ensuring that adjustments that have the effect of a deemed distribution of property from S to P are made whenever the target is a foreign corporation. This result would reinforce one of the purposes of the Final Regulations by ensuring that property transfers that are in substance distributions are treated as such, thereby preventing the separation of property from the earnings and profits associated with that property. The comment’s alternative approach could also, as the comment acknowledged, invite the avoidance of section 301(c)(2) basis reduction in situations where a small amount of section 367(a) income is compared to a large amount of section 301(c)(2) basis reduction. Because a return of basis is not considered section 367(b) income, a small amount of section 367(a) income could be sufficient to trigger the section 367(a) priority rule. Accordingly, the proposed regulations would adopt the modifications to the section 367(a) and section 367(b) priority rules described in Notice 2016–73. See proposed §§ 1.367(a)–3(a)(2)(iv) and 1.367(b)–10(a)(2)(iii).

As discussed in Part I.E of the Explanation of Provisions section of this preamble, Notice 2014–32 announced that the section 367(a) and section 367(b) priority rules would be modified to take into account only the portion of a distribution that would be actually subject to U.S. tax, including the extent to which a distribution would give rise to an inclusion under section 951(a) that would be subject to U.S. tax. In light of the TCJA, the proposed regulations also would modify the priority rules to take into account the extent to which a distribution would give rise to an inclusion under section 951A(a) that would be subject to U.S. tax (even though it is unlikely that a distribution

from S to P would give rise to a section 951A(a) inclusion).

B. § 1.367(b)–4 and Notice 2016–73

1. Overview

Notice 2016–73 announced that regulations to be issued under § 1.367(b)–4 would apply to the exchange of a foreign target corporation’s stock that occurs in connection with an applicable triangular reorganization. As described in Notice 2016–73, the regulations under § 1.367(b)–4 would require all shareholders of the target corporation to both include in income as a deemed dividend the section 1248 amount with respect to the target stock exchanged and, after taking into account the increase in basis resulting from such deemed dividend, recognize all realized gain with respect to such stock that would not otherwise be recognized. This treatment would be required only to the extent that the target shareholders exchanged target stock for P stock or securities that S previously acquired for property in the P acquisition (tainted P stock or securities); section 367(a) would continue to apply to the exchange of target stock to the extent the target shareholders did not receive such tainted P stock or securities. The proposed regulations would adopt the rules as described in Notice 2016–73 without significant modification. See proposed § 1.367(b)–4(g).

2. Authority Under Section 367

The comment questioned whether section 367(b) could be applied to an applicable triangular reorganization in a manner that both requires adjustments that have the effect of a distribution of property from S to P and requires the shareholders of a foreign target corporation to recognize the full amount of gain with respect to the target corporation stock that is exchanged for tainted P stock or securities. The comment asserted that this application of section 367(b) effectively achieves the same result as if the applicable triangular reorganization were concurrently subject to taxation under both section 367(b) (with respect to the P acquisition) and section 367(a) (with respect to the target shareholders’ exchange of target stock). According to the comment, section 367 may not apply to cause such concurrent taxation because the statutory language in section 367(b)(1) provides that section 367(b) may apply only where there is no transfer of property described in section 367(a). The comment cited to § 1.367(a)–3(b)(2), under which transactions that could be subject to tax under both

² The Treasury Department and the IRS recognize that certain rules in § 1.1411–10 involving domestic partnerships and certain S corporations have not been updated to reflect changes made to the application of § 1.958–1 pursuant to TD 9866, 84 FR 29288, and TD 9960, 87 FR 3648, and intend to update them in a future guidance project.

section 367(a) and (b) are subject to taxation under only one of those sections. The comment also noted that the section 367(a) and (b) priority rules, as currently effective, likewise operate in a manner that results in only one or the other of section 367(a) or (b) applying to an applicable triangular reorganization.

The Treasury Department and the IRS are of the view that the proposed application of § 1.367(b)–4 is appropriate and within section 367’s statutory grant of authority. Under section 367(a)(5), the Secretary has broad authority to exempt certain transactions from the application of section 367(a)(1) in order to carry out the purposes of section 367(a). Deliberately failing to file a gain recognition (or filing a partial gain recognition agreement) to exploit the section 367(a) priority rule is inconsistent with the purposes of section 367(a), and section 367(b) is better suited to address these transactions. Accordingly, it is appropriate to exercise the authority in section 367(a)(5) to make the section 367(a) priority rule inapplicable to certain exchanges of target stock. Section 367(b) may therefore apply to the target shareholders’ exchange of target stock because the exchange, by virtue of section 367(a)(5), is not described in section 367(a)(1). *See* section 367(b)(1). Furthermore, section 367(b)(1) is clear that the Secretary may issue any regulations “which are necessary or appropriate to prevent the avoidance of Federal income taxes.” Section 367(b)(2) provides that such regulations “shall include . . . the circumstances under which gain shall be recognized currently, or amounts included in gross income currently as a dividend, or both” Nothing within this broad grant of rulemaking authority prevents section 367(b) from concurrently applying to both the P acquisition and the exchange of target stock such that both of these components of an applicable triangular reorganization give rise to income or gain.

3. Section 367(b) Policy

The comment further asserted that requiring adjustments that have the effect of a distribution of property from S to P where the target is a foreign corporation sufficiently addresses the concerns raised in Notice 2016–73 and thus questioned the rationale in also subjecting the target shareholders to current taxation under § 1.367(b)–4. According to the comment, the target shareholders remain subject to U.S. taxing jurisdiction through their

carryover basis in the stock of P and continued indirect equity interest in the target. The comment claimed that historic section 367(b) policy has recognized the permissibility of deferral where U.S. taxing rights remain intact, and in particular where section 1248 amounts are preserved.

The Treasury Department and the IRS maintain that it is appropriate for the proposed regulations to require all target shareholders to recognize the full amount of their gain with respect to the stock of target exchanged for tainted stock or securities of P. As noted above, section 367(b) provides the Secretary with a broad grant of authority to issue regulations applicable to nonrecognition transactions that are subject to section 367(b), and the exercise of this broad rulemaking authority is not conditioned on addressing a particular or historic policy concern. The Treasury Department and the IRS further note that applicable triangular reorganizations have long been identified as tax-motivated transactions, not only with respect to S’s acquisition of the stock of P but also with respect to the exchange of stock of T. *See* Notice 2006–85; Notice 2014–32 (addressing situations where taxpayers attempted to manipulate the section 367(b) priority rule to effectuate an inversion without the T shareholders being subject to § 1.367(a)–3(c)). Moreover, a more limited application of the rules under section 367 has led to repeated attempts by taxpayers to structure around the rules. Requiring all target shareholders to recognize the full amount of their gain in the stock of the target corporation in connection with such transactions limits opportunities to selectively trigger this gain.

C. Deemed Contribution Rule

Initially proposed in Notice 2007–48 (2007–25 IRB 1428), the deemed contribution rule in § 1.367(b)–10(b)(2) was intended to address the scenario where S purchases P stock or securities from a person other than P (for example, from the public on the open market) instead of directly from P itself. In such cases, the adjustments required by the deemed distribution effectively adopt a “consent dividend” model, which would treat P as receiving a distribution of property from S even though P did not actually receive the property transferred in the P acquisition. The deemed contribution rule, under this model, accounts for P’s lack of property by requiring adjustments that have the effect of a contribution of property (with no built-in gain or loss) by P to S in an amount equal to the amount of the deemed distribution. In particular, these

adjustments require that P increase its basis in its S stock by the amount of the deemed contribution. Under the Final Regulations, the deemed contribution rule applies regardless of whether S acquires P stock or securities from P or from a person other than P.

As discussed in Notice 2014–32, the Treasury Department and the IRS are aware of transactions designed to avoid U.S. tax by exploiting the deemed contribution rule. In one such transaction, for example, S has no earnings and profits but a high outside stock basis. The taxpayer effects an applicable triangular reorganization where the amount of property transferred to P in the P acquisition is less than the amount of the outside stock basis in S. The taxpayer applies the Final Regulations to make the adjustments required by the deemed distribution, which results solely in a return of the outside stock basis in S under section 301(c)(2). The adjustments required by the deemed contribution rule, however, immediately restore that basis. The applicable triangular reorganization thus does not result in a net reduction to the outside stock basis in S, effectively negating the intended consequences of the deemed distribution. Further, the taxpayer could attempt to repeatedly effect applicable triangular reorganizations to transfer property from S to P with no net reduction to the outside stock basis in S despite each transaction being treated as a deemed distribution. As a result, and consistent with the regulations announced in Notice 2014–32, the proposed regulations remove the deemed contribution rule.

D. Anti-Abuse Rule

The Final Regulations contain an anti-abuse rule under which appropriate adjustments are made if, in connection with a triangular reorganization, a transaction is engaged in with a view to avoid the purpose of the Final Regulations. *See* § 1.367(b)–10(d). The anti-abuse rule contains an example illustrating that the earnings and profits of S may, under certain circumstances, be deemed to include the earnings and profits of a corporation related to P or S for purposes of determining the consequences of the adjustments provided for in the Final Regulations.

As illustrated in Notice 2014–32 and Notice 2016–73, taxpayers have taken the position that the anti-abuse rule does not apply to a given transaction under the theory that the one example provided by the anti-abuse rule does not explicitly describe the transaction. Notice 2014–32 accordingly announced that future regulations would clarify

that the anti-abuse rule may apply broadly to support a variety of adjustments, including adjusting earnings and profits between previously unrelated corporations. The proposed regulations would implement the clarifications to the anti-abuse rule described in Notice 2014–32.

To illustrate the broad application of the anti-abuse rule, the proposed regulations would include additional examples. First, the proposed regulations would add an example illustrating that the anti-abuse rule may apply to a “downstream” transfer of property made in connection with a triangular reorganization. Because a downstream transfer (whereby property being separated from earnings and profits is initially transferred downstream, rather than upstream from S to P) can be structured so as not to fall within the literal application of the Final Regulations, which equate the P acquisition with a section 301 distribution, taxpayers otherwise might assert that a downstream transfer of property made in connection with a triangular reorganization cannot be subject to the Final Regulations. *See* proposed § 1.367(b)–10(d)(3) (*Example 2*). The proposed regulations also would add an example illustrating that certain debt exchanges may implicate the anti-abuse rule. *See* proposed § 1.367(b)–10(d)(4) (*Example 3*).

For the avoidance of doubt, the application of the anti-abuse rule is not limited to the particular fact patterns described in the examples. In addition, the proposed regulations would not modify the operative text of the anti-abuse rule, which remains unchanged from the Final Regulations, such that the examples included in the proposed regulations would illustrate transactions subject to the anti-abuse rule.

E. Other Rules

Notice 2014–32 described transactions designed to avoid the application of the no-U.S.-tax exception in § 1.367(b)–10(a)(2)(ii) and also expressed a concern that taxpayers may attempt to interpret that exception in a narrower manner than was intended or is appropriate. Notice 2014–32 accordingly announced that future regulations would modify the no-U.S.-tax exception, in part to clarify its scope. The proposed regulations would adopt the modifications to the no-U.S.-tax exception described in Notice 2014–32. *See* proposed § 1.367(b)–10(a)(2)(ii).

As noted above in Part I.F of the Explanation of Provisions section of this preamble, Notice 2016–73 announced that the definition of “property” in § 1.367(b)–10(a)(3)(ii) would be

modified to include nonqualified preferred stock of S. The proposed regulations would adopt this rule without modification. *See* proposed § 1.367(b)–10(a)(3)(ii)(C).

Section 1.367(b)–10(b)(3) provides that the deemed distribution is generally treated as occurring immediately before the P acquisition, and Notice 2016–73 requested comments on whether this rule should be modified in light of the modifications announced in the notice. The comment suggested that the current rule be retained because no reason has been identified to warrant its modification. The Treasury Department and the IRS agree with the comment and therefore no changes would be made with respect to this rule.

The proposed regulations also would modify the reporting requirements under § 1.367(b)–1(c) to require corporations that acquire stock or securities of P in a transaction described in the Final Regulations to disclose such acquisitions by attaching a section 367(b) notice (within the meaning of § 1.367(b)–1(c)) to the corporation’s tax return (or Form 5471, as applicable) for the year in which the stock or securities of P are acquired. *See* proposed § 1.367(b)–1(c)(2)(vi). Under the proposed regulations, corporations would be required to describe the circumstances of the acquisition of stock or securities of P, any related transactions involving the acquired stock or securities, and whether any adjustments were made pursuant to § 1.367(b)–10. *See* proposed § 1.367(b)–1(c)(4)(viii). The information required to be disclosed would supplement (rather than replace) any information already required to be disclosed in the section 367(b) notice.

IV. Applicability Dates

With respect to those rules described in Notice 2014–32, the proposed regulations generally would be applicable to transactions completed on or after April 25, 2014, subject to limited exceptions. *See* proposed §§ 1.367(a)–3(g)(1)(viii) and 1.367(b)–10(e)(2).

With respect to those rules described in Notice 2016–73, the proposed regulations generally would be applicable to transactions completed on or after December 2, 2016. *See* proposed §§ 1.367(a)–3(g)(1)(viii), 1.367(b)–3(g)(7)(i), 1.367(b)–4(i), and 1.367(b)–10(e)(3). To the extent the proposed regulations contain rules not previously announced in Notice 2016–73, the proposed regulations would be applicable to transactions completed on or after the date the proposed regulations are filed in the **Federal**

Register. *See* proposed §§ 1.367(b)–3(g)(7)(i), 1.367(b)–6(a)(1)(v) and (vi), and 1.1411–10(i); *see also* proposed § 1.367(b)–3(g)(7)(ii) for transition rules for certain transactions completed before the issuance of the proposed regulations.

Taxpayers and their related parties (within the meaning of sections 267(b) and 707(b)(1)) may choose to apply the rules of Notice 2014–32 and Notice 2016–73 or the proposed regulations to any open taxable year beginning before the date the proposed regulations are filed as final regulations in the **Federal Register**, provided that taxpayers and their related parties consistently apply either the entirety of Notice 2014–32 and Notice 2016–73 or the entirety of the proposed regulations for such years and each subsequent taxable year beginning before the date the proposed regulations are filed as final regulations in the **Federal Register**.

The comment requested that the Treasury Department and IRS reconsider the December 2, 2016, applicability date given that Notice 2016–73 proposed to apply the EAB rules to all inbound nonrecognition transactions, regardless of whether the taxpayer had previously effected an applicable triangular reorganization. The comment did, however, recognize the immediate need for the EAB rules to apply to already-completed applicable triangular reorganizations where the taxpayer did not apply the Final Regulations. Because the proposed regulations would apply the EAB rules only to those inbound nonrecognition transactions that follow certain triangular reorganizations and other transactions designed to create EAB, the Treasury Department and IRS maintain that the December 2, 2016, effective date is appropriate.

No inference is intended regarding the treatment of applicable triangular reorganizations, transactions undertaken with a principal purpose of creating EAB, or subsequent inbound nonrecognition transactions completed before the applicability date of the proposed regulations. Such transactions may be subject to challenge before the applicability dates, for example, under the anti-abuse rule in § 1.367(b)–10(d), applicable Code provisions, or judicial doctrines.

Effect on Other Documents

The proposed regulations would, as of the date they are filed as final regulations with the **Federal Register**, obsolete Notice 2014–32 and Notice 2016–73. Until such time, taxpayers may continue to rely on Notice 2014–32 and Notice 2016–73 as noted in Part IV

of the Explanation of Provisions section of this preamble.

Special Analyses

I. Regulatory Planning and Review—Economic Analysis

Pursuant to the Memorandum of Agreement, Review of Treasury Regulations under Executive Order 12866 (June 9, 2023), tax regulatory actions issued by the IRS are not subject to the requirements of section 6 of Executive Order 12866, as amended. Therefore, a regulatory impact assessment is not required.

II. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3520) (PRA) requires that a Federal agency obtain the approval of the OMB before collecting information from the public, whether such collection of information is mandatory, voluntary, or required to obtain or retain a benefit.

The collections of information in the proposed regulations are in proposed § 1.367(b)–1(c)(4)(viii) and (ix) and apply to taxpayers that engage in transactions described in § 1.367(b)–3(g) or § 1.367(b)–10. This information is necessary for the IRS's audit and examination purposes, and in particular to identify transactions that should be subject to the proposed regulations. The proposed information collection is a statement by corporations attached to their timely filed Federal tax returns (or Form 5471, as applicable) that describes certain transactions and computations relevant to the proposed regulations. Because such statements have not been required for transactions that predate the proposed regulations, the Treasury Department and the IRS are limited in their ability to estimate how many taxpayers are likely to be affected by the proposed information collection. Based on available data and the profile of taxpayers that have historically undertaken the types of transactions at issue (large, publicly traded corporations), it is estimated that no more than 50 taxpayers would be affected by the proposed information collection in a given year. The likely respondents are foreign and domestic corporations.

Because the collections of information in proposed § 1.367(b)–1(c)(4)(viii) and (ix) are proposed to apply to taxable years ending on or after the date the proposed regulations are filed with the **Federal Register**, the Treasury Department and the IRS have submitted the collection of information in proposed § 1.367(b)–1(c)(4)(viii) and (ix) to the OMB for review in accordance

with the PRA and requested a temporary OMB control number (1545–NEW). After the rulemaking is finalized, burdens associated with the proposed information collection will be incorporated into OMB control number 1545–0123. OMB control number 1545–0123 represents a total estimated burden time for all forms and schedules and regulations for corporations. REG–117614–14 will be included in the future; however, the burden estimates in 1545–0123 will not isolate the estimated burden for the information collection contained in these proposed, and subsequent final, regulations. The Treasury Department and the IRS estimate burdens based on a taxpayer-type basis rather than a provision-specific basis.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid control number assigned by the Office of Management and Budget.

Commenters are strongly encouraged to submit public comments electronically. Comments and recommendations for the proposed information collection should be sent to www.reginfo.gov/public/do/PRAMain, with electronic copies to the IRS at pra.comments@irs.gov (indicate “REG–117614–14” on the subject line). This particular information collection can be found by selecting “Currently under Review—Open for Public Comments” then by using the search function. Comments can also be mailed to OMB, Attn: Desk Officer for the Department of the Treasury, Office of Information and Regulatory Affairs, Washington, DC 20503, with copies mailed to the IRS, Attn: IRS Reports Clearance Officer, SE:W:CAR:MP:T:T:SP, Washington, DC 20224. Comments on the collection of information should be received by December 5, 2023.

III. Regulatory Flexibility Act

When an agency issues a rulemaking proposal, the Regulatory Flexibility Act (5 U.S.C. chapter 6) (RFA) requires the agency “to prepare and make available for public comment an initial regulatory flexibility analysis” that will “describe the impact of the proposed rule on small entities.” See 5 U.S.C. 603(a). Section 605 of the RFA provides an exception to this requirement if the agency certifies that the proposed rulemaking will not have a significant economic impact on a substantial number of small entities. A small entity is defined as a small business, small nonprofit organization, or small governmental jurisdiction. See 5 U.S.C. 601(3) through (6).

The Treasury Department and the IRS do not have data readily available to assess the number of small entities potentially affected by the proposed regulations. However, the taxpayers affected by the proposed regulations would generally be domestic and foreign corporations that participate in certain triangular reorganizations. The triangular reorganizations at issue represent a narrow set of abusive transactions that have typically been engaged in by large, publicly traded corporations. Such transactions are highly sophisticated and are thus unlikely to involve small domestic entities. Therefore, the Treasury Department and the IRS certify that the proposed regulations would not have a significant economic impact on a substantial number of small entities. The Treasury Department and the IRS invite the public to comment on the impact of these regulations on small entities.

IV. Section 7805(f)

Pursuant to section 7805(f) of the Internal Revenue Code, this regulation has been submitted to the Chief Counsel for Advocacy of the Small Business Administration for comment on its impact on small business.

V. Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 requires that agencies assess anticipated costs and benefits and take certain other actions before issuing a final rule that includes any Federal mandate that may result in expenditures in any one year by a State, local, or Tribal government, in the aggregate, or by the private sector, of \$100 million in 1995 dollars, updated annually for inflation. This proposed rule does not include any Federal mandate that may result in expenditures by State, local, or Tribal governments, or by the private sector in excess of that threshold.

VI. Executive Order 13132: Federalism

Executive Order 13132 (entitled “Federalism”) prohibits an agency from publishing any rule that has federalism implications if the rule either imposes substantial, direct compliance costs on State and local governments, and is not required by statute, or preempts State law, unless the agency meets the consultation and funding requirements of section 6 of the Executive order. This proposed rule does not have federalism implications, does not impose substantial direct compliance costs on State and local governments, and does not preempt State law within the meaning of the Executive order.

Comments and Requests for Public Hearing

Before the proposed regulations are adopted as final regulations, consideration will be given to any comments that are submitted timely to the IRS as prescribed in this preamble under the ADDRESSES section. The Treasury Department and the IRS request comments on all aspects of the proposed rules. The Treasury Department and the IRS also invite comments on section 367(b) more generally, including whether, and if so, how, any of the existing regulations issued under section 367(b) should be modified in light of the Tax Cuts and Jobs Act. Any electronic or paper comments submitted will be made available at www.regulations.gov or upon request.

A public hearing will be scheduled if requested in writing by any person who timely submits electronic or written comments. Requests for a public hearing are encouraged to be made electronically. If a public hearing is scheduled, notice of the date and time for the public hearing will be published in the Federal Register.

Statement of Availability of IRS Documents

IRS Revenue Procedures, Revenue Rulings, Notices, and other guidance cited in this document are published in the Internal Revenue Bulletin or Cumulative Bulletin and are available from the Superintendent of Documents, U.S. Government Publishing Office, Washington, DC 20402, or by visiting the IRS website at http://www.irs.gov.

Drafting Information

The principal author of the proposed regulations is Brady Plastras of the Office of the Associate Chief Counsel (International). However, other personnel from the Treasury Department and the IRS participated in their development.

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Proposed Amendments to the Regulations

Accordingly, the Treasury Department and the IRS propose to amend 26 CFR part 1 as follows:

PART 1—INCOME TAXES

Paragraph 1. The authority citation for part 1 is amended by adding an entry for § 1.1411-10 in numerical order to read in part as follows:

Authority: 26 U.S.C. 7805 * * *
* * * * *
Section 1.1411-10 also issued under 26 U.S.C. 367(b).

Par. 2. Section 1.367(a)-3 is amended by revising paragraphs (a)(2)(iv) and (g)(1)(viii) to read as follows:

§ 1.367(a)-3 Treatment of transfers of stock or securities to foreign corporations.

- (a) * * *
(2) * * *
(iv) Certain triangular reorganizations described in § 1.367(b)-10. If, in an exchange under section 354 or 356, one or more U.S. persons exchange stock or securities of T (as defined in § 1.367(b)-10(a)(3)(i)) in connection with a transaction described in § 1.367(b)-10 (applying to certain acquisitions of parent stock or securities for property in triangular reorganizations), section 367(a)(1) does not apply to such U.S. persons with respect to the exchange of the stock or securities of T if the condition in paragraph (a)(2)(iv)(A) or (B) of this section is satisfied. See § 1.367(b)-10(a)(2)(iii) (providing a similar rule that excludes certain transactions from the application of § 1.367(b)-10).

(A) The amount of gain in the T stock or securities that would otherwise be recognized under section 367(a)(1) (without regard to any exceptions thereto) pursuant to the indirect stock transfer rules of paragraph (d) of this section is less than the sum of the amount of the deemed distribution under § 1.367(b)-10 that would be treated and subject to U.S. tax as a dividend under section 301(c)(1) (or would give rise to an inclusion under section 951(a)(1)(A) or 951A(a) that would be subject to U.S. tax) and the amount of such deemed distribution that would be treated and subject to U.S. tax as gain from the sale or exchange of property under section 301(c)(3) (or would give rise to an inclusion under section 951(a)(1)(A) or 951A(a) that would be subject to U.S. tax) if § 1.367(b)-10 would otherwise apply to the triangular reorganization.

(B) T is a foreign corporation, but only to the extent that the stock or securities of T are exchanged for stock or securities of P that were acquired by S in exchange for property in the P acquisition (as the terms P, S, property, and P acquisition are defined in § 1.367(b)-10(a)). Such exchange of T stock or securities is subject to the rules under § 1.367(b)-4(g). Section 367(a) applies to the exchange of T stock or securities to the extent that such stock or securities are exchanged for P stock or securities that were not acquired by

S in exchange for property in the P acquisition.

(g) * * *
(1) * * *

(viii) Except as provided in this paragraph (g)(1)(viii), paragraph (a)(2)(iv) of this section applies to exchanges occurring on or after May 17, 2011. For exchanges that occur prior to May 17, 2011, see § 1.367(a)-3T(b)(2)(i)(C) as contained in 26 CFR part 1 revised as of April 1, 2011. Paragraph (a)(2)(iv)(A) of this section, to the extent it relates to amounts that would be subject to U.S. tax or give rise to an inclusion under section 951(a)(1)(A) that would be subject to U.S. tax, applies to triangular reorganizations that are completed on or after April 25, 2014, unless T was not related to P or S (within the meaning of section 267(b)) immediately before the triangular reorganization; the triangular reorganization was entered into either pursuant to a written agreement that was (subject to customary conditions) binding before April 25, 2014, and at all times afterwards, or pursuant to a tender offer announced before April 25, 2014, that is subject to section 14(d) of the Securities and Exchange Act of 1934 (15 U.S.C. 78n(d)(1)) and Regulation 14(D) (17 CFR 240.14d-1 through 240.14d-101) or that is subject to comparable foreign laws; and to the extent the P acquisition that occurs pursuant to the plan of reorganization is not completed before April 25, 2014, the P acquisition was included as part of the plan before April 25, 2014. Paragraph (a)(2)(iv)(B) of this section applies to transactions completed on or after December 2, 2016. Paragraph (a)(2)(iv)(A) of this section, to the extent it relates to amounts that would give rise to an inclusion under section 951A(a) that would be subject to U.S. tax, applies to triangular reorganizations that are completed on or after October 5, 2023.

- Par. 3. Section 1.367(b)-1 is amended by:
1. Removing the language “and” at the end of paragraph (c)(2)(iv)(B);
2. Removing the period at the end of paragraph (c)(2)(v) and adding the language “; and” in its place;
3. Adding paragraph (c)(2)(vi);
4. In paragraph (c)(3)(ii)(A), removing the language “paragraph (c)(2)(i) or (v)” and adding in its place the language “paragraph (c)(2)(i), (v), or (vi)”;
5. Revising paragraph (c)(4)(v);
6. Removing the language “and” at the end of paragraph (c)(4)(vi);
7. Removing the period at the end of paragraph (c)(4)(vii)(B) and adding a semicolon in its place; and

■ 8. Adding paragraphs (c)(4)(viii) and (ix).

The additions and revision read as follows:

§ 1.367(b)–1 Other transfers.

* * * * *

(c) * * *

(2) * * *

(vi) A domestic or foreign corporation (S) that acquires stock or securities of another corporation (P) in a transaction described in § 1.367(b)–10(a)(1), without regard to the exceptions in § 1.367(b)–10(a)(2).

* * * * *

(4) * * *

(v) Any information that is or would be required to be furnished with a Federal income tax return pursuant to regulations or other guidance under section 332, 351, 354, 355, 356, 361, 368, or 381 (whether or not a Federal income tax return is required to be filed), if such information has not otherwise been provided by the person filing the section 367(b) notice;

* * * * *

(viii) In the case of a corporation (S) described in paragraph (c)(2)(vi) of this section, the rules of this paragraph (c)(4) apply by treating the acquisition of the stock or securities of P in exchange for property as the section 367(b) exchange referred to in paragraph (a) of this section. The section 367(b) notice must also include a complete description of the acquisition of the stock or securities of P in exchange for property, including a description of the property provided in exchange for the stock or securities and any related transactions involving the acquisition of the stock or securities. The section 367(b) notice must describe any adjustments made pursuant to § 1.367(b)–10 or, if no adjustments are made, explain why no such adjustments were made; and

(ix) In the case of an exchange to which § 1.367(b)–3(g) applies, a statement describing how any excess asset basis (as defined in § 1.367(b)–3(g)(2)(i)) arose, the amount of excess asset basis, and a description of the computation of the amount of excess asset basis.

* * * * *

■ **Par. 4.** Section 1.367(b)–2 is amended by:

■ 1. In paragraph (c)(1), adding a sentence after the current first sentence;

■ 2. Adding a sentence to the end of paragraph (d)(2)(ii);

■ 3. In paragraph (d)(3)(ii), removing the language “subsidiaries of” and adding in its place the language “corporations owned by”;

■ 4. Adding a sentence to the end of paragraph (d)(3)(ii);

■ 5. In paragraph (e)(4) *Example 2*, removing the language “foreign subsidiary” and adding in its place the language “foreign corporation”; and

■ 6. In paragraphs (j)(2)(i) and (ii), removing the language “is required to include in income either the all earnings and profits amount or the section 1248 amount under the provisions of § 1.367(b)–3 or 1.367(b)–4” and adding in its place the language “exchanges stock pursuant to a transaction described in § 1.367(b)–3 or § 1.367(b)–4(b)(1)(i), (b)(2)(i), (b)(3), (e), or (g)”.

The additions read as follows:

§ 1.367(b)–2 Definitions and special rules.

* * * * *

(c) * * *

(1) * * * But see § 1.1411–10(c)(3)(ii), which for certain exchanges modifies the section 1248 amount for purposes of section 1411. * * *

* * * * *

(d) * * *

(2) * * *

(ii) * * * But see § 1.1411–10(c)(3)(ii), which for certain exchanges modifies the all earnings and profits amount for purposes of section 1411.

* * * * *

(3) * * *

(ii) * * * But see § 1.367(b)–3(g)(1), which adjusts the all earnings and profits amount through a deemed distribution of certain earnings and profits of foreign subsidiaries owned by the foreign acquired corporation.

* * * * *

■ **Par. 5.** Section 1.367(b)–3 is amended by adding paragraph (g) to read as follows:

§ 1.367(b)–3 Repatriation of foreign corporate assets in certain nonrecognition transactions.

* * * * *

(g) *All earnings and profits amount adjusted for excess asset basis*—(1) *General rule.* If there is excess asset basis with respect to a foreign acquired corporation and the condition described in paragraph (g)(1)(i) or (ii) of this section is satisfied, then, except as provided in paragraph (g)(5) of this section, an exchanging shareholder to which paragraph (b)(3)(i) of this section applies must compute the all earnings and profits amount with respect to its stock in the foreign acquired corporation as if the foreign acquired corporation had received a distribution of property from a foreign subsidiary under section 301 in an amount equal to the specified earnings, immediately before the inbound nonrecognition transaction. The deemed distribution described in the preceding sentence is treated as occurring for all purposes of

the Internal Revenue Code. For purposes of this paragraph (g)(1), the amount of the distribution from a foreign subsidiary is equal to the amount of earnings and profits of that foreign subsidiary that is designated as specified earnings under paragraph (g)(3) of this section. In the case of a foreign subsidiary the stock of which is not held directly by the foreign acquired corporation, the distribution is treated as being made through any intermediate owners. For purposes of this paragraph (g)(1), references to the foreign acquired corporation, S, and a foreign subsidiary include any predecessor corporation.

(i) S previously acquired in exchange for property stock or securities of the foreign acquired corporation in connection with a triangular reorganization described in § 1.358–6(b)(2), and the foreign acquired corporation and S did not make adjustments that have the effect of a distribution of property from S to the foreign acquired corporation under § 1.367(b)–10(b)(1).

(ii) The excess asset basis is attributable, directly or indirectly, to property previously provided by a foreign subsidiary of the foreign acquired corporation in connection with a transaction not described in paragraph (g)(1)(i) of this section and undertaken with a principal purpose to create such excess asset basis.

(2) *Definitions.* The following definitions apply for purposes of this paragraph (g).

(i) *Excess asset basis.* The term *excess asset basis* means, with respect to a foreign acquired corporation, the amount by which the inside asset basis of that corporation exceeds the sum of the following amounts:

(A) The earnings and profits of the foreign acquired corporation attributable to its outstanding stock. For purposes of paragraph (g)(2)(i) of this section, such earnings and profits are determined under the principles of § 1.367(b)–2(d) but without regard to whether the exchanging shareholder is described in paragraph (b)(1) of this section or whether the exchanging shareholder is a U.S. person or a foreign person; and such earnings and profits include amounts described in section 1248(d)(3) or (4).

(B) The aggregate basis in the outstanding stock of the foreign acquired corporation determined immediately before the nonrecognition transaction described in paragraph (a) of this section (the inbound nonrecognition transaction) and therefore without regard to any basis increase described in § 1.367(b)–

2(e)(3)(ii) resulting from such inbound nonrecognition transaction.

(C) The aggregate amount of liabilities of the foreign acquired corporation that are assumed (determined under the principles of section 357(d)) by the domestic acquiring corporation in the inbound nonrecognition transaction.

(ii) *Foreign subsidiary*. The term *foreign subsidiary* means, with respect to a foreign acquired corporation, a foreign corporation with respect to which the foreign acquired corporation satisfies the ownership requirements of section 1248(c)(2)(B) but for this purpose treating the foreign acquired corporation as the United States person referred to in section 1248(c)(2)(B).

(iii) *Inbound nonrecognition transaction*. The term *inbound nonrecognition transaction* has the meaning set forth in paragraph (g)(2)(i)(B) of this section.

(iv) *Inside asset basis*. The term *inside asset basis* means, with respect to a foreign acquired corporation, the aggregate of the adjusted basis of all the assets of that corporation in the hands of the domestic acquiring corporation determined immediately after the inbound nonrecognition transaction.

(v) *Lower-tier earnings*. The term *lower-tier earnings* means, with respect to a foreign acquired corporation, the sum of the earnings and profits (including deficits) of each foreign subsidiary.

(vi) *S*. The term *S* has the same meaning as in § 1.367(b)–10(a)(3)(i).

(vii) *Specified earnings*. The term *specified earnings* means, with respect to a foreign acquired corporation, the lesser of the following amounts:

(A) Lower-tier earnings; and

(B) The excess asset basis of the foreign acquired corporation.

(viii) *Property*. The term *property* has the same meaning as in § 1.367(b)–10(a)(3)(ii).

(3) *Designation of specified earnings*. If lower-tier earnings exceed specified earnings, then the portion of lower-tier earnings that is designated as specified earnings is determined by reference to the earnings and profits of each foreign subsidiary on a pro rata basis in proportion to each subsidiary's share of lower-tier earnings.

(4) *Anti-abuse rule*. Appropriate adjustments are made pursuant to this section if a transaction is engaged in with a view to avoid the purposes of this paragraph (g). For example, if a transaction is engaged in with a view to reduce excess asset basis, including by increasing the basis in the stock of the foreign acquired corporation without a corresponding increase in the basis of the assets of the foreign acquired

corporation, that increase in the basis in the stock of the foreign acquired corporation will be disregarded for purposes of computing excess asset basis.

(5) *Prohibition against affirmative use*. This paragraph (g) does not apply to an inbound nonrecognition transaction if a transaction described in paragraph (g)(1) of this section was entered into with a principal purpose of subjecting the inbound nonrecognition transaction to this paragraph (g). For example, this paragraph (g) will not apply to an inbound nonrecognition transaction if a taxpayer engaged in a transaction described in paragraph (g)(1) of this section with a principal purpose of accessing tax attributes of lower-tier foreign subsidiaries by reason of a deemed distribution of lower-tier earnings of the foreign acquired corporation.

(6) *Examples*. The application of this paragraph (g) is illustrated by the examples in this paragraph (g)(6). In each example, all corporations have a calendar year-end and use the United States dollar as their functional currency.

(i) *Example 1—(A) Facts*. USP, a domestic corporation, owns all of the stock of USS, also a domestic corporation, and 80 percent of the stock of FP, a foreign corporation. USS owns the remaining 20 percent of the stock of FP. FP owns all of the stock of FS1, which in turn owns all of the stock of FS2. Both FS1 and FS2 are foreign corporations. In a reorganization described in section 368(a)(1)(F) (F reorganization), US Newco, a newly formed domestic corporation, acquires all of the assets of FP solely in exchange for stock of US Newco, which FP distributes to USP and USS in liquidation. Immediately before the F reorganization, the stock of FP owned by USP has a fair market value of \$80x and an adjusted basis of \$4x. The stock of FP owned by USS has a fair market value of \$20x and an adjusted basis of \$1x. The all earnings and profits amounts with respect to USP's stock of FP and USS's stock of FP, determined before any adjustments required by paragraph (g) of this section, are \$32x and \$8x, respectively. FP holds assets with an adjusted basis of \$95x, has no liabilities, and has \$40x of earnings and profits attributable to its outstanding stock. FS1 and FS2 have \$30x and \$70x of earnings and profits, respectively, all of which are described in section 959(c)(3). Dividends paid by FS2 to FS1, and by FS1 to FP, would qualify for the exception to foreign personal holding company income under section 954(c)(6). Before the applicability date

described in paragraph (g)(7)(i) of this section, and separate from the F reorganization, FS1 provided property to FP in exchange for stock of FP in connection with a triangular reorganization described in § 1.358–6(b)(2), and neither FP nor FS1 made adjustments that had the effect of a distribution of property from FS1 to FP under § 1.367(b)–10(b)(1).

(B) *Analysis—(1) All earnings and profits amount*. The F reorganization is an asset acquisition described in section 368(a)(1) and is thus subject to section 367(b) and this section. Under paragraph (b)(3) of this section, USP and USS each must include in income as a deemed dividend the all earnings and profits amount with respect to their stock of FP. Because there is excess asset basis with respect to FP (as determined in paragraph (g)(6)(i)(B)(2) of this section), USP and USS must compute the all earnings and profits amounts attributable to their stock of FP as if FP had received a distribution of specified earnings, immediately before the F reorganization. Because the stock of FS2 is indirectly owned by FP, to the extent the specified earnings are determined by reference to the earnings and profits of FS2, FS2 is treated as making a distribution to FS1 under section 301, and FS1 is then treated as making a distribution to FP under section 301 in an amount equal to the sum of the amount of specified earnings determined by reference to the earnings and profits of FS1 (determined without regard to the deemed distribution from FS2) and the amount of the deemed distribution received from FS2.

(2) *Excess asset basis*. The amount of excess asset basis is \$50x, calculated as the amount by which FP's inside asset basis (\$95x) exceeds the sum of FP's earnings and profits (\$40x), the aggregate basis in the outstanding stock of FP (\$5x), and the amount of liabilities of FP assumed by US Newco in the F reorganization (\$0).

(3) *Deemed distribution of specified earnings*. The amount of specified earnings equals \$50x, the lesser of the following amounts: \$100x, the sum of the earnings and profits of FS1 and FS2; and \$50x, the amount of excess asset basis with respect to FP. FP is accordingly treated as receiving a distribution of \$50x from FS1. Under paragraph (g)(3) of this section, \$15x ($\$50x \times (\$30x/\$100x)$) of FS1's earnings and profits and \$35x ($\$50x \times (\$70x/\$100x)$) of FS2's earnings and profits are designated as specified earnings. FS2 is treated as distributing \$35x to FS1. Under sections 301(c)(1) and 954(c)(6), the \$35x deemed distribution from FS2 to FS1 is treated as a dividend that does

not give rise to foreign personal holding company income. FS1 must accordingly increase its earnings and profits described in section 959(c)(3) by \$35x to \$65x, and FS2 must decrease its earnings and profits described in section 959(c)(3) by the same amount. FS1 is then treated as making a distribution of \$50x to FP. Under sections 301(c)(1) and 954(c)(6), the \$50x deemed distribution is also treated as a dividend that does not give rise to foreign personal holding company income. FP must accordingly increase its earnings and profits described in section 959(c)(3) by \$50x to \$90x, and FS1 must decrease its earnings and profits described in section 959(c)(3) by the same amount.

(4) *Adjusted all earnings and profits amount attributable to USP's FP stock.* Under paragraph (g)(1) of this section, USP must compute the all earnings and profits amount attributable to its stock of FP after taking into account the \$50x increase to FP's earnings and profits that resulted from the deemed distribution of specified earnings. Because USP owns 80% of the stock of FP, \$40x (calculated as 80% of \$50x) of the specified earnings are attributable to USP's stock of FP and are included in the all earnings and profits amount attributable to USP's stock of FP. The all earnings and profits amount that USP must include in income as a deemed dividend is therefore \$72x (\$32x + \$40x).

(5) *Adjusted all earnings and profits amount attributable to USS's FP stock.* Under paragraph (g)(1) of this section, USS must compute the all earnings and profits amount attributable to its stock of FP after taking into account the \$50x increase to FP's earnings and profits that resulted from the deemed distribution of specified earnings. Because USS owns 20% of the stock of FP, \$10x (calculated as 20% of \$50x) of the specified earnings are attributable to USS's stock of FP and are included in the all earnings and profits amount attributable to USS's stock of FP. The all earnings and profits amount that USS must include in income as a deemed dividend is therefore \$18x (\$8x + \$10x).

(ii) *Example 2—(A) Facts.* USP, a domestic corporation, owns all of the stock of FP, which in turn owns all of the stock of FS. Both FP and FS are foreign corporations. The all earnings and profits amount with respect to USP's stock of FP, determined before any adjustments required by paragraph (g) of this section, is \$50x. FP has no other earnings and profits other than the \$50x that reflect USP's all earnings and profits amount. FS has \$200x of earnings and profits, all of which are earnings and profits described in section

959(c)(2) (PTEP) because those earnings and profits gave rise to an earlier income inclusion under section 951 with respect to USP. Increases in stock basis were made under section 961 by reason of USP's section 951 inclusion. FP has excess asset basis of \$100x as a result of a previous transaction that was undertaken with a principal purpose of creating excess asset basis in which FS provided \$100x of property to FP. In a liquidation described in section 332, FP distributes all of its assets to USP and the stock of FP is cancelled (the FP liquidation).

(B) *Analysis—(1) All earnings and profits amount.* The FP liquidation is subject to section 367(b) and this section. Under paragraph (b)(3) of this section, USP must include in income as a deemed dividend the all earnings and profits amount with respect to its stock of FP. Because there is excess asset basis with respect to FP, USP must compute the all earnings and profits amount attributable to its stock of FP as if FP had received a distribution of specified earnings immediately before the FP liquidation.

(2) *Deemed distribution of specified earnings.* The amount of specified earnings equals \$100x, the lesser of the following amounts: \$200x, the earnings and profits of FS; and \$100x, the amount of excess asset basis with respect to FP. FS is accordingly treated as making a distribution of \$100x to FP. Under sections 301(c)(1) and 959(b), the \$100x deemed distribution from FS to FP is treated as a distribution of PTEP that is not included in the gross income of FP for purposes of section 951. The distribution reduces FS's earnings and profits and PTEP with respect to USP by \$100x and increases FP's earnings and profits and PTEP with respect to USP by \$100x. Furthermore, appropriate adjustments are made under section 961 for the distribution of PTEP.

(3) *Adjusted all earnings and profits amount attributable to USP's stock of FP.* Under paragraph (g)(1) of this section, USP must compute the all earnings and profits amount attributable to its stock of FP after taking into account the \$100x increase to FP's earnings and profits that resulted from the deemed distribution of specified earnings. Because the deemed distribution consisted entirely of PTEP with respect to USP, the deemed distribution does not affect USP's all earnings and profits amount of \$50x. See § 1.367(b)-2(d)(2)(ii). USP must therefore include \$50x in income as a deemed dividend under this section. USP must also recognize any foreign currency gain or loss under section

986(c) with respect to the \$100x of PTEP of FP. See § 1.367(b)-2(j)(2).

(7) *Applicability date—(i) In general.* Paragraph (g) of this section (other than paragraphs (g)(2)(vii), (g)(3), and (5) of this section) applies to transactions completed on or after December 2, 2016, and to any transactions treated as completed before December 2, 2016, as a result of an entity classification election made under § 301.7701-3 of this chapter that is filed on or after December 2, 2016. Paragraphs (g)(2)(vii), (g)(3), and (5) of this section apply to transactions completed on or after October 5, 2023.

(ii) *Transactions completed (or elections made) on or after December 2, 2016, and before October 5, 2023.* Except as provided in paragraph (g)(7)(iii) of this section, the following definitions (in lieu of the corresponding definitions or in addition to the definitions in paragraph (g)(2) of this section) and rules apply with respect to transactions completed on or after December 2, 2016, and to any transactions treated as completed before December 2, 2016, as a result of an entity classification election made under § 301.7701-3 of this chapter that is filed on or after December 2, 2016, but before October 5, 2023:

(A) The term *specified earnings* means, with respect to the stock of a foreign acquired corporation that is exchanged by an exchanging shareholder, the lesser of the following amounts (but not below zero):

(1) The sum of the earnings and profits (including a deficit) with respect to each foreign subsidiary of the foreign acquired corporation that are attributable under section 1248(c)(2) to the stock of the foreign acquired corporation exchanged (lower-tier earnings). For purposes of the preceding sentence, the modifications described in § 1.367(b)-2(d)(2) and (d)(3)(i) apply. Thus, for example, the amount of the earnings and profits of a foreign subsidiary that are attributable to stock of the foreign acquired corporation is determined without regard to whether the foreign subsidiary was a controlled foreign corporation at any time during the five years preceding the inbound nonrecognition transaction.

(2) The product of the excess asset basis of the foreign acquired corporation, multiplied by the exchanging shareholder's specified percentage.

(3) The amount of gain that would be realized by the exchanging shareholder if, immediately before the inbound nonrecognition transaction, the exchanging shareholder had sold the stock of the foreign acquired corporation

for fair market value, reduced by the exchanging shareholder's all earnings and profits amount (for this purpose, determined without regard to the modifications described in this paragraph (g)) (specified stock gain).

(B) The term *specified percentage* means, with respect to an exchanging shareholder, a fraction (expressed as a percentage), the numerator of which is the sum of the aggregate of the specified stock gain with respect to all exchanging shareholders to which § 1.367(b)–3(b)(3) applies and the aggregate of the gain realized (regardless of whether such gain is recognized) with respect to the stock exchanged by all other exchanging shareholders.

(C) If there is excess asset basis with respect to a foreign acquired corporation, as determined under paragraph (g)(2)(i) of this section, a taxpayer may reduce the excess asset basis to the extent that the excess asset basis is not attributable, directly or indirectly, to property provided by a foreign subsidiary of the foreign acquired corporation. For example, if there was a transfer of property to the foreign acquired corporation described in section 362(e)(2), and the election described in section 362(e)(2)(C) was made to limit the basis in the stock received in the foreign acquired corporation to its fair market value, then, for purposes of determining excess asset basis, the basis in the stock of the foreign acquiring corporation may be determined without regard to the application of section 362(e)(2).

(iii) *Early application.* A taxpayer and its related parties (within the meaning of sections 267(b) and 707(b)(1)) may choose to apply paragraphs (g)(1) through (6) of this section to all open taxable years beginning before the date these regulations are filed as final regulations in the **Federal Register**, provided that the taxpayer and its related parties consistently apply paragraphs (g)(1) through (6) of this section and § 1.367(b)–1(c)(4)(ix) for such years.

■ **Par. 6.** Section 1.367(b)–4 is amended by:

- 1. In paragraph (a), adding a sentence after the fifth sentence;
- 2. In paragraph (a), removing the language “paragraph (g)” in the current sixth sentence and adding in its place the language “paragraph (h)” and removing the language “paragraph (h)” in the current seventh sentence and adding in its place the language “paragraph (i)”;
- 3. In paragraph (e)(5) *Example 2* (ii)(B), removing the language “paragraph (g)(1)” wherever it appears

and adding in its place the language “paragraph (h)(1)”;

- 4. In paragraph (f)(3) *Example 2* (ii), removing the language “paragraph (g)(1)” wherever it appears and adding in its place the language “paragraph (h)(1)”;
- 5. Redesignating paragraph (h) as paragraph (i);
- 6. Redesignating paragraph (g) as paragraph (h) and adding a new paragraph (g);
- 7. Adding a sentence to the end of newly redesignated paragraph (i); and
- 8. In newly redesignated paragraph (i), removing the language “paragraph (h)” and adding in its place the language “paragraph (i)”, and removing the language “paragraphs (f) and (g)(5)” and adding in its place the language “paragraphs (f) and (h)(5)”.

The additions read as follows:

§ 1.367(b)–4 Acquisition of foreign corporate stock or assets by a foreign corporation in certain nonrecognition transactions.

(a) * * * Paragraph (g) of this section provides rules regarding exchanges that occur pursuant to a transaction described in § 1.367(b)–10(a)(1), without regard to the exceptions in § 1.367(b)–10(a)(2). * * *

* * * * *

(g) *Income inclusion and gain recognition in exchanges occurring in connection with certain triangular reorganizations—*(1) *Rule.* If, in an exchange under section 354 or 356 that occurs in connection with a transaction described in § 1.367(b)–10, an exchanging shareholder exchanges stock or securities of a foreign acquired corporation, then, to the extent that the exchanging shareholder receives stock or securities of P acquired by S in exchange for property in the P acquisition, the shareholder must:

- (i) Include in income as a deemed dividend the section 1248 amount attributable to the stock that the shareholder exchanges; and
- (ii) After taking into account the increase in basis in the stock provided in § 1.367(b)–2(e)(3)(ii) resulting from the deemed dividend (if any), recognize all realized gain with respect to the stock or securities that would not otherwise be recognized.

(2) *Special rules and definitions.* For the purposes of this paragraph (g), an *exchanging shareholder* is a United States person or foreign person that exchanges stock of a foreign acquired corporation in a prescribed exchange, regardless of whether such United States person is a section 1248 shareholder or such foreign person is a foreign corporation in which a United

States person is a section 1248 shareholder. As used in this paragraph (g), the terms P, S, property, and P acquisition have the meanings provided in § 1.367(b)–10(a), and the term *foreign person* means a person that is not a United States person.

(3) *Example.* The following example illustrates the rules of this paragraph (g):

(i) *Facts.* USP, a domestic corporation, owns all of the stock of FP and USS. FP is a foreign corporation that owns all of the stock of FS, a foreign corporation. USS is a domestic corporation that owns all of the stock of FT, a foreign corporation. USS owns 100 shares of stock of FT, which constitutes a single block of stock with a fair market value of \$100x, an adjusted basis of \$20x, and a section 1248 amount of \$50x. FS has earnings and profits of \$60x. A dividend from FS to FP would qualify for the exception to foreign personal holding company income under section 954(c)(6). FP issues 100 shares of voting stock with a fair market value of \$100x to FS, \$40x of which (the 40-percent FP block) is issued in exchange for \$40x of newly issued common stock of FS and \$60x of which (the 60-percent FP block) is issued in exchange for \$60x of cash. FS acquires all of the stock of FT held by USS solely in exchange for the \$100x of voting stock of FP (that is, FS exchanges both the 40-percent FP block and the 60-percent FP block) in a triangular reorganization described in section 368(a)(1)(B) (triangular B reorganization).

(ii) *Analysis—*(A) *Application of § 1.367(b)–10.* The triangular B reorganization is described in § 1.367(b)–10, and the \$60x of cash constitutes property under § 1.367(b)–10(a)(3)(ii). Pursuant to § 1.367(b)–10(b)(1), adjustments must be made that have the effect of a distribution of property in the amount of \$60x from FS to FP under section 301. The \$60x deemed distribution is treated as separate from, and occurring immediately before, FS's acquisition of the 60-percent FP block used in the triangular B reorganization. The \$60x deemed distribution from FS to FP results in \$60x of dividend income to FP under section 301(c)(1) that is not foreign personal holding company income under section 954(c)(6).

(B) *Application of paragraph (g) of this section.* Pursuant to § 1.367(a)–3(a)(2)(iv)(B), paragraph (g) of this section applies to \$60x of the stock of FT (the 60-percent FT block) exchanged for the 60-percent FP block. Thus, under paragraph (g)(1)(i) of this section, USS must include in income a \$30x deemed dividend (representing 60 percent of USS's \$50x section 1248 amount) with

respect to the 60-percent FT block exchanged for the 60-percent FP block. In addition, under paragraph (g)(1)(ii) of this section, USS must recognize its realized gain that would not otherwise be recognized with respect to the 60-percent FT block. USS's fair market value and adjusted basis in the 60-percent FT block are \$60x (60 percent of the \$100x fair market value of the stock of FT) and \$12x (60 percent of the \$20x adjusted basis of the stock of FT), respectively. USS's initial built-in gain with respect to the 60-percent FT block is accordingly \$48x (\$60x fair market value less \$12x adjusted basis). The \$30x deemed dividend increases USS's basis in the 60-percent FT block to \$42 (\$12x + \$30x), leaving \$18x (\$60x - \$42x) of built-in gain. USS must therefore recognize the remaining \$18x of gain with respect to the 60-percent FT block.

(C) *Application of paragraph (b) of this section and regulations under section 367(a).* USS has \$32x of built-in gain in the remaining \$40x of stock of FT (the 40-percent FT block) that USS exchanged for the 40-percent FP block, calculated as USS's initial \$80 of built-in gain in all of its stock of FT less the \$48x of initial built-in gain attributable to the 60-percent FT block. USS's section 1248 amount in the 40-percent FT block is \$20x, calculated as 40 percent of USS's \$50x section 1248 amount. USS does not recognize a deemed dividend of the \$20x section 1248 amount under paragraph (b) of this section because FT remains a controlled foreign corporation with respect to which USS is a section 1248 shareholder immediately after the triangular B reorganization. Unless USS properly files a gain recognition agreement pursuant to §§ 1.367(a)-3(b) and 1.367(a)-8, USS recognizes the \$32x of built-in gain under section 367(a)(1) with respect to the 40-percent FT block.

(i) * * * Paragraph (g) of this section applies to transactions completed on or after December 2, 2016.

■ **Par. 7.** Section 1.367(b)-6 is amended by adding paragraphs (a)(1)(v) and (vi) to read as follows:

§ 1.367(b)-6 Effective/applicability dates and coordination rules.

(a) * * *
(1) * * *

(v) Section 1.367(b)-2(j)(2) applies to transactions completed on or after October 5, 2023 and to any transactions treated as completed before October 5, 2023 as a result of an entity classification election made under § 301.7701-3 of this chapter that is filed on or after October 5, 2023.

(vi) Section 1.367(b)-1(c)(2)(vi), (c)(4)(viii), and (c)(4)(ix) apply to taxable years ending on or after October 5, 2023. However, a taxpayer and its related parties (within the meaning of sections 267(b) and 707(b)(1)) may choose to apply the rules referred to in the preceding sentence to all open taxable years ending before October 5, 2023, provided that the taxpayer and its related parties consistently apply such rules and § 1.367(b)-3(g) for such years.

* * * * *

■ **Par. 8.** Section 1.367(b)-10 is amended by:

■ 1. Adding two sentences to the end of paragraph (a)(1);

■ 2. Revising paragraphs (a)(2)(ii) and (iii);

■ 3. Removing the language “and” at the end of paragraph (a)(3)(ii)(A), removing the period at the end of paragraph (a)(3)(ii)(B) and adding the language “; and” in its place;

■ 4. Adding paragraph (a)(3)(ii)(C);

■ 5. Removing paragraph (b)(2);

■ 6. Redesignating paragraphs (b)(3), (4), and (5) as paragraphs (b)(2), (3), and (4), respectively;

■ 7. Revising newly redesignated paragraph (b)(2);

■ 8. Adding two sentences to the end of newly redesignated paragraph (b)(3);

■ 9. In newly redesignated paragraph (b)(4)(ii), removing the sixth sentence, revising the current seventh sentence, and adding two sentences at the end of the paragraph; and

■ 10. Revising paragraphs (c), (d), and (e).

The revisions and additions read as follows:

§ 1.367(b)-10 Acquisition of parent stock or securities for property in triangular reorganizations.

(a) * * *

(1) * * * See § 1.367(b)-3(g) for the treatment of certain inbound nonrecognition transactions following transactions described in this section. See § 1.367(b)-4(g) for rules applicable to certain exchanging shareholders that exchange stock of T in connection with a transaction described in this section.

(2) * * *

(ii) S is a domestic corporation, P is not a controlled foreign corporation (within the meaning of § 1.367(b)-2(a)), P's stock in S is not a United States real property interest (within the meaning of section 897(c)), and the deemed distribution that would result from the application of this section would not be treated as a dividend under section 301(c)(1) that would be subject to U.S. tax under either section 881 (for example, by reason of an applicable treaty or by reason of an absence of earnings and profits) or section 882; or

(iii) In an exchange under section 354 or 356, one or more U.S. persons exchange stock or securities of T and the amount of gain in the T stock or securities that would otherwise be recognized under section 367(a)(1) is equal to or greater than the sum of the amount of the deemed distribution under this section that would be treated and subject to U.S. tax as a dividend under section 301(c)(1) (or would give rise to an inclusion under section 951(a)(1)(A) or 951A(a) that would be subject to U.S. tax) and the amount of such deemed distribution that would be treated and subject to U.S. tax as gain from the sale or exchange of property under section 301(c)(3) (or would give rise to an inclusion under section 951(a)(1)(A) or 951A(a) that would be subject to U.S. tax) if this section would otherwise apply to the triangular reorganization. The exception provided in this paragraph (a)(2)(iii) does not apply if T is a foreign corporation. See § 1.367(a)-3(a)(2)(iv) (providing a similar rule that excludes certain transactions from the application of section 367(a)(1)).

(3) * * *

(ii) * * *

(C) Stock of S that is nonqualified preferred stock (as defined in section 351(g)(2)).

* * * * *

(b) * * *

(2) *Timing of deemed distribution.* If P controls (within the meaning of section 368(c)) S at the time of the P acquisition, the adjustments described in paragraph (b)(1) of this section are made as if the deemed distribution is a separate transaction occurring immediately before the P acquisition. If P does not control (within the meaning of section 368(c)) S at the time of the P acquisition, the adjustments described in paragraph (b)(1) of this section are made as if the deemed distribution is a separate transaction occurring immediately after P acquires control of S, but before the reorganization.

(3) * * * Thus, P's adjustment to the basis in its S stock under § 1.358-6 is determined as if P provided the P stock or securities pursuant to the plan of reorganization, notwithstanding that S acquired the P stock or securities in exchange for property in the P acquisition. See also § 1.367(b)-13.

(4) * * *

(ii) * * * Pursuant to paragraph (b)(2) of this section, the adjustment described in paragraph (b)(1) of this section is made as if the deemed distribution is a separate transaction occurring immediately before FS's purchase of the P stock on the open market. * * *

US1's transfer of its FT stock in exchange for P stock is subject to § 1.367(b)–4(g). If, contrary to the facts in this paragraph (b)(4), US1 had built-in gain with respect to its FT stock, then such gain would be recognized in accordance with § 1.367(b)–4(g).

(c) *Collateral adjustments.* This paragraph (c) provides additional rules that apply by reason of the deemed distribution described in paragraph (b)(1) of this section. A deemed distribution described in paragraph (b)(1) of this section is treated as occurring for all purposes of the Internal Revenue Code. Thus, for example, the ordering rules of section 301(c) apply to characterize the deemed distribution to P as a dividend from the earnings and profits of S, return of stock basis, or gain from the sale or exchange of property, as the case may be. Furthermore, section 959 may apply to the deemed distribution if S is a foreign corporation, and sections 881, 882, 897, 1442, or 1445 may apply to the deemed distribution if S is a domestic corporation. Appropriate corresponding adjustments must be made to S's earnings and profits consistent with the principles of section 312.

(d) *Anti-abuse rule—(1) Rule.* Appropriate adjustments must be made pursuant to this section if, in connection with a triangular reorganization, a transaction is engaged in with a view to avoid the purpose of this section. For example, if S is created, organized, or funded to avoid the application of this section with respect to the earnings and profits of another corporation, the earnings and profits of S (or any successor corporation) may be deemed to include the earnings and profits of such other corporation (or any successor corporation) for purposes of determining the consequences of the adjustments provided in this section, and appropriate corresponding adjustments may be made to account for the application of this section to the earnings and profits of such other corporation (or any successor corporation). Adjustments may be made under this paragraph (d) whether S is funded before or after a triangular reorganization, and such funding may include capital contributions, loans, and distributions. The following examples illustrate the application of this paragraph (d), the application of which is not limited to the particular situations described in the examples.

(2) *Example 1: Deemed increase to S's earnings and profits—(i) Facts.* FP is a foreign corporation that owns all of the stock of USS, a domestic corporation. USS has no assets, liabilities, or earnings and profits. FP issues \$10x of

voting stock to USS in exchange for \$10x of newly issued stock of USS, and FP also issues \$90x of voting stock to USS in exchange for a note newly issued by USS with a fair market value of \$90x (USS note). FP would be subject to U.S. tax under section 881 on a distribution from USS if, contrary to the facts, USS had earnings and profits for purposes of applying section 301(c) to the distribution. USS acquires all the stock of UST, a domestic corporation that is unrelated to FP and USS, from a foreign person in exchange for the \$100x of voting stock of FP in a triangular reorganization described in section 368(a)(1)(B) (triangular B reorganization). UST has \$100x of earnings and profits. USS's purchase of the \$90x of stock of FP in exchange for the USS note in connection with the triangular B reorganization is engaged in with a view to avoid the purpose of this section.

(ii) *Analysis.* Because USS's purchase of the \$90x of stock of FP in exchange for the USS note is engaged in with a view to avoid the purpose of this section, the anti-abuse rule applies and appropriate adjustments are made. In particular, for purposes of determining the consequences of the deemed distribution provided for in paragraph (b)(1) of this section, the earnings and profits of USS are deemed to include the earnings and profits of UST. USS is therefore treated as having made a deemed distribution equal to \$90x, which reflects the portion of the stock of FP that USS acquired in exchange for property (the USS note). Because USS is deemed to have \$100x of earnings and profits, the entire \$90x deemed distribution is treated as a dividend under section 301(c)(1). The deemed distribution is treated as separate from, and occurring immediately before, USS's acquisition of the stock of FP used in the triangular B reorganization. No adjustments are made by FP to the basis in its stock of USS except as provided in § 1.358–6. Under paragraph (b)(3) of this section, FP's adjustment to the basis in its stock of USS under § 1.358–6 is determined as if FP provided all \$100x of the stock of FP pursuant to the plan of reorganization.

(3) *Example 2: Downstream property transfer—(i) Facts.* USP is a domestic corporation that owns all of the stock of FS1, a foreign corporation. FS1 holds a note receivable issued by USP with a fair market value of \$100x (USP note), and FS1 has more than \$100x of earnings and profits. USP has no income inclusion under section 951(a)(1)(B) with respect to the USP note after the application of § 1.956–1(a)(2). FS1 forms USS Newco, a domestic corporation, to

which it transfers the USP note in exchange for voting stock of USS Newco. USS Newco then forms FS2 Newco, a foreign corporation, and FS1 transfers all of its remaining assets (except for its stock in USS Newco) to FS2 Newco in exchange for additional voting stock of USS Newco in a transaction intended to qualify as a triangular reorganization described in section 368(a)(1)(C) (triangular C reorganization). FS1 liquidates into USP pursuant to the triangular C reorganization, and USP receives the stock of USS Newco held by FS1. FS1's transfer of the USP note to USS Newco in connection with the intended triangular C reorganization is engaged in with a view to avoid the purpose of this section.

(ii) *Analysis.* Because FS1's transfer of the USP note to USS Newco is in connection with a triangular reorganization and is engaged in with a view to avoid the purpose of this section, the anti-abuse rule applies and appropriate adjustments are made. FS1's formation of USS Newco and transfer of the USP note to USS Newco, together with the distribution of the shares of USS Newco pursuant to the liquidation of FS1, is treated under the anti-abuse rule as a distribution of \$100x, consistent with its substance. Accordingly, adjustments are made consistent with there having been such a distribution. Because FS1 has more than \$100x of earnings and profits, the adjustments made are consistent with USS Newco having received a \$100x dividend from FS1 separate from, and immediately before, the triangular C reorganization. USS Newco must therefore include \$100x in gross income as if it had received that amount as a dividend and increase its earnings and profits by the same amount. FS1 must decrease its earnings and profits by \$100x. For purposes of determining USS Newco's basis in its stock of FS2 Newco, § 1.367(b)–13 applies by treating USS Newco as P (within the meaning of § 1.367(b)–13(a)(2)(ii)). Under paragraph (b)(3) of this section, USS Newco's adjustment to the basis in its FS2 Newco stock under § 1.367(b)–13 is determined as if USS Newco provided the stock of USS Newco stock pursuant to the plan of reorganization.

(4) *Example 3: Taxable debt exchange—(i) Facts.* USP is a domestic corporation that owns all of the stock of FP, a foreign corporation, and USS, a domestic corporation. Furthermore, FP owns all of the stock of FS, a foreign corporation, and USS owns all of the stock of UST, a domestic corporation. FP has no earnings and profits, and FS has more than \$100x of earnings and

profits. USP has held its stock in FP for fewer than 365 days and thus does not satisfy the requirements of sections 245A and 246(c) with respect to dividends received from FP. FS transfers a note issued by FS with a fair market value of \$100x (FS note) to FP in exchange for \$100x of voting stock of FP, and FS then uses the stock of FP to acquire all of the stock of UST held by USS in a triangular reorganization described in section 368(a)(1)(B) (triangular B reorganization). Because a dividend from FS to FP would not constitute foreign personal holding company income under section 954(c)(6), the taxpayer asserts that the exception in paragraph (a)(2)(iii) of this section applies and therefore does not make any adjustments pursuant to this section. FP then transfers the FS note to USP in exchange for a note issued by USP with a fair market value of \$100x (USP note). The USP note constitutes United States property within the meaning of section 956(c), and USP would otherwise have an inclusion under section 951(a)(1)(B) and § 1.956-1(a)(2) if FP had earnings and profits. FS's transfer of the FS note to FP, and FP's subsequent transfer of the FS note to USP in connection with the triangular B reorganization, are engaged in with a view to avoid the purpose of this section.

(ii) *Analysis.* Because the transfers of the FS note are in connection with a triangular reorganization and are engaged in with a view to avoid the purpose of this section, the anti-abuse rule applies and appropriate adjustments are made. FS is therefore treated as having made a distribution to FP of \$100x, reflecting the value of the stock of FP that FS acquired in exchange for property (the FS note). The deemed distribution is treated as separate from, and occurring immediately before, FS's acquisition of the stock of FP stock used in the triangular B reorganization. Because FS has more than \$100x of earnings and profits, the entire deemed distribution is treated as a dividend under section 301(c)(1). The deemed dividend causes FP to increase its earnings and profits by \$100x but does not constitute foreign personal holding company income to FP under section 954(c)(6). FP thus has \$100x of earnings and profits available to support inclusions under section 951(a)(1)(B) in connection with FP's subsequent acquisition of the USP note. No adjustments are made by FP to the basis in its stock of FS except as provided in § 1.358-6. Under paragraph (b)(3) of this section, FP's adjustment to the basis in its stock of FS under § 1.358-6 is

determined as if FP provided the stock of FP pursuant to the plan of reorganization.

(e) *Applicability dates*—(1) *General rule.* This section applies to triangular reorganizations occurring on or after May 17, 2011. For triangular reorganizations that occur before May 17, 2011, see § 1.367(b)-14T as contained in 26 CFR part 1 revised as of April 1, 2011.

(2) *Triangular reorganizations completed on or after April 25, 2014.* The following paragraphs apply to triangular reorganizations that are completed on or after April 25, 2014, unless T was not related to P or S (within the meaning of section 267(b)) immediately before the triangular reorganization; the triangular reorganization was entered into either pursuant to a written agreement that was (subject to customary conditions) binding before April 25, 2014, and at all times afterwards, or pursuant to a tender offer announced before April 25, 2014, that is subject to section 14(d) of the Securities and Exchange Act of 1934 (15 U.S.C. 78n(d)(1)) and Regulation 14(D) (17 CFR 240.14d-1 through 240.14d-101) or that is subject to comparable foreign laws; and to the extent the P acquisition that occurs pursuant to the plan of reorganization is not completed before April 25, 2014, the P acquisition was included as part of the plan before April 25, 2014:

(i) Paragraph (a)(2)(ii) of this section, to the extent it does not apply where P is a controlled foreign corporation, and to the extent it relates to dividends that would be subject to U.S. tax;

(ii) Paragraph (a)(2)(iii) of this section, to the extent it relates to amounts that would be subject to U.S. tax or give rise to an inclusion under section 951(a)(1)(A) that would be subject to U.S. tax;

(iii) Paragraph (b)(3) of this section, to the extent it relates to P's provision of its stock or securities pursuant to the plan of reorganization; and

(iv) Paragraphs (b) and (c) of this section, to the extent they do not reference the rule described in former paragraph (b)(2) of this section (relating to the deemed contribution), as contained in 26 CFR part 1 revised as of April 1, 2021.

(3) *Transactions completed on or after December 2, 2016.* The following paragraphs apply to transactions completed on or after December 2, 2016:

(i) Paragraph (a)(2)(iii) of this section, to the extent it does not apply where T is a foreign corporation; and

(ii) Paragraph (a)(3)(ii)(C) of this section.

(4) *Deemed distributions that occurred in taxable years ending before November 2, 2020.* Former paragraph (c)(1) of this section, as contained in 26 CFR part 1 revised as of April 1, 2021, to the extent it references section 902, applies to deemed distributions that occur in taxable years ending before November 2, 2020.

(5) *Triangular reorganizations completed on or after October 5, 2023.* Paragraph (a)(2)(iii) of this section, to the extent it relates to amounts that would give rise to an inclusion under section 951A(a) that would be subject to U.S. tax, applies to triangular reorganizations that are completed on or after October 5, 2023.

■ **Par. 9.** Section 1.1248-1 is amended by adding a sentence to the end of paragraph (a)(1) to read as follows:

§ 1.1248-1 Treatment of gain from certain sales or exchanges of stock in certain foreign corporations.

(a) * * *

(1) * * * See § 1.1411-10(c)(3) for additional rules concerning the application of section 1248 for purposes of section 1411.

* * * * *

■ **Par. 10.** Section 1.1411-10 is amended by:

■ 1. Revising the heading of paragraph (c)(3);

■ 2. In paragraph (c)(3), removing the language “With respect to stock of a CFC” and adding in its place “With respect to stock of a foreign corporation that is a CFC (or that was a CFC at any time during the 5-year period ending on the date of sale or exchange)”;

■ 3. Revising paragraph (c)(3)(i) and the introductory text of paragraph (c)(3)(ii);

■ 4. Adding paragraph (d)(5); and

■ 5. Adding a sentence to the end of paragraph (i).

The revisions and additions read as follows:

§ 1.1411-10 Controlled foreign corporations and passive foreign investment companies.

* * * * *

(c) * * *

(3) *Application of sections 1248 and 367(b).* * * *

(i) In determining the amount of gain recognized on the sale or exchange of stock of a foreign corporation under section 1248(a) or the amount of gain realized on the exchange of stock of a foreign corporation under § 1.367(b)-4 or 1.367(b)-5, basis is determined in accordance with the provisions of paragraph (d) of this section; and

(ii) Section 1248(a), and § 1.367(b)-2(c)(1) and (d)(2)(ii) apply without regard to the exclusions for certain

earnings and profits under section 1248(d)(1) and (d)(6), except that those exclusions will apply with respect to the earnings and profits of a foreign corporation that are attributable to:

* * * * *

(d) * * *

(5) *Basis adjustments under section 367(b)*. With respect to stock of a foreign corporation that is exchanged in a transaction subject to section 367(b), the portion of the basis increase provided by § 1.367(b)-2(e)(3)(ii) by reason of paragraph (c)(3)(ii) of this section is made solely for purposes of section 1411.

* * * * *

(i) * * * Paragraph (c)(3) of this section, to the extent it references regulations issued under section 367(b), and paragraph (d)(5) of this section, apply to transactions completed on or after October 5, 2023 and to any transactions treated as completed before October 5, 2023 as a result of an entity classification election made under § 301.7701-3 of this chapter that is filed on or after October 5, 2023.

Douglas W. O'Donnell,

Deputy Commissioner for Services and Enforcement.

[FR Doc. 2023-22061 Filed 10-5-23; 8:45 am]

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DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 43

[Docket No. PTO-P-2023-0012]

RIN 0651-AD68

Rules Governing Pre-Issuance Internal Circulation and Review of Decisions Within the Patent Trial and Appeal Board

AGENCY: United States Patent and Trademark Office, Department of Commerce.

ACTION: Notice of proposed rulemaking.

SUMMARY: The United States Patent and Trademark Office (“USPTO” or “Office”) proposes regulations to govern the pre-issuance circulation and review of decisions within the Patent Trial and Appeal Board (“PTAB” or “Board”). The Office proposes these provisions to refine the current interim process in light of stakeholder feedback received in response to a Request for Comments (RFC). This proposed rule promotes the efficient delivery of reliable intellectual property rights by promoting consistent, clear, and open decision-making processes at the PTAB.

DATES: Comments must be received by December 5, 2023 to ensure consideration.

ADDRESSES: Comments must be submitted through the Federal eRulemaking Portal at www.regulations.gov. To submit comments via the portal, one should enter docket number PTO-P-2023-0012 on the homepage and select “search.” The site will provide search results listing all documents associated with this docket. Commenters can find a reference to this notice and select the “comment” icon, complete the required fields, and enter or attach their comments. Attachments to electronic comments will be accepted in Adobe® portable document format (PDF) or Microsoft Word® format. Because comments will be made available for public inspection, information that the submitter does not desire to make public, such as an address or phone number, should not be included in the comments.

Visit the Federal eRulemaking Portal for additional instructions on providing comments via the portal. If electronic submission of, or access to, comments is not feasible due to a lack of access to a computer and/or the internet, please contact the USPTO using the contact information below for special instructions.

FOR FURTHER INFORMATION CONTACT:

Melissa A. Haapala, Vice Chief Administrative Patent Judge, or Stacy B. Margolies, Lead Administrative Patent Judge, 571-272-9797.

SUPPLEMENTARY INFORMATION:

Executive Summary

Purpose: This proposed rule would codify processes and standards to govern the internal pre-issuance circulation and review of decisions within the PTAB.

Since May of 2022, the USPTO has been using an interim process for PTAB decision circulation and internal PTAB review to promote consistent, clear, and open decision-making processes at the USPTO. The processes were put in place to support a consistent and clear approach to substantive areas of patent law and PTAB-specific procedures, while maintaining open decision-making processes. The USPTO subsequently issued an RFC seeking public input on these processes. After reviewing feedback received from the public in response to the RFC, the USPTO now seeks to formalize its processes for circulation and review of decisions within the PTAB through notice-and-comment rulemaking.

This proposed rule provides that the USPTO Director, Deputy Director, and Commissioners for Patents and Trademarks are not involved, directly or indirectly, in the decision making of panels of the PTAB prior to issuance of a decision by the panel. In addition, no employee of the Office external to the Board, nor any member of PTAB management, is involved, directly or indirectly, in panel decision-making unless a panel member has requested their input. The adoption of any feedback received by the panel is entirely optional and solely within the discretion of the panel.

This proposed rule also sets forth that, if the Office establishes procedures governing the internal circulation and review of decisions prior to issuance to one or more designated members of the Board, no management judge shall participate in any such review, either directly or indirectly. The adoption of any feedback received pursuant to such review is entirely optional and solely within the discretion of the panel.

Finally, this proposed rule provides that decisions of the Board are expected to comport with applicable statutes, regulations, binding case law, and written agency or Board policy or guidance, and that there is no unwritten agency or Board policy or guidance that is binding on any panel of the Board.

Background

On September 16, 2011, the America Invents Act (AIA) was enacted into law (Pub. L. 112-29, 125 Stat. 284 (2011)). The AIA established the PTAB, which is made up of administrative patent judges (APJs) and four statutory members, namely the USPTO Director, the USPTO Deputy Director, the USPTO Commissioner for Patents, and the USPTO Commissioner for Trademarks. 35 U.S.C. 6(a). The PTAB hears and decides ex parte appeals of adverse decisions by examiners in applications for patents; appeals of adverse decisions by examiners in reexamination proceedings; and proceedings under the AIA, including inter partes reviews, post grant reviews, covered business method (CBM) patent reviews,¹ and derivation proceedings, in panels of at least three members. 35 U.S.C. 6(b), (c). Under the statute, the Director designates the members of each panel. 35 U.S.C. 6(c). The Director has delegated that authority to the Chief

¹ Under section 18 of the AIA, the transitional program for post-grant review of CBM patents sunset on September 16, 2020. AIA 18(a). Although the program has sunset, existing CBM proceedings, based on petitions filed before September 16, 2020, remain pending on appeal at the Federal Circuit Court of Appeals.

Judge of the Board. See PTAB Standard Operating Procedure 1 (SOP1), Assignment of Judges to Panels, <https://www.uspto.gov/sites/default/files/documents/SOP%201%20R15%20FINAL.pdf>.

Interim Process and CJP

The Office recognizes that it is important that the PTAB maintain a consistent and clear approach to substantive areas of patent law and PTAB-specific procedures, while maintaining open decision-making processes. Since May 2022, the USPTO has been using an interim process for PTAB decision circulation and internal PTAB review. See “Interim process for PTAB decision circulation and internal PTAB review,” available at <https://www.uspto.gov/interim-process-ptab-decision-circulation-and-internal-ptab-review>. That interim process has now been replaced by a new Standard Operating Procedure (SOP4), issued concurrently with this Notice of Proposed Rulemaking. The process set forth in SOP4 is substantially similar to the interim process, except for the change described below to the Circulation Judge Pool (CJP) review. SOP4 further sets forth additional details requested by stakeholders.

Under the prior interim process, certain categories of PTAB decisions were required to be circulated to a pool of non-management APJs (the Circulation Judge Pool, also known as CJP) prior to issuance. These decisions included all AIA institution decisions; AIA final written decisions; AIA decisions on rehearing; inter partes reexamination appeal decisions; designated categories of ex parte appeal, ex parte reexamination appeal, and reissue appeal decisions; and all Board decisions (including AIA and ex parte appeal decisions) following a remand from the Federal Circuit. Judges could, at their option, circulate other types of decisions for CJP review. In response to stakeholder feedback, under the process set forth in SOP4, circulation to CJP is now optional.

The CJP comprises a representative group of non-management APJs who collectively have technical/scientific backgrounds and legal experience representative of the PTAB judges as a whole. The CJP was modeled after both the Federal Circuit’s previous circulation to the Senior Technical Assistant and the Federal Circuit’s 10-day circulation process for precedential decisions. See United States Court of Appeals for the Federal Circuit, Internal Operating Procedures, Redlined Copy, 18 (Mar. 1, 2022), available at [\[RulesProceduresAndForms/InternalOperatingProcedures/IOPs-Redline-03012022.pdf\]\(https://cafc.uscourts.gov/wp-content/uploads/RulesProceduresAndForms/InternalOperatingProcedures/IOPs-Redline-03012022.pdf\) \(describing the previous circulation to the Senior Technical Assistant\); and United States Court of Appeals for the Federal Circuit, Internal Operating Procedures, 10.5 \(Mar. 1, 2022\), available at <https://cafc.uscourts.gov/wp-content/uploads/RulesProceduresAndForms/InternalOperatingProcedures/IOPs-03012022.pdf> \(describing the 10-day circulation process for precedential decisions\).](https://cafc.uscourts.gov/wp-content/uploads/</p></div><div data-bbox=)

The CJP’s role is to provide the panel with information regarding potential conflicts or inconsistencies with relevant authority, including PTAB precedential decisions, Director guidance memoranda, and other written agency or Board policies or guidance. The CJP also provides the panel with information regarding potential inconsistencies with informative or routine PTAB decisions and suggestions for improved readability and stylistic consistency. The panel has the final authority and responsibility for the content of a decision and determines when and how to incorporate feedback from the CJP. The APJs are required to apply pertinent statutes, binding case law, and written policy or guidance issued by the Director or the Director’s delegate that is applicable to PTAB proceedings. All policies or guidance applicable to PTAB proceedings that the APJs are required to apply are written.

The CJP may have periodic meetings with PTAB Executive Management (*i.e.*, PTAB Chief Judge, Deputy Chief Judge, Vice Chief Judges, Senior Lead Judges, and those acting in any of the foregoing positions) to discuss issued panel decisions and general areas for potential policy clarification. PTAB Executive Management may discuss these issues or issued decisions that have issued with the Director for the purposes of (i) considering whether to issue new or updated policies or guidance, for example, through regulation, precedential or informative decisions, and/or a Director guidance memorandum; and (ii) considering sua sponte (on the Director’s own initiative) Director Review of a decision.

Under the interim process, any panel member, at their sole discretion, could also optionally consult with one or more members of PTAB management (*i.e.*, PTAB Executive Management and Lead Judges) regarding a decision prior to issuance. If consulted, PTAB management could provide information regarding the consistent application of USPTO policy, applicable statutes and regulations, and binding case law. Adoption of any suggestions provided

by PTAB management based on such consultation was optional. Unless consulted by a panel member, PTAB management did not make suggestions to the panel regarding the substance of any pre-issuance decision, either directly or indirectly through the CJP.

The interim PTAB decision circulation and internal review processes promoted decisional consistency and open decision-making processes by reinforcing that the adoption of all CJP and requested PTAB management feedback is optional, that members of PTAB management did not provide feedback on decisions prior to issuance unless they are a panel member or a panel member requests such feedback, and that the PTAB panel had the final authority and responsibility for the content of a decision. Additionally, the processes provided a mechanism by which the Director could be made aware of decisions to consider for sua sponte Director Review, and of areas to consider for issuing new, or modified, USPTO policy to promote the efficient delivery of reliable intellectual property rights.

Furthermore, under both the interim process and SOP4, all consultations are covered by conflict of interest policies. If a member of the CJP or management has a conflict of interest, they are required to notify the other members of their respective team and recuse themselves from any discussion or analysis of that decision. In determining whether a conflict of interest exists, the USPTO follows the guidance set forth in the Standards of Ethical Conduct for Employees of the Executive Branch at 5 CFR part 2635 and will consult with the Department of Commerce Ethics Law and Programs Office, as necessary, to resolve any questions pertaining to conflicts of interest.

Request for Comments

On July 20, 2022, the USPTO issued an RFC on Director Review, Precedential Opinion Panel Review, and Internal Circulation and Review of Patent Trial and Appeal Board Decisions (RFC), to obtain public feedback on the interim PTAB decision circulation and internal review processes. See 87 FR 43249–52. The USPTO received over 4,300 comments from a wide range of stakeholders, including individuals, associations, and companies, on all aspects of the RFC including specific responses to question 13 (which asked if any changes should be made to the interim PTAB decision circulation and review process) and question 14 (which asked what other considerations should be taken into

account with respect to the interim PTAB decision circulation and internal review process).

Several commenters emphasized the need for judicial independence and review processes that reduce influence by USPTO senior management on PTAB panels. Other commenters emphasized the value of transparency in the PTAB's processes and requested that further details on the CJP be made public. One representative commenter stated that, even when the CJP reviews a decision prior to issuance, it should not discuss the decision with PTAB management until the decision is issued by the panel. Another commenter believed that the value of the CJP may be outweighed by concerns with undue pre-issuance influence by the Director and suggested abandoning the CJP procedure in favor of entrusting the APJs and the Director Review process with maintaining consistency and quality of PTAB decisions.

Proposed Provisions Governing Pre-Issuance Internal Circulation and Review

In view of the comments and the USPTO's further experience with AIA proceedings, the USPTO undertakes this rulemaking to make policy changes to the processes and standards that govern the internal pre-issuance circulation and review of decisions within the PTAB. This rulemaking is consistent with comments received from stakeholders expressing a preference that key policy changes be made and formalized through rulemaking. This proposed rule seeks to promote consistent, clear, and open decision-making processes while protecting judicial independence and increasing transparency of USPTO processes. For example, this proposed rule would prohibit PTAB management review of decisions prior to issuance by the panel (absent a request by a panel member, at the panel member's sole discretion). The proposed rule also provides that, if the Office establishes procedures governing the internal circulation and review of decisions prior to issuance (such as CJP review), no management judge shall participate directly or indirectly in any such review. Adopting the suggestion of stakeholders, this proposed rule further specifies that the group of reviewing non-management judges (e.g., CJP members) would be prohibited from discussing any reviewed decision with PTAB management prior to issuance.

In response to public feedback requesting additional information on the processes, the USPTO has provided further details regarding the internal circulation process and the structure of

the reviewing body of non-management judges (currently embodied by the CJP) by issuing a Standard Operating Procedure (SOP4) concurrently with the publication of this NPRM. The processes set forth in the SOP4 replace the former interim process for PTAB decision circulation described above. The Office may consider further refinements or modifications to the SOP4 in view of the comments received from the public in response to this NPRM.

The USPTO proposes to add part 43, which provides for new regulations governing the pre-issuance circulation and review of decisions within the PTAB. A section-by-section discussion of the new provisions is as follows:

Section 43.1: Proposed § 43.1 would set forth general policy considerations for Part 43 and define the scope of the rules.

Section 43.2: Proposed § 43.2 would set forth definitions for terms used in Part 43.

The proposed definition of *Board* would refer to the Patent Trial and Appeal Board.

The proposed definition of *decision* would refer to any decision, order, opinion, or other written work product intended for entry into the record of a Board proceeding.

The proposed definition of *Director* would refer to the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office or an individual serving as Acting Director or performing the functions and duties of the Director.

The proposed definition of *Deputy Director* would refer to the Deputy Under Secretary of Commerce for Intellectual Property and Deputy Director of the United States Patent and Trademark Office or an individual serving as Acting Deputy Director.

The proposed definitions of *Commissioner for Patents* and *Commissioner for Trademarks* would be the positions defined in 35 U.S.C. 3(b)(2) or an individual acting in the capacity of one of those positions.

The proposed definition of *issuance* would refer to the entry of a decision into the record of a Board proceeding.

The proposed definition of *Management Judge* would encompass the Chief Administrative Patent Judge, the Deputy Chief Administrative Patent Judge, a Vice Chief Administrative Patent Judge, a Senior Lead Administrative Patent Judge, and/or a Lead Administrative Patent Judge, including individuals who serve in these positions in an acting capacity. The definition is also intended to capture any other Administrative Patent

Judge who, as part of their duties, supervises the work of other Administrative Patent Judges or is responsible for reviewing the performance of other Administrative Patent Judges.

The proposed definition of *panel* would refer to the members of the Board assigned to a proceeding pursuant to the Board's Standard Operating Procedure 1.

The proposed definition of *proceeding* would refer to an appeal or contested case under Part 41 or trial proceeding under Part 42.

Section 43.3: Proposed § 43.3 would specify that the Director of the USPTO and other high-level officers are not involved in panel decisions prior to their issuance, either directly or indirectly. The provision ensures the judicial independence of Board panels by insulating panel decision-making from the policy-setting functions of Office leadership.

Proposed § 43.3(a) would prohibit the Director, Deputy Director, Commissioner for Patents, and Commissioner for Trademarks from communicating, directly or indirectly, with any member of a panel regarding a decision, prior to issuance of that decision by the panel.

Proposed § 43.3(b) would provide that paragraph (a) would not apply to any proceeding in which the named individual is a member of the panel and would also specify that when sitting as a member of a panel, the individual is a coequal member of the panel.

Proposed § 43.3(c) would clarify that nothing in § 43.3 shall prevent the Director or their delegate from communicating with a panel as to resource needs or the procedural status of any proceeding. This provision is intended to permit Office leadership to engage in communications of a purely administrative or logistical nature that are necessary to ensure the effective and efficient administration of the Office. Communications with a panel attempting to influence or direct the outcome or reasoning of any decision would not be permitted under this provision.

Proposed § 43.3(d) would specifically delegate to the Chief Administrative Patent Judge the Director's power to designate and re-designate panels of the Board under 35 U.S.C. 6(c). The proposed rule would also prohibit the Director from directing or otherwise influencing the paneling or repaneling of any proceeding prior to issuance of the panel decision. The proposed rule permits the Director to issue generally applicable paneling guidance to be applied to proceedings before the Board,

and to direct the repaneling of a proceeding according to that generally applicable guidance when the Director is reviewing or rehearing an issued panel decision.

Section 43.4: Proposed § 43.4 would govern involvement by Board management or Office employees outside the Board in the review and circulation of decisions prior to issuance. The provision ensures judicial independence of Board panels while permitting a panel member to request management input on issues when desired.

Proposed § 43.4(a) would prohibit any Management Judge or employee of the Office external to the Board from initiating communication, directly or through intermediaries, with any member of a panel regarding a decision, prior to issuance of that decision.

Proposed § 43.4(b) would provide an exception to paragraph (a) in the event a member of the panel requests input from a Management Judge prior to issuance of the decision. The proposed rule clarifies that requesting input is optional and the decision to request input is solely within the discretion of an individual panel member.

Proposed § 43.4(c) would specify that it is within the panel's sole discretion to adopt any edits, suggestions, or feedback provided by a Management Judge in response to a request for input, and the panel has the final authority and responsibility for the content of a decision.

Proposed § 43.4(d) would provide that paragraph (a) would not apply to a Management Judge who is a member of the panel and would specify that when sitting as a member of a panel, a Management Judge is a coequal member of the panel and exercises no review authority over the decision.

Proposed § 43.4(e) would clarify that nothing in § 43.4 shall prevent a Management Judge from communicating with a panel as to resource needs or the procedural status of any proceeding. This provision is intended to permit Board management to engage in communications of a purely administrative or logistical nature that are necessary to ensure the effective and efficient administration of the Board. Communications with a panel attempting to influence or direct the outcome or reasoning of any decision would not be permitted under this provision.

Section 43.5: Proposed § 43.5 would govern procedures for circulation of decisions to, and review of decisions by, a designated group of non-Management Judges if the Office sets forth procedures for such circulation. The provision

promotes consistent, clear, and open decision-making by permitting peer review of decisions prior to issuance, while respecting the judicial independence of panels by providing that all feedback from such review is optional and at the panel's sole discretion to adopt.

Proposed § 43.5(a) would provide that no Management Judge shall participate in any such circulation and review procedures. The proposed rule further provides that if a decision is circulated to non-Management Judges for review prior to issuance, the reviewing judges will not discuss the substance of the circulated decision with a Management Judge prior to issuance by the panel, except with a Management Judge who is a member of the panel.

Proposed § 43.5(b) would specify that any edits, suggestions, or feedback provided, following circulation and review to a non-Management Judge, are optional and in the sole discretion of a panel to accept. The proposed rule also states that the panel has final authority and responsibility for the content of a decision and determines whether and how to incorporate any feedback provided.

Section 43.6: Proposed § 43.6 would provide that all decisions of the Board are expected to comport with all applicable statutes, regulations, binding case law, and written agency policy or guidance applicable to Board proceedings. This proposed provision would also specifically state that there is no unwritten agency or Board policy or guidance that is binding on any panel of the Board. The proposed provision would further require that all written policy or guidance binding on panels of the Board shall be made public.

Rulemaking Considerations

A. Administrative Procedure Act: The changes proposed by this rulemaking involve rules of agency practice and procedure, and/or interpretive rules. See *Perez v. Mortg. Bankers Ass'n*, 135 S.Ct. 1199, 1204 (2015) (Interpretive rules “advise the public of the agency’s construction of the statutes and rules which it administers.” (citation and internal quotation marks omitted)); *Nat’l Org. of Veterans’ Advocates, Inc. v. Sec’y of Veterans Affairs*, 260 F.3d 1365, 1375 (Fed. Cir. 2001) (Rule that clarifies interpretation of a statute is interpretive.).

Accordingly, prior notice and opportunity for public comment are not required pursuant to 5 U.S.C. 553(b) or (c) or any other law. See *Perez*, 135 S.Ct. 1199, 1206 (Notice-and-comment procedures are required neither when an agency “issue[s] an initial

interpretive rule” nor “when it amends or repeals that interpretive rule.”); *Cooper Techs. Co. v. Dudas*, 536 F.3d 1330, 1336–37 (Fed. Cir. 2008) (stating that 5 U.S.C. 553, and thus 35 U.S.C. 2(b)(2)(B), do not require notice and comment rulemaking for “interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice”) (quoting 5 U.S.C. 553(b)(3)(A)).

The Office, nevertheless, is publishing this proposed rule for comment to seek the benefit of the public’s views on the Office’s proposed changes as set forth herein.

B. Regulatory Flexibility Act: For the reasons set forth herein, the Senior Counsel for Regulatory and Legislative Affairs, Office of General Law, United States Patent and Trademark Office has certified to the Chief Counsel for Advocacy of the Small Business Administration that changes set forth in this notice of proposed rulemaking would not have a significant economic impact on a substantial number of small entities. See 5 U.S.C. 605(b).

The changes in this notice of proposed rulemaking are to set forth expressly the rules governing the circulation and review of decisions of the Board prior to issuance by a panel. The changes do not create additional procedures or requirements or impose any additional compliance measures on any party, nor do these changes cause any party to incur additional cost. Therefore, any requirements resulting from these proposed changes are of minimal or no additional burden to those practicing before the Board.

For the foregoing reasons, the proposed changes in this notice of proposed rulemaking would not have a significant economic impact on a substantial number of small entities.

C. Executive Order 12866 (Regulatory Planning and Review): This rulemaking has been determined to be not significant for purposes of Executive Order 12866 (Sept. 30, 1993), as amended by Executive Order 14094 (April 6, 2023).

D. Executive Order 13563 (Improving Regulation and Regulatory Review): The Office has complied with Executive Order 13563 (Jan. 18, 2011). Specifically, the Office has, to the extent feasible and applicable: (1) made a reasoned determination that the benefits justify the costs of the rules; (2) tailored the rules to impose the least burden on society consistent with obtaining the regulatory objectives; (3) selected a regulatory approach that maximizes net benefits; (4) specified performance objectives; (5) identified and assessed available alternatives; (6) involved the

public in an open exchange of information and perspectives among experts in relevant disciplines, affected stakeholders in the private sector and the public as a whole, and provided on-line access to the rulemaking docket; (7) attempted to promote coordination, simplification, and harmonization across government agencies and identified goals designed to promote innovation; (8) considered approaches that reduce burdens and maintain flexibility and freedom of choice for the public; and (9) ensured the objectivity of scientific and technological information and processes.

E. Executive Order 13132 (Federalism): This rulemaking does not contain policies with federalism implications sufficient to warrant preparation of a Federalism Assessment under Executive Order 13132 (Aug. 4, 1999).

F. Executive Order 13175 (Tribal Consultation): This rulemaking will not: (1) have substantial direct effects on one or more Indian tribes; (2) impose substantial direct compliance costs on Indian tribal governments; or (3) preempt tribal law. Therefore, a tribal summary impact statement is not required under Executive Order 13175 (Nov. 6, 2000).

G. Executive Order 13211 (Energy Effects): This rulemaking is not a significant energy action under Executive Order 13211 because this rulemaking is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Therefore, a Statement of Energy Effects is not required under Executive Order 13211 (May 18, 2001).

H. Executive Order 12988 (Civil Justice Reform): This rulemaking meets applicable standards to minimize litigation, eliminate ambiguity, and reduce burden as set forth in sections 3(a) and 3(b)(2) of Executive Order 12988 (Feb. 5, 1996).

I. Executive Order 13045 (Protection of Children): This rulemaking does not concern an environmental risk to health or safety that may disproportionately affect children under Executive Order 13045 (Apr. 21, 1997).

J. Executive Order 12630 (Taking of Private Property): This rulemaking will not affect a taking of private property or otherwise have taking implications under Executive Order 12630 (Mar. 15, 1988).

K. Congressional Review Act: Under the Congressional Review Act provisions of the Small Business Regulatory Enforcement Fairness Act of 1996 (5 U.S.C. 801 *et seq.*), prior to issuing any final rule, the USPTO will submit a report containing the rule and

other required information to the United States Senate, the United States House of Representatives, and the Comptroller General of the Government Accountability Office. The changes in this notice of proposed rulemaking are not expected to result in an annual effect on the economy of 100 million dollars or more, a major increase in costs or prices, or significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States-based enterprises to compete with foreign-based enterprises in domestic and export markets. Therefore, this rulemaking is not a “major rule” as defined in 5 U.S.C. 804(2).

L. Unfunded Mandates Reform Act of 1995: The changes set forth in this notice of proposed rulemaking do not involve a Federal intergovernmental mandate that will result in the expenditure by State, local, and tribal governments, in the aggregate, of 100 million dollars (as adjusted) or more in any one year, or a Federal private sector mandate that will result in the expenditure by the private sector of 100 million dollars (as adjusted) or more in any one year, and will not significantly or uniquely affect small governments. Therefore, no actions are necessary under the provisions of the Unfunded Mandates Reform Act of 1995. See 2 U.S.C. 1501 *et seq.*

M. National Environmental Policy Act: This rulemaking will not have any effect on the quality of the environment and is thus categorically excluded from review under the National Environmental Policy Act of 1969. See 42 U.S.C. 4321 *et seq.*

N. National Technology Transfer and Advancement Act: The requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) are not applicable because this rulemaking does not contain provisions which involve the use of technical standards.

O. Paperwork Reduction Act: The Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3549) requires that the Office consider the impact of paperwork and other information collection burdens imposed on the public. This proposed rulemaking does not involve an information collection requirement that is subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3549). This rulemaking does not add any additional information requirements or fees for parties before the Board.

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to, a

penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB control number.

P. E-Government Act Compliance: The USPTO is committed to compliance with the E-Government Act to promote the use of the internet and other information technologies, to provide increased opportunities for citizen access to Government information and services, and for other purposes.

List of Subjects in 37 CFR Part 43

Administrative practice and procedure.

For the reasons set forth in the preamble, the USPTO proposes to amend title 37 as follows:

- 1. Add part 43 to read as follows:

PART 43— DECISION CIRCULATION AND REVIEW WITHIN THE PATENT TRIAL AND APPEAL BOARD

Sec.

- 43.1 Policy.
- 43.2 Definitions.
- 43.3 No Pre-Issuance Director Involvement in Board Decisions.
- 43.4 Limited Pre-Issuance Management Involvement in Decisions.
- 43.5 Review of Decisions by Non-Management Judges.
- 43.6 Controlling Legal Authority; No Unwritten or Non-Public Binding Policy or Guidance.

Authority: 35 U.S.C. 2(b)(2), 6, 134, 135, 311, 316, 321, and 326; Pub. L. 112–29, 125 Stat. 284; and Pub. L. 112–274, 126 Stat. 2456.

§ 43.1 Policy.

Scope. This Part sets forth procedures for the pre-issuance circulation and review within the Patent Trial and Appeal Board of draft panel decisions rendered in proceedings pending under Parts 41 and 42 of this chapter and sets forth the controlling legal authority, policy, and guidance applicable to the decisions of the Board.

§ 43.2 Definitions.

The following definitions apply to this part:

Board means the Patent Trial and Appeal Board.

Decision means any decision, order, opinion, or other written work product intended for entry into the record of a Board proceeding.

Director means the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office, or an individual serving as Acting Director or performing the functions and duties of the Director.

Deputy Director means the Deputy Under Secretary of Commerce for Intellectual Property and Deputy Director of the United States Patent and Trademark Office, or an individual serving as Acting Deputy Director.

Commissioner for Patents and *Commissioner for Trademarks* mean the positions defined in 35 U.S.C. 3(b)(2), or an individual acting in the capacity of one of those positions.

Issuance means the entry of a decision into the record of a Board proceeding.

Management Judge means the Chief Administrative Patent Judge, the Deputy Chief Administrative Patent Judge, a Vice Chief Administrative Patent Judge, a Senior Lead Administrative Patent Judge, a Lead Administrative Patent Judge, including individuals who serve in these positions in an acting capacity, or any other Administrative Patent Judge who, as part of their duties, supervises the work of other Administrative Patent Judges or is responsible for reviewing the performance of other Administrative Patent Judges.

Panel means the members of the Board assigned to a proceeding pursuant to the Board's Standard Operating Procedure 1.

Proceeding means an appeal or contested case under Part 41, or trial proceeding under Part 42.

§ 43.3 No Pre-Issuance Director Involvement in Panel Decisions.

(a) Prior to issuance of a decision by the panel, the Director, Deputy Director, Commissioner for Patents, and Commissioner for Trademarks shall not communicate, directly or through intermediaries, with any member of the panel regarding the decision.

(b) The prohibition of paragraph (a) shall not apply to any proceeding in which the individual is a member of the panel. When sitting as a member of a panel, the Director or other individual listed in paragraph (a) is a coequal member of the panel and exercises no review authority over the proceeding prior to the issuance of the panel's decision on the merits.

(c) Nothing in this section shall prevent the Director or delegate from communicating with a panel as to resource needs or the procedural status of any proceeding pending before the Board.

(d) The Chief Administrative Patent Judge or delegates of the Chief Administrative Patent Judge shall designate panels of the Board on behalf of the Director. The Director may issue generally applicable paneling guidance to be applied to proceedings before the

Board. The Director shall not direct or otherwise influence the paneling or repaneling of any specific proceeding prior to issuance of the panel decision. When reviewing or rehearing an issued panel decision, the Director may direct the repaneling of the proceeding in a manner consistent with PTAB paneling guidance, through an Order entered into the record.

§ 43.4 Limited Pre-Issuance Management Involvement in Decisions.

(a) Except as requested pursuant to paragraph (b) or permitted under paragraph (d) or (e), prior to issuance of a decision by the panel, no Management Judge or employee of the Office external to the Board shall initiate communication, directly or through intermediaries, with any member of a panel regarding a decision.

(b) Any individual panel member may request that one or more Management Judges provide input on a decision prior to issuance. The choice to request input is optional and solely within the discretion of an individual panel member.

(c) It is within the sole discretion of the panel to adopt any edits, suggestions, or feedback provided to the panel by a Management Judge as part of a review requested under paragraph (b). The panel has final authority and responsibility for the content of a decision and determines whether and how to incorporate any feedback requested under paragraph (b).

(d) The prohibition of paragraph (a) shall not apply to any Management Judge who is a member of the panel. When sitting as a member of a panel, a Management Judge is a coequal member of the panel and exercises no review authority over the proceeding prior to the issuance of the panel's decision on the merits.

(e) Nothing in this section shall prevent a Management Judge from communicating with a panel as to resource needs or the procedural status of any case pending before the Board.

§ 43.5 Review of Decisions by Non-Management Judges.

If the Office establishes procedures governing the internal circulation and review of decisions prior to issuance to one or more designated members of the Board:

(a) No Management Judge shall participate directly or indirectly in any such review and the reviewing non-Management judges shall not discuss the substance of any circulated decision with a Management Judge prior to issuance of the decision, except with a

Management Judge who is a member of the panel; and

(b) Any edits, suggestions, or feedback provided to the panel pursuant to such circulation and review are optional and in the sole discretion of the panel to accept. The panel has final authority and responsibility for the content of a decision and determines whether and how to incorporate any feedback provided.

§ 43.6 Controlling Legal Authority; No Unwritten or Non-Public Binding Policy or Guidance.

Notwithstanding any other provision of this Part, all decisions of the Board are expected to comport with all applicable statutes, regulations, binding case law, and written agency policy and guidance applicable to Board proceedings. There shall be no unwritten agency or Board policy or guidance that is binding on any panel of the Board. All written policy and guidance binding on panels of the Board shall be made public.

Katherine K. Vidal,

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

[FR Doc. 2023-22218 Filed 10-5-23; 8:45 am]

BILLING CODE 3510-16-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

42 CFR Part 93

RIN 0937-AA12

Public Health Service Policies on Research Misconduct

AGENCY: U.S. Department of Health and Human Services (HHS).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: In this Notice of Proposed Rulemaking (NPRM), the Department of Health and Human Services (HHS), Office of the Secretary, Office of the Assistant Secretary for Health (OASH), Office of Research Integrity (ORI) proposes to revise the Public Health Service (PHS) Policies on Research Misconduct. The proposed revisions are based on the experience ORI and institutions have gained with the regulation since it was released in 2005. This NPRM seeks comment from individuals, institutional officials, organizations, institutions, research funding agencies, and other members of the public on the proposed revisions and how to improve the clarity of substantive and non-substantive.

DATES: Submit comments on or before December 5, 2023.

ADDRESSES: For efficient management of comments, HHS requests that all comments be submitted electronically to <https://www.regulations.gov> (referred to hereafter as “*regulations.gov*”). In commenting, please refer to the Regulatory Information Number (RIN) [0937-AA12].

Instructions: Enter the RIN in the search field at <https://www.regulations.gov> and click on “Search.” To view the proposed rule, click on the title of the rule. To comment, click on “Comment” and follow the instructions. If you are uploading multiple attachments into *regulations.gov*, please number and label all attachments; <https://www.regulations.gov> will not automatically number them. All relevant comments will be posted without change to <https://www.regulations.gov>, including any personal information provided. For detailed instructions on submitting comments and additional information on the rulemaking process, see the “Public Participation” heading of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: For access to the docket to read comments received, please go to <https://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Sheila Garrity, JD, MPH, MBA, Office of Research Integrity, 1101 Wootton Parkway, Suite 240, Rockville, MD 20852; telephone 240-453-8200.

SUPPLEMENTARY INFORMATION: All comments, including any personally identifiable or confidential business information provided, will be placed in the public docket without change and will be publicly available online at <https://www.regulations.gov>. Therefore, HHS cautions commenters about submitting information they do not want to be made available to the public.

When submitting comments on this NPRM, the agency requests that commenters explain their rationale and provide any relevant data and information to support their comments or rationale, as applicable.

This preamble is organized as follows:

- I. Public Participation
- II. Authority for These Regulations
- III. Proposed Updates to Subpart A
- IV. Proposed Updates to Subpart B
- V. Proposed Updates to Subpart C
- VI. Proposed Updates to Subpart D
- VII. Proposed Updates to Subpart E
- VIII. Required Regulatory Analyses

I. Public Participation

Interested persons are invited to participate in this rulemaking by

submitting written views, opinions, recommendations, and data. Comments received, including attachments and other supporting materials, are part of the public record and subject to public disclosure. Do not include any information in your comment or supporting materials that you do not wish to be disclosed publicly. Comments are invited on any topic within the scope of this NPRM.

II. Authority for These Regulations

The primary authority supporting this rulemaking is 42 U.S.C. 289b (section 493 of the Public Health Service Act, as amended). This authority established ORI as an independent entity within HHS and requires the Secretary to issue regulations to define the term “research misconduct” and implement the research misconduct provisions of the statute. To that end, in 2005 HHS issued Public Health Service (PHS) Policies on Research Misconduct (the “2005 Final Rule”) [42 CFR part 93; 70 FR 28370 (May 17, 2005)]. Since the 2005 Final Rule was issued, ORI has gained extensive experience handling all aspects of the HHS research integrity program under 42 CFR part 93. ORI now seeks to capitalize on that experience through the regulatory revision process.

ORI anticipates release of the final rule in the summer of 2024, with implementation to begin a minimum of 4 months afterward. ORI will aim for an effective date of January 1, 2025, to simplify institutional reporting under proposed § 93.302(b). Once this NPRM is finalized, ORI recognizes that some institutions may wish to implement the revised regulation for research misconduct proceedings already underway. As was done with the 2005 Final Rule, ORI intends that for any allegation of research misconduct received by HHS or an institution before the effective date of the revised regulation, regardless of the stage of the research misconduct proceeding, the proceeding will fall under the 2005 Final Rule. ORI seeks comment on aspects to consider if it were to entertain individual requests to apply the revised regulation to a particular ongoing proceeding.

For additional information and an extensive historical background on the origins of ORI and the development of the PHS policies on research misconduct, we direct the public to 69 FR 20778 (Apr. 16, 2004) and to ORI’s website at <https://ori.hhs.gov/historical-background>. A basic tenet of the scientific process is that research constantly evolves as experimental results and analyses inform new hypotheses. Informed debate and the

discourse of ideas is a natural part of that process. Institutions must foster a research environment that discourages misconduct in all research and that deals forthrightly with possible misconduct associated with PHS supported research. ORI has recognized that the 2005 Final Rule’s complexity and missing definitions may create confusion in some areas. Accordingly, this proposed rule aims to implement revisions that we believe are necessary and appropriate while retaining many of the features of the 2005 Final Rule.

We highlight below the changes in subparts A through E, particularly to draw attention to areas that represent new approaches. Briefly, this NPRM follows the structure of the 2005 Final Rule. Subpart A describes the purpose and fundamental precepts of the regulation. Subpart B provides definitions. Subpart C lists institutional responsibilities, and subpart D describes responsibilities of HHS and ORI. Finally, subpart E covers the process for respondents who wish to contest the ORI findings of research misconduct and HHS administrative actions. We invite public comments on all aspects of this proposed regulation.

III. Proposed Updates to Subpart A

Subpart A establishes the responsibilities of HHS, PHS, ORI, and institutions in addressing allegations of research misconduct. ORI proposes refining the language in subpart A to clarify the applicability of the regulation to allegations of research misconduct. Subpart A also addresses HHS coordination with other agencies. In addition, ORI proposes removing reference to evidentiary standards and burden of proof formerly found at § 93.106 because proposed revisions throughout part 93, and specifically at § 93.104, address requirements for a finding of research misconduct, including preponderance of evidence to prove an allegation.

A proposed substantive addition to subpart A includes clarifying language about confidentiality, explaining when and how disclosure may be made to “those who need to know.” In the 2005 Final Rule, the phrase “those who need to know” is not defined in § 93.108, causing uncertainty about what information can be disclosed and to whom. To address this concern, we propose to add new paragraphs in § 93.106 to address the situations in which disclosures may need to occur as well as who is considered as having a “need to know” and in what circumstances. We believe these proposed revisions will balance the

rights of all parties while minimizing unnecessary information disclosure.

ORI recognizes that anonymity is a concern for some complainants and witnesses. Institutional, state, or other policies may govern the granting of anonymity to complainants or witnesses in a research misconduct proceeding, so ORI has not proposed language in the NPRM. Instead, ORI proposes to issue guidance on protecting anonymity in transcripts and other materials collected throughout a research misconduct proceeding. ORI is interested in the public's views on maintaining anonymity for complainants or witnesses who request it, including whether to include provisions for such anonymity in the final rule.

The 2005 Final Rule generally applies only to research misconduct occurring within six years of the date HHS or an institution receives an allegation of research misconduct, but it provides a "subsequent use" exception to the six-year limitation in § 93.105(b)(1). From our experience, this "subsequent use" exception has been applied most often to the citation of questioned paper(s) in a researcher's more recent publication or PHS grant application which in turn tolls the six-year time limitation. From our experience the phrase "other use for the potential benefit of the respondent of the research record" also has been viewed as vague and unclear. Therefore, to ensure clarity within the institutional community, we propose that the six-year time limitation be maintained, but we propose revising the "subsequent use" exception at § 93.105(b)(1) to include clarifying information. ORI is interested in public comments on how to further clarify the expectations and/or requirements related to the "subsequent use" exception.

IV. Proposed Updates to Subpart B

ORI is proposing revisions to definitions in subpart B and introducing new definitions, some of which align with other changes proposed throughout the regulation. In a few cases, regulatory principles appeared in the body of the 2005 Final Rule without definition; these proposed revisions now appear among the 48 proposed definitions provided in subpart B. We propose moving definitions for "research misconduct", "fabrication", and "falsification" to subpart B without changes. ORI proposes revising the "plagiarism" definition and moving it to subpart B. We believe having all definitions in one place makes it easier for readers, enabling the text in subpart C to focus on institutional responsibilities. We are interested in public comments on all these

definitions, their specific content as well as their inclusion in the listing of definitions in subpart B.

ORI proposes adding some commonly-used terms to the definitions to ensure clarity in usage. These additional terms include "appeal"; "assessment"; "difference of opinion"; "institutional certifying official" and "institutional deciding official"; "research integrity"; "research integrity officer"; and "small institution." Key points of other proposed definitional changes follow, with more expansive definitions in subpart B. This preamble groups the conceptually related terms versus providing them alphabetically as they appear in subpart B.

New Terms and Definitions

Institutional Record. As part of the proposed revisions, we introduce the concept of a robust and required institutional record as part of the research misconduct investigative process. Described in more detail at § 93.223, the proposed institutional record includes the assessment report, inquiry report, investigation report, decision(s) made by the institutional deciding official, and the complete record of any institutional appeal, any other records the institution used for the research misconduct proceeding, documentation related to the determination that records are irrelevant or duplicate and therefore not included, and a single index listing all documents in the institutional record.

Administrative Record. The administrative record described at proposed § 93.202 contains information that would be used by ORI in making findings of research misconduct and identifying administrative actions, in addition to serving as the basis for the Departmental Appeals Board (DAB) Administrative Law Judge (ALJ) review and information considered by the HHS Suspension and Debarment Official (SDO). The proposed administrative record comprises: the institutional record; any information provided by the respondent to ORI, including but not limited to the verbatim transcript of any meetings under proposed § 93.403 between the respondent and ORI, whether in person, by phone, or by videoconference; and correspondence between the respondent and ORI; any additional information provided to ORI while the case is pending before ORI; and any analysis or additional information generated or obtained by ORI. Any analysis or additional information generated or obtained by ORI will also be made available to respondent.

Honest Error. At times, institutions have raised the issue that "honest error" is not defined in the 2005 Final Rule, and that providing a definition would ensure greater consistency and fairness. We propose to define the term "honest error" in subpart B as a mistake made in good faith.

Intentionally, Knowingly, and Recklessly. None of these terms were defined in the 2005 Final Rule. Although "knowingly" and "intentionally" seem to be more commonly understood than "recklessly", we have received requests through the years to provide explicit definitions for clarity and to ensure uniform application in the research community. We propose definitions based on those used in the ALJ's Recommended Decisions in *ORI v. Kreipke*, Decision No. CR5109 (May 18, 2018) at page 14 and *ORI v. Srivastava*, Decision No. 5178 (Sept. 5, 2018) at pages 11–12. We propose that to act "intentionally" means to act with the aim of carrying out the act. To act "knowingly" means to act with awareness of the act. Finally, to act "recklessly" means to act without proper caution despite a known risk for harm. These definitions are found at §§ 93.224, 93.226, and 93.234, respectively.

Accepted Practices of the Relevant Research Community. From our experience, many institutions have requested a definition for the phrase "accepted practices of the relevant research community" to ensure clarity and uniformity in application to research misconduct proceedings. Therefore, we propose to adopt at § 93.200 a revised and extended version of the definition provided in the ALJ's Recommended Decision in *ORI v. Kreipke*, Decision No. CR5109 (May 18, 2018) at page 17. Specifically, we propose "accepted practices of the relevant research community" to mean those practices established by 42 CFR part 93 and by PHS funding components, as well as commonly accepted professional codes or norms within the overarching community of researchers and institutions that apply for and receive PHS grants. These practices must be consistent with the definition of research integrity at § 93.236.

This Part. Over the years, institutions and government agencies have told us that "this part" is confusing. We propose to define "this part" as meaning 42 CFR part 93 in its entirety, unless otherwise explicitly noted. We further define how to refer to only a portion of the regulation.

Revised Definition

Plagiarism. The 2005 Final Rule states that “Plagiarism is the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit.” In addition to moving the definition of “plagiarism” to § 93.230, we propose to include new § 93.230(a) and (b). Proposed § 93.230(a) differentiates unattributed text copied verbatim or nearly verbatim from the limited use of identical or nearly-identical phrases which describe a commonly-used methodology. Further, proposed § 93.230(b) addresses self-plagiarism and authorship or credit disputes. Self-plagiarism and authorship disputes do not meet the definition of research misconduct and are outside of ORI’s jurisdiction. These issues are better handled at the institutional level.

V. Proposed Updates to Subpart C

Compliance and Assurances. Information and guidance for institutions about compliance and research integrity assurances is provided at §§ 93.300 through 304. We propose clarifying the requirements for establishing and maintaining an active research integrity assurance, in addition to providing specific guidance for small institutions.

Conflict of interest. The 2005 Final Rule requires that institutions “ensure that individuals responsible for carrying out any part of the research misconduct proceeding do not have unresolved personal, professional or financial conflicts of interest with the complainant, respondent or witnesses” at § 93.300(b). This requirement has been interpreted by many institutions as a requirement to provide respondents with an opportunity to object to committee members’ participation prior to their appointments to an inquiry committee, if one is used, or an investigation committee. This approach to conflict issues is not required by the 2005 Final Rule although some institutions have apparently made it an unwritten standard. We propose to add clarifying language at § 93.305(h)(5) that addresses how an institution may provide respondents or complainants the opportunity to object to the person or to one or more committee or consortium members, chosen to conduct, support, or participate in the research misconduct proceedings. If an institution chooses to provide one respondent in a proceeding the opportunity to object, it must provide all respondents in that proceeding the opportunity to object. If an institution chooses to provide one complainant the opportunity to object in a proceeding, it

must provide all complainants the opportunity to object in that proceeding. We believe this is fair and will maintain uniformity in the processing of research misconduct allegations.

Sequestration of research records and other evidence. ORI is aware of concerns that, in the current research environment and with the use of cloud-based storage, it may not be possible to obtain “custody” of the original research records and other evidence that will be needed to conduct a research misconduct proceeding. We propose to move away from the use of the term “custody” and focus on the institution’s obligation to obtain and sequester all research records and other evidence that will be needed to conduct the research misconduct proceeding (see §§ 93.305(a), 93.306(c)(2)(ii), 93.307(d), and 93.310(d)). We also propose adding new language at § 93.305(a) indicating that when it is not possible to obtain the original research records or other evidence, an institution may obtain copies of the data or other evidence so long as those copies are substantially equivalent in evidentiary value.

Institutional Assessment. New language is added at § 93.306 to describe the institutional assessment. We have provided criteria for an assessment to proceed to inquiry at § 93.306(1)(i) through (iii), and we have described reporting requirements as well as a timeline for completion of assessments.

Institutional Inquiry. ORI has observed that institutions often convene a committee to conduct a robust, investigation-like process at the inquiry stage. These processes may include interviewing witnesses and reviewing research records, only to repeat them at the investigation stage. ORI plans to issue guidance indicating that an interview conducted at the inquiry phase can be carried forward into investigation and need not be repeated, unless it might reveal further information. We propose a revision at § 93.307(e)(2), to allow institutional discretion in convening committees of experts to conduct reviews at the inquiry stage to determine whether an investigation is warranted. We further provide options for who may do the inquiry review, noting that the institution may use one or more subject matter experts to assist them. For more information on using a committee, consortium, or other person for research misconduct proceedings, see proposed § 93.305(h).

We propose to clarify for institutions in a new section, § 93.307(f)(1)(i), that proceeding to an investigation requires that they have a reasonable basis for concluding that an allegation falls

within the definition of research misconduct under 42 CFR part 93 and involves PHS supported biomedical or behavioral research, research training or activities related to that research or research training, as provided in § 93.102. We also propose including language at § 93.309(c) to clearly indicate that institutions are required to keep sufficiently detailed documentation of each inquiry to permit a later assessment by ORI of the reasons the institution decided not to conduct an investigation.

We propose adding new language to §§ 93.307(f)(2)(ii) and 93.307(g)(2) to describe the inquiry results and inquiry report after an inquiry has been conducted. We have learned over time that the phrase “the allegation may have substance” in current § 93.307(d)(2), may lack the clarity an institution would find helpful to delineate an inquiry from an investigation. By nature, an inquiry is preliminary. An inquiry would not be expected to identify sufficient basis for differentiating honest error or difference of opinion from research misconduct committed intentionally, knowingly, or recklessly, absent an admission of research misconduct. We do not believe such a determination can be made at the inquiry phase to support dismissal of an allegation. However, we propose that the institution should note in the inquiry report any evidence of honest error or a difference of opinion, for full consideration at the investigation stage.

Institutional Investigation. From our experience, there has been some confusion about the extent to which institutions must continue to pursue leads at the institutional investigation stage under § 93.310(h). To address this concern, we propose that § 93.310(h) be revised to indicate that, at the investigation stage, the institution may choose to add to or expand the ongoing investigation by including any new allegations pertaining to the same respondent or research records in question (e.g., manuscripts or funding proposals) that come to the institution’s attention during the pendency of the investigation, rather than opening an inquiry to review those new allegations. We believe this will address an institution’s administrative efficiency concern(s) while providing that new allegations are addressed as they are identified.

Institutional Record. As defined in proposed § 93.223 and further described at proposed §§ 93.305 through 93.316, ORI proposes that institutions be required to develop, maintain, and provide an institutional record. The institutional record would ultimately be

part of a more expansive administrative record that would form the basis of any ORI decision regarding whether research misconduct has occurred, any decision by the Departmental Appeals Board ALJ, or any decision by the HHS Suspension and Debarment Official (SDO). ORI may provide additional guidance on how to organize and submit the institutional record.

VI. Proposed Updates to Subpart D

ORI proposes changes to its processes that align with changes for institutions in subpart C, specifically how ORI assembles the administrative record of a research misconduct proceeding. Further,

1. We propose to add paragraph (b) in § 93.404 that would provide even more clarity by indicating that the lack of an ORI finding of research misconduct does not overturn an institution's determination that the conduct constituted professional or research misconduct warranting remediation under the institution's policy.

2. We clarify actions ORI may take for institutional noncompliance.

3. We indicate when and how ORI may disclose information about a research misconduct proceeding. We propose, at § 93.410(b), a revision that would permit ORI to publish notice of institutional research misconduct findings and implemented institutional actions. This notice would inform the public and research community that allegations of research misconduct have been addressed under the regulation and help to protect the health and safety of the public, promote the integrity of PHS supported research and the research process, or conserve public funds. ORI is interested in public comment on this proposed change, particularly on the opportunity for a respondent to provide comment or information prior to the posting of such a notice.

VII. Proposed Updates to Subpart E

From our experience and interactions with institutions and professional organizations, there is a strong desire for a simpler and more expedient appeals process than the approach provided in the 2005 Final Rule. Under the 2005 Final Rule, a Departmental Appeals Board (DAB) ALJ undertakes a *de novo* review of ORI findings of research misconduct and proposed HHS administrative actions, based on evidence (including witness testimony) presented by ORI and the respondent at a hearing. Therefore, we propose a major revision to 42 CFR part 93, subpart E which will provide a streamlined process for contesting ORI

findings of research misconduct and HHS administrative actions. The proposed appeals process would entail ALJ review of the administrative record, which includes all information provided by the respondent to ORI, to determine whether ORI's findings and HHS's proposed administrative actions other than suspension or debarment are reasonable and not based on a material error of law or fact. The proposed appeals process also provides for the possibility of a limited hearing if the ALJ determines that there is a genuine dispute over material fact. There would be no further opportunity to appeal ORI's findings and HHS's proposed administrative actions (other than suspension or debarment) within HHS. This proposal does not change that respondents may request reconsideration of a final debarment decision with the SDO. We believe this approach is advantageous to all parties, providing finality in a more expedient manner. ORI specifically seeks comment on the scope of and need, or lack of need, for the limited hearing in proposed § 93.511, as well as comment on the other proposed revisions to subpart E.

VIII. Required Regulatory Analyses

All recipients of PHS biomedical and behavioral research awards must continue to comply with reporting and record keeping requirements in this NPRM. As shown below in the Paperwork Reduction Act analysis, those burdens on institutions encompass essentially all the activities required under the proposed rule.

We have examined the impacts of the proposed rule under Executive Order 12866, Executive Order 13563, Executive Order 14094, and the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4). Executive Orders 12866, 13563, and 14094 direct us to assess all costs and benefits of available regulatory alternatives and, when regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity). We do not believe that this proposed rule, if finalized, would result in significant effects as described below.

The Unfunded Mandates Reform Act of 1995 (section 202(a)) requires us to prepare a written statement, which includes an assessment of anticipated costs and benefits, before proposing “any rule that includes any Federal mandate that may result in the expenditure by state, local, and tribal governments, in the aggregate, or by the

private sector, of \$100,000,000 or more (adjusted annually for inflation) in any one year.” The current threshold described in Executive Order 14094 is \$200 million. This proposed rule, if finalized, would not result in an expenditure in any year that meets or exceeds this amount.

Summary of Impacts and Threshold Analysis

This proposed rule would result in costs associated with covered institutions updating their policies and procedures for responding to allegations of research misconduct; costs associated with covered entities filing an annual statement of assurance (research integrity assurance) and an annual report on allegations received; costs associated with submitting reports and evidence to support their results and conclusions of inquiries or investigations of research misconduct; and costs associated with obtaining all research records and other evidence when there is an allegation of research misconduct and engaging persons to handle the process for addressing the allegations of research misconduct. We anticipate that the proposed rule would likely reduce the burden of compliance by states or other institutions through reduced confusion and uncertainty.

We performed an initial threshold analysis to assess the approximate magnitude of the impacts of the proposed rule to determine whether it would result in significant effects as per section 3(f)(1) of Executive Order 12866. We identified the costs associated with covered institutions updating their policies and procedures for responding to allegations of research misconduct as the largest impact under the proposed rule. For this impact, we anticipate that 5,910 institutions holding research integrity assurances would update their policies and procedures. For the purposes of this threshold analysis, we adopt 16 hours as an estimate for the average time across all covered entities for these tasks. Across all covered entities, this is 94,560 total hours spent updating policies and procedures.

To monetize the change in time use associated with these activities, we adopt an hourly value of time based on the cost of labor, including wages and benefits, and also indirect costs, which “reflect resources necessary for the administrative oversight of employees and generally include time spent on administrative personnel issues (e.g., human resources activities such as hiring, performance reviews, personnel transfers, affirmative action programs), writing administrative guidance documents, office expenses (e.g., space

rental, utilities, equipment costs), and outreach and general training (e.g., employee development).”¹

For these tasks, we identify a pre-tax hourly wage for Education Administrators, Postsecondary. According to the U.S. Bureau of Labor Statistics, the mean hourly wage for these individuals is \$53.49 per hour.² We assume that benefits plus indirect costs equal approximately 100 percent of pre-tax wages, and adjust this hourly rate by multiplying by two, for a fully loaded hourly wage rate of \$106.98. We multiply this fully loaded hourly wage rate by the 94,560 total hours across covered entities spent updating policies and procedures and estimate a total cost in the first year of about \$10.1 million.

Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires agencies to prepare a regulatory flexibility analysis describing the impact of the proposed rule on small entities (named “institutions” in the proposed rule), permits agency heads to certify that a proposed rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. The primary effect of this proposed rule would be to require covered institutions to implement policies and procedures for responding to allegations of research misconduct. The Secretary proposes to certify that this proposed rule would not have a significant impact on a substantial number of small entities, as defined by the Regulatory Flexibility Act, based on the following facts.

1. As of March 1, 2023, approximately 30 percent (1,785) of 5,910 institutions holding research integrity assurances are small institutions. The primary impact of the NPRM on covered institutions results from the reporting and record keeping provisions which

are analyzed in detail under the heading “The Paperwork Reduction Act.” Significant annual burdens apply only if an institution learns of possible research misconduct and begins an inquiry, investigation, or both.

2. Institutions covered by 42 CFR part 93 reported having conducted a total of 114 inquiries and 101 investigations during the 2021 reporting period. Two inquiries and two investigations were conducted by small institutions. Small institutions may be able to avoid developing and filing the full policies and procedures for addressing allegations of research misconduct required by § 93.304 by filing a Small Institution Statement. Under the 2005 Final Rule, this is called a Small Organization Statement. ORI or another appropriate HHS office will work with small institutions to develop and/or advise on a process for handling allegations of research misconduct consistent with 42 CFR part 93. The burden of filing the Small Institution Statement is .5 hour. Thus, the burden of developing and filing the full policies and procedures for addressing allegations of research misconduct required by § 93.304 will not fall on a substantial number of small entities.

A small entity that files the Small Institution Statement must still report allegations of research misconduct to ORI and comply with all provisions of the proposed rule except as described in § 93.303. The most significant burden that could fall on an entity filing a Small Institution Statement is in addressing allegations of research misconduct which would include obtaining all research records and other evidence when there is an allegation of research misconduct, engaging persons to handle the process for addressing the allegations of research misconduct, and

submitting reports and evidence to support the small institution’s results and conclusions of inquiries or investigations of research misconduct. The average burden per response is estimated at 40 hours. Based on reports of research misconduct over the last 5 years, fewer than 5 small institutions would have to incur that burden in any year. Based on this analysis, HHS concludes that the regulations set forth in the NPRM will not impose a significant burden on a substantial number of small entities. However, HHS will carefully consider comments on the analysis and conclusion.

Paperwork Reduction Act

ORI currently holds OMB-Control-Number 0937–0198 for the collection of information from institutions. The information is needed to fulfill section 493 of the Public Health Service Act (42 U.S.C. 289b), which requires assurances from institutions that apply for PHS funding for any project or program that involves the conduct of biomedical or behavioral research. In addition, the information is required to fulfill the assurance and annual reporting requirements of 42 CFR part 93. ORI uses the information to monitor institutional compliance with the regulation. Lastly, the information may be used to respond to congressional requests for information to prevent misuse of Federal funds and to protect the public interest. The Institutional Assurance and Annual Report on Possible Research Misconduct, PHS–6349, and the Assurance of Compliance by Sub-Award Recipients, PHS–6315, are covered by OMB 0937–0198. The OMB approvals expire August 31, 2026, and ORI has applied for renewal with only minor changes to language in the forms.

ESTIMATED ANNUALIZED BURDEN HOUR TABLE
[3/16/2023]

Forms (if necessary)	Type of respondent	Number of respondents	Number of responses per respondent	Average burden hours per response	Total burden hours
PHS–6349	Awardee Institutions	5,770	1	10/60	961
PHS–6315	Sub-Awardee Institutions	156	1	5/60	13
Total .....	.....	.....	.....	.....	974

¹ U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. 2017. “Valuing Time in U.S. Department of Health and Human Services Regulatory Impact Analyses: Conceptual

Framework and Best Practices.” <https://aspe.hhs.gov/reports/valuing-time-us-department-health-human-services-regulatory-impact-analyses-conceptual-framework>. Page v.

² U.S. Bureau of Labor Statistics. Occupational Employment and Wages, May 2021. 11–9033 Education Administrators, Postsecondary. Mean hourly wage. <https://www.bls.gov/oes/current/oes119033.htm>.

ESTIMATED ANNUALIZED COST TO RESPONDENTS
[3/16/2023]

Forms (if necessary)	Type of respondent	Total burden hours	Hourly wage rate	Total respondent cost
PHS-6349	Awardee Institutions	961	\$107.00	\$102,827.00
PHS-6315	Sub-Awardee Institutions	13	107.00	1,391.00

For the reasons discussed in the preamble, HHS proposes to revise 42 CFR part 93 to read as follows:

PART 93—PUBLIC HEALTH SERVICE POLICIES ON RESEARCH MISCONDUCT

- Sec.
- 93.25 Organization of this part.
- 93.50 Special terms.
- Subpart A—General**
- 93.100 General policy.
- 93.101 Purpose.
- 93.102 Applicability.
- 93.103 Research misconduct.
- 93.104 Requirements for findings of research misconduct.
- 93.105 Time limitations.
- 93.106 Confidentiality.
- 93.107 Coordination with other agencies.
- Subpart B—Definitions**
- 93.200 Accepted practices of the relevant research community.
- 93.201 Administrative action.
- 93.202 Administrative record.
- 93.203 Allegation.
- 93.204 Appeal.
- 93.205 Assessment.
- 93.206 Charge letter.
- 93.207 Complainant.
- 93.208 Contract.
- 93.209 Day.
- 93.210 Departmental Appeals Board or DAB.
- 93.211 Difference of opinion.
- 93.212 Evidence.
- 93.213 Fabrication.
- 93.214 Falsification.
- 93.215 Funding component.
- 93.216 Good faith.
- 93.217 Honest error.
- 93.218 Inquiry.
- 93.219 Institution.
- 93.220 Institutional certifying official.
- 93.221 Institutional deciding official.
- 93.222 Institutional member.
- 93.223 Institutional record.
- 93.224 Intentionally.
- 93.225 Investigation.
- 93.226 Knowingly.
- 93.227 Notice.
- 93.228 Office of Research Integrity or ORI.
- 93.229 Person.
- 93.230 Plagiarism.
- 93.231 Preponderance of the evidence.
- 93.232 Public Health Service or PHS.
- 93.233 PHS support.
- 93.234 Recklessly.

- 93.235 Research.
- 93.236 Research integrity.
- 93.237 Research Integrity Officer or RIO.
- 93.238 Research misconduct.
- 93.239 Research misconduct proceeding.
- 93.240 Research record.
- 93.241 Respondent.
- 93.242 Retaliation.
- 93.243 Secretary or HHS.
- 93.244 Small institution.
- 93.245 Suspension and debarment.
- 93.246 Suspension and Debarment Official or SDO.
- 93.247 This part.
- Subpart C—Responsibilities of Institutions**
- Compliance and Assurances
- 93.300 General responsibilities for compliance.
- 93.301 Research integrity assurances.
- 93.302 Maintaining active research integrity assurances.
- 93.303 Research integrity assurances for small institutions.
- 93.304 Institutional policies and procedures.
- 93.305 General conduct of research misconduct proceedings.
- The Institutional Assessment
- 93.306 Institutional assessment.
- The Institutional Inquiry
- 93.307 Institutional inquiry.
- 93.308 Notice of the results of the inquiry.
- 93.309 Reporting to ORI on the decision to initiate an investigation.
- The Institutional Investigation
- 93.310 Institutional investigation.
- 93.311 Investigation time limits.
- 93.312 Opportunity to comment on the investigation report.
- 93.313 Investigation report.
- 93.314 Institutional appeals.
- 93.315 Transmittal of the institutional record to ORI.
- 93.316 Completing the research misconduct process.
- Other Institutional Responsibilities
- 93.317 Retention and custody of the institutional record.
- 93.318 Institutional standards of conduct.
- Subpart D—Responsibilities of the U.S. Department of Health and Human Services**
- General Information
- 93.400 General statement of ORI authority.
- 93.401 Interaction with other entities and interim actions.

- Research Misconduct Issues
- 93.402 ORI allegation assessments.
- 93.403 ORI review of research misconduct proceedings.
- 93.404 Findings of research misconduct and proposed administrative actions.
- 93.405 Notifying the respondent of findings of research misconduct and HHS administrative actions.
- 93.406 Final HHS actions.
- 93.407 HHS administrative actions.
- 93.408 Mitigating and aggravating factors in HHS administrative actions.
- 93.409 Settlement of research misconduct proceedings.
- 93.410 Final HHS action with no settlement or finding of research misconduct.
- 93.411 Final HHS action with a settlement or finding of misconduct.
- Institutional Compliance Issues
- 93.412 Making decisions on institutional noncompliance.
- 93.413 HHS compliance actions.
- Disclosure of Information
- 93.414 Notice.
- Subpart E—Opportunity To Contest ORI Findings of Research Misconduct and HHS Administrative Actions**
- General Information
- 93.500 General policy.
- Process for Contesting Research Misconduct Findings and/or Administrative Actions
- 93.501 Notice of appeal.
- 93.502 Appointment of the Administrative Law Judge.
- 93.503 Filing of the administrative record.
- 93.504 Standard of review.
- 93.505 Rights of the parties.
- 93.506 Authority of the Administrative Law Judge.
- 93.507 Ex parte communications.
- 93.508 Filing, format, and service.
- 93.509 Filing motions.
- 93.510 Conferences.
- 93.511 Hearing to resolve genuine factual dispute.
- 93.512 The Administrative Law Judge’s ruling.
- Authority:** 42 U.S.C. 216, and 289b.
- § 93.25 Organization of this part.**
- This part is subdivided into five subparts. Each subpart contains sections related to a broad topic or specific audience with special responsibilities as shown in the following table.

In subpart . . .	You will find sections related to . . .
A	General information about this rule.
B	Definitions of terms used in this part.
C	Responsibilities of institutions with PHS support.
D	Responsibilities of the U.S. Department of Health and Human Services and the Office of Research Integrity.
E	Information on how to contest ORI research misconduct findings and HHS administrative actions.

§ 93.50 Special terms.

This part uses terms throughout the text that have special meaning. Those terms are defined in subpart B of this part.

Subpart A—General

§ 93.100 General policy.

(a) Research misconduct involving Public Health Service (PHS) support is contrary to the interests of the PHS and the Federal Government, to the health and safety of the public, to the integrity of research, and to the conservation of public funds.

(b) The U.S. Department of Health and Human Services (HHS) and institutions that apply for or receive PHS support for biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training share responsibility for the integrity of the research process. HHS has ultimate oversight authority for PHS supported research, and for taking other actions as appropriate or necessary, including the right to assess allegations and perform inquiries or investigations at any time. Institutions and institutional members have an affirmative duty to protect PHS funds from misuse by ensuring the integrity of all PHS supported work, and primary responsibility for responding to and reporting allegations of research misconduct, as provided in this part.

§ 93.101 Purpose.

The purpose of this part is to:

- (a) Establish the responsibilities of HHS, the Office of Research Integrity (ORI), and institutions in addressing allegations of research misconduct;
- (b) Define what constitutes research misconduct in PHS supported research;
- (c) Establish the requirements for a finding of research misconduct;
- (d) Define the general types of administrative actions HHS may take in response to research misconduct;
- (e) Require institutions to:
 - (1) Develop and implement policies and procedures for reporting and addressing allegations of research misconduct covered by this part;
 - (2) Provide HHS with the assurances necessary to permit the institutions to participate in PHS supported research.

(f) Protect the health and safety of the public, promote the integrity of PHS supported research and the research process, and conserve public funds.

§ 93.102 Applicability.

(a) Every extramural or intramural institution (see § 93.219) that applies for or receives PHS support for biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training must comply with this part. Further, each recipient of such support is responsible for the compliance of their subrecipients with this part.

(b) This part applies to allegations of research misconduct involving:

- (1) Applications or proposals for PHS support for biomedical or behavioral extramural or intramural research, biomedical or behavioral research training, or activities related to that research or research training;
- (2) PHS supported biomedical or behavioral extramural or intramural research;
- (3) PHS supported biomedical or behavioral extramural or intramural research training programs;
- (4) PHS supported extramural or intramural activities that are related to biomedical or behavioral research or research training, such as, but not limited to, the operation of tissue and data banks or the dissemination of research information;
- (5) Research records produced during PHS supported research, research training, or activities related to that research or research training; and
- (6) Research proposed, performed, reviewed, or reported, as well as any research record generated from that research, regardless of whether an application or proposal for PHS funds resulted in an awarded grant, contract, cooperative agreement, sub-award, or other form of PHS support.

(c) This part does not supersede or establish an alternative to any applicable statutes, regulations, policies, or procedures for handling fiscal improprieties, the ethical treatment of human or animal subjects, criminal matters, personnel actions against Federal employees, or addressing whistleblowers and/or retaliation.

(d) This part does not supersede or establish an alternative to the HHS suspension and debarment regulations as set forth under the Nonprocurement Common Rule (NCR) at 2 CFR part 180 for nonprocurement transactions (as further implemented by HHS at 2 CFR part 376) or the Federal Acquisition Regulation (FAR) at 48 CFR 9.406 and 9.407 for procurement transactions (as further supplemented by HHS at 48 CFR 309.4).

(e) This part does not prohibit or otherwise limit how institutions handle allegations of misconduct that do not fall within this part's definition of research misconduct or that do not involve PHS support.

§ 93.103 Research misconduct.

(a) As defined below, research misconduct is fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results (see § 93.238).

(b) Research misconduct does not include honest error or differences of opinion.

§ 93.104 Requirements for findings of research misconduct.

A finding of research misconduct made under this part requires that:

- (a) There be a significant departure from accepted practices of the relevant research community; and
- (b) The misconduct be committed intentionally, knowingly, or recklessly; and
- (c) The allegation must be proven by a preponderance of the evidence.

§ 93.105 Time limitations.

(a) *Six-year limitation.* This part applies only to research misconduct occurring within six years of the date HHS or an institution receives an allegation of research misconduct.

(b) *Exceptions to the six-year limitation.* Paragraph (a) of this section does not apply in the following instances:

- (1) *Subsequent use exception.* The respondent continues or renews any incident of alleged research misconduct that occurred before the six-year limitation through the use of, republication of, or citation to the portion(s) of the research record (e.g., processed data, journal articles, funding

proposals, data repositories) that is alleged to have been fabricated, falsified, or plagiarized, for the potential benefit of the respondent.

(i) When the respondent uses, republishes, or cites to the portion(s) of the research record that is alleged to have been fabricated, falsified, or plagiarized, in submitted or published manuscripts, submitted PHS grant applications, progress reports submitted to PHS funding components, posters, presentations, or other research records within six years of when the allegations were received by HHS or an institution, this exception applies.

(ii) For allegations which may fall under this exception, an institution must inform ORI of the relevant facts before concluding the exception does not apply. ORI will make the final decision about the subsequent use exception for each allegation.

(2) *Exception for the health or safety of the public.* If ORI or the institution, following consultation with ORI, determines that the alleged research misconduct, if it occurred, would possibly have a substantial adverse effect on the health or safety of the public, this exception applies.

§ 93.106 Confidentiality.

(a) Disclosure of the identity of respondents, complainants, and witnesses in research misconduct proceedings is limited, to the extent possible, to those who need to know, consistent with a thorough, competent, objective, and fair research misconduct proceeding, and as allowed by law. Institutions must inform respondents, complainants, and witnesses, before they are interviewed, if and how their identity may be disclosed. Provided, however, that the institution must disclose the identity of respondents, complainants, or other relevant persons to ORI pursuant to an ORI review of research misconduct proceedings under this part.

(b) Except as may otherwise be prescribed by applicable law, confidentiality must be maintained for any records or evidence from which research subjects might be identified. Disclosure is limited to those who need to know to carry out a research misconduct proceeding.

(c) Disclosure of ongoing research misconduct proceedings under this part is limited, to the extent possible, to those who need to know, consistent with a thorough, competent, objective, and fair research misconduct proceeding, or the purpose of this part as described in § 93.101(f). In this context, “those who need to know” may include public and private entities.

(d) Disclosure of concerns related to the reliability of the research record that is alleged to have been fabricated, falsified, or plagiarized is limited, to the extent possible, to those who need to know, consistent with a thorough, competent, objective, and fair research misconduct proceeding, or the purpose of this part as described in § 93.101(f). In this context, “those who need to know” may include journals, editors, publishers, and public and private entities.

(e) For officials at institutions other than the institution where the research misconduct proceedings are being conducted, their need to know occurs when the institution:

(1) May possess records relevant to allegations under review;

(2) Employs a respondent alleged or found to have committed research misconduct; or

(3) Funds research being conducted by a respondent alleged or found to have committed research misconduct.

§ 93.107 Coordination with other agencies.

(a) When more than one agency of the Federal Government has jurisdiction over the subject misconduct allegation, HHS will cooperate in designating a lead agency to coordinate the response of the agencies to the allegation. Where HHS is not the lead agency, it may, in consultation with the lead agency, take appropriate action.

(b) In research misconduct proceedings involving more than one agency, HHS may refer to the other agency’s (or agencies’) evidence or reports if HHS determines that the evidence or reports will assist in resolving HHS issues. In appropriate cases, HHS will seek to resolve allegations jointly with the other agency or agencies.

Subpart B—Definitions

§ 93.200 Accepted practices of the relevant research community.

Accepted practices of the relevant research community means those practices established by 42 CFR part 93 and by PHS funding components, as well as commonly accepted professional codes or norms within the overarching community of researchers and institutions that apply for and receive PHS grants. These practices must be consistent with the definition of research integrity.

§ 93.201 Administrative action.

Administrative action means an HHS action, consistent with § 93.407, taken in response to a research misconduct proceeding to protect the health and safety of the public, to promote the

integrity of PHS supported biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training, or to conserve public funds.

§ 93.202 Administrative record.

Administrative record comprises: the institutional record; any information provided by the respondent to ORI, including but not limited to the verbatim transcript of any meetings under § 93.403 between the respondent and ORI, whether in person, by phone, or by videoconference, and correspondence between the respondent and ORI; any additional information provided to ORI while the case is pending before ORI; and any analysis or additional information generated or obtained by ORI. Any analysis or additional information generated or obtained by ORI will also be made available to the respondent.

§ 93.203 Allegation.

Allegation means a disclosure of possible research misconduct through any means of communication and brought directly to the attention of an institutional or HHS official.

§ 93.204 Appeal.

Appeal means a request that is made by a respondent to the institution or HHS, consistent with § 93.314 and subpart E, to reverse or modify findings, decisions, and/or actions related to allegations of research misconduct, against the respondent.

§ 93.205 Assessment.

Assessment means a consideration of whether an allegation of research misconduct appears to fall within the definition of research misconduct; appears to involve PHS supported biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training, as provided in § 93.102; and is sufficiently credible and specific so that potential evidence of research misconduct may be identified. The assessment only involves the review of readily accessible information relevant to the allegation.

§ 93.206 Charge letter.

Charge letter means the written notice, as well as any amendments to the notice, that are sent to the respondent stating the findings of research misconduct and any proposed HHS administrative actions. If the charge letter includes a suspension or debarment action, it may be issued jointly by ORI and the Suspension and Debarment Official (SDO).

§ 93.207 Complainant.

Complainant means an individual who in good faith makes an allegation of research misconduct.

§ 93.208 Contract.

Contract means an acquisition instrument awarded under the Federal Acquisition Regulation (FAR), 48 CFR chapter 1.

§ 93.209 Day.

Day means calendar day unless otherwise specified. If a deadline falls on a Saturday, Sunday, or Federal holiday, the deadline will be extended to the next day that is not a Saturday, Sunday, or Federal holiday.

§ 93.210 Departmental Appeals Board or DAB.

Departmental Appeals Board or DAB means the organization, within the HHS Office of the Secretary, established to conduct hearings and provide impartial review of disputed decisions made by HHS operating components.

§ 93.211 Difference of opinion.

Difference of opinion means an alternative view held by a researcher who is substantively engaged in the scientific subject area. It generally contrasts with a prevailing opinion included in a published research record or generally accepted by the relevant scientific community. The differing opinion must concern scientific data, methodology, analysis, interpretations, or conclusions, not policy opinions or decisions unrelated to data practices.

§ 93.212 Evidence.

Evidence means anything offered or obtained during a research misconduct proceeding that tends to prove or disprove the existence of an alleged fact. Evidence includes documents, whether in hard copy or electronic form, information, tangible items, and testimony.

§ 93.213 Fabrication.

Fabrication means making up data or results and recording or reporting them.

§ 93.214 Falsification.

Falsification means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

§ 93.215 Funding component.

Funding component means any organizational unit of the PHS authorized to award grants, contracts, or cooperative agreements for any activity covered by this part involving research

or research training; funding components may be agencies, bureaus, centers, institutes, divisions, offices, or other awarding units within the PHS.

§ 93.216 Good faith.

(a) Good faith as applied to a complainant or witness means having a reasonable belief in the truth of one's allegation or testimony, based on the information known to the complainant or witness at the time. An allegation or cooperation with a research misconduct proceeding is not in good faith if made with knowing or reckless disregard for information that would negate the allegation or testimony.

(b) Good faith as applied to an institutional or committee member means cooperating with the research misconduct proceeding by impartially carrying out the duties assigned for the purpose of helping an institution meet its responsibilities under this part. An institutional or committee member does not act in good faith if their acts or omissions during the research misconduct proceedings are dishonest or influenced by personal, professional, or financial conflicts of interest with those involved in the research misconduct proceeding.

(c) Good faith as applied to a respondent means acting with reasonable belief that respondent's actions are consistent with accepted practices of the relevant research community.

§ 93.217 Honest error.

Honest error means a mistake made in good faith.

§ 93.218 Inquiry.

Inquiry means preliminary information-gathering and preliminary fact-finding that meets the criteria and follows the procedures of §§ 93.307 through 93.309.

§ 93.219 Institution.

Institution means any person that applies for or receives PHS support for any activity or program that involves the conduct of biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or training. This includes, but is not limited to, colleges and universities, PHS intramural biomedical or behavioral research laboratories, research and development centers, national user facilities, industrial laboratories or other research institutes, small research institutions, and independent researchers.

§ 93.220 Institutional certifying official.

Institutional certifying official means the institutional official responsible for

assuring on behalf of an institution that the institution has written policies and procedures for addressing allegations of research misconduct, in compliance with this part; and complies with its own policies and procedures and the requirements of this part. The institutional certifying official also is responsible for certifying the content of the institution's annual report, which contains information specified by ORI on the institution's compliance with this part, and ensuring the report is submitted to ORI, as required.

§ 93.221 Institutional deciding official.

Institutional deciding official means the institutional official who makes final determinations on allegations of research misconduct and any institutional actions. The same individual cannot serve as the institutional deciding official and the research integrity officer.

§ 93.222 Institutional member.

Institutional member or members means an individual (or individuals) who is employed by, is an agent of, or is affiliated by contract or agreement with an institution. Institutional members may include, but are not limited to, officials, tenured and untenured faculty, teaching and support staff, researchers, research coordinators, technicians, postdoctoral and other fellows, students, volunteers, subject matter experts, consultants, or attorneys, or employees or agents of contractors, subcontractors, or sub-awardees.

§ 93.223 Institutional record.

The institutional record comprises:

(a) The records that the institution compiled during the research misconduct proceeding pursuant to §§ 93.305 through 93.316, except to the extent the institution subsequently determines and documents that those records are not relevant to the proceeding or that the records duplicate other records that are being retained. These records include, but are not limited to:

(1) The assessment report as required by § 93.306(d);

(2) If an inquiry is conducted, the inquiry report and all records (other than drafts of the report) in support of that report, including, but not limited to, research records and the transcripts of any interviews conducted during the inquiry, information the respondent provided to the institution, and the documentation of any decision not to investigate as required by § 93.309(c);

(3) If an investigation is conducted, the investigation report and all records (other than drafts of the report) in

support of that report, including, but not limited to, research records, the transcripts of each interview conducted pursuant to § 93.310(g), and information the respondent provided to the institution;

(4) Decision(s) by the institutional deciding official, such as the written decision from the institutional deciding official with the final determination of research misconduct findings (whether the institution found research misconduct, and if so, who committed the misconduct) and implemented institutional actions; and

(5) The complete record of any institutional appeal under § 93.314;

(b) The documentation of the determination of irrelevant or duplicate records; and

(c) A single index listing all documents in the institutional record.

§ 93.224 Intentionally.

To act intentionally means to act with the aim of carrying out the act.

§ 93.225 Investigation.

Investigation means the formal development of a factual record and the examination of that record that meets the criteria and follows the procedures of §§ 93.310 through 93.316 and leads to a decision not to make a finding of research misconduct or to a recommendation for a finding of research misconduct which may include a recommendation for other appropriate actions, including institutional and administrative actions.

§ 93.226 Knowingly.

To act knowingly means to act with the awareness of the act.

§ 93.227 Notice.

Notice means a written or electronic communication served in person or sent by mail or its equivalent to the last known street address, facsimile number, or email address of the addressee.

§ 93.228 Office of Research Integrity or ORI.

Office of Research Integrity or ORI means the office established by Public Health Service Act section 493 (42 U.S.C. 289b) and to which the HHS Secretary has delegated responsibility for addressing research integrity and misconduct issues related to PHS supported activities.

§ 93.229 Person.

Person means any individual, corporation, partnership, institution, association, unit of government, or legal entity, however organized.

§ 93.230 Plagiarism.

Plagiarism means the appropriation of another person's ideas, processes, results, or words, without giving appropriate credit.

(a) Plagiarism includes the unattributed verbatim or nearly verbatim copying of sentences and paragraphs from another's work, which materially mislead the reader regarding the contributions of the author. It does not include the limited use of identical or nearly-identical phrases which describe a commonly-used methodology.

(b) Plagiarism does not include self-plagiarism or authorship or credit disputes including disputes among former collaborators who participated jointly in the development or conduct of a research project. Self-plagiarism and authorship disputes do not meet the definition of research misconduct.

§ 93.231 Preponderance of the evidence.

Preponderance of the evidence means proof by evidence that, compared with evidence opposing it, leads to the conclusion that the fact at issue is more likely true than not.

§ 93.232 Public Health Service or PHS.

Public Health Service or PHS consists of the following components within the HHS: the Office of the Assistant Secretary for Health, the Office of Global Affairs, the Administration for Strategic Preparedness and Response, the Advanced Research Projects Agency for Health, the Agency for Healthcare Research and Quality, the Agency for Toxic Substances and Disease Registry, the Centers for Disease Control and Prevention, the Food and Drug Administration, the Health Resources and Services Administration, the Indian Health Service, the National Institutes of Health, the Substance Abuse and Mental Health Services Administration, and any other components of HHS designated or established as components of the Public Health Service.

§ 93.233 PHS support.

PHS support means PHS funding, or applications or proposals therefor, for biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or training, that may be provided through funding for PHS intramural research; PHS grants, cooperative agreements, contracts; or subawards, contracts, or subcontracts under those PHS funding instruments; or salary or other payments under PHS grants, cooperative agreements, or contracts.

§ 93.234 Recklessly.

To act recklessly means to act without proper caution despite a known risk for harm.

§ 93.235 Research.

Research means a systematic experiment, study, evaluation, demonstration, or survey designed to develop or contribute to general knowledge (basic research) or specific knowledge (applied research) by establishing, discovering, developing, elucidating, or confirming information or underlying mechanisms related to biological causes, functions, or effects; diseases; treatments; or related matters to be studied.

§ 93.236 Research integrity.

Research integrity refers to the use of honest and verifiable methods in proposing, performing, and evaluating research; reporting research results and maintaining the research record with particular attention to adherence to rules, regulations, and guidelines; and following accepted practices of the relevant research community.

§ 93.237 Research Integrity Officer or RIO.

Research Integrity Officer or RIO refers to the institutional official responsible for administering the institution's written policies and procedures for addressing allegations of research misconduct in compliance with this part.

§ 93.238 Research misconduct.

Research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. Research misconduct does not include honest error or differences of opinion.

§ 93.239 Research misconduct proceeding.

Research misconduct proceeding means any actions related to alleged research misconduct taken under this part, including but not limited to, allegation assessments, inquiries, investigations, ORI oversight reviews, and appeals.

§ 93.240 Research record.

Research record means the record of data or results that embody the facts resulting from scientific inquiry. Data or results may be in physical or electronic form. Examples of items, materials, or information that may be considered part of the research record include, but are not limited to, research proposals, raw data, processed data, clinical research records, laboratory records, study records, laboratory notebooks, progress

reports, manuscripts, abstracts, theses, oral presentations, internet and online content, internal reports, and journal articles.

§ 93.241 Respondent.

Respondent means the individual against whom an allegation of research misconduct is directed or who is the subject of a research misconduct proceeding.

§ 93.242 Retaliation.

Retaliation means an adverse action taken against a complainant, witness, or committee member by an institution or one of its members in response to:

- (a) A good faith allegation of research misconduct; or
- (b) Good faith cooperation with a research misconduct proceeding.

§ 93.243 Secretary or HHS.

Secretary or HHS means the Secretary of HHS or any other official or employee of the HHS to whom the Secretary delegates authority.

§ 93.244 Small institution.

Small institution means an institution that receives PHS research funds but may be too small to conduct an inquiry or investigation into an allegation of research misconduct as required by this part without actual or apparent conflicts of interest. A small institution typically has a total of 10 or fewer institutional members.

§ 93.245 Suspension and debarment.

Suspension and debarment mean the actions that Federal agencies take to disqualify persons deemed not presently responsible from doing business with the government.

(a) Suspension refers to the temporary disqualification of a person or entity for up to 18 months, typically during the pendency of an investigation and ensuing legal proceedings.

(b) Debarment, meanwhile, refers to a final decision to disqualify a person or entity for a fixed period of time. Both suspension and debarment have government-wide effect: if an entity is suspended or debarred by one agency, it is prohibited from obtaining any Federal contracts or participating in nonprocurement transactions.

(c) Policies and procedures governing suspension and debarment from procurement programs are set forth in the Federal Acquisition Regulation (FAR) at 48 CFR 9.406 and 9.407 (as further supplemented by HHS at 48 CFR 309.4).

(d) Policies and procedures governing suspension and debarment from nonprocurement programs are set forth in the Nonprocurement Common Rule

(NCR) at 2 CFR part 180 (as further implemented by HHS at 2 CFR part 376).

(e) Actions undertaken under the FAR and NCR have reciprocal effect; exclusions issued under one system will result in ineligibility for all government procurement and nonprocurement programs.

§ 93.246 Suspension and Debarment Official or SDO.

Suspension and Debarment Official or SDO means the HHS official authorized to impose suspension and debarment.

§ 93.247 This part.

This part means 42 CFR part 93 in its entirety, unless otherwise explicitly noted. When referring to only a portion of 42 CFR part 93, that portion may be described as “subpart” (see § 93.25), or as “section” (text within a specific portion of the subpart).

Subpart C—Responsibilities of Institutions Compliance and Assurances

§ 93.300 General responsibilities for compliance.

Institutions must:

(a) Have written policies and procedures for addressing allegations of research misconduct that meet the requirements of this part;

(b) Respond to each allegation of research misconduct for which the institution is responsible under this part in a thorough, competent, objective, and fair manner, including precautions to ensure that individuals responsible for carrying out any part of the research misconduct proceeding do not have unresolved personal, professional, or financial conflicts of interest with the complainant, respondent, or witnesses;

(c) Foster a research environment that promotes research integrity and the responsible conduct of research, discourages research misconduct, and deals promptly with allegations or evidence of possible research misconduct;

(d) Take all reasonable and practical steps to protect the positions and reputations of good faith complainants, witnesses, and committee members and protect these individuals from retaliation by respondents and/or other institutional members;

(e) Provide confidentiality to the extent required by § 93.106 to all respondents, complainants, and witnesses in a research misconduct proceeding, and to research subjects identifiable from research records or other evidence;

(f) Take all reasonable and practical steps to ensure the cooperation of

respondents and other institutional members with research misconduct proceedings, including, but not limited to, their providing information, research records, and other evidence;

(g) Cooperate with HHS during any research misconduct proceeding or compliance review, including addressing deficiencies or additional allegations in the institutional record if directed by ORI;

(h) Assist in administering and enforcing any HHS administrative actions imposed on its institutional members; and

(i) Have an active research integrity assurance.

§ 93.301 Research integrity assurances.

(a) *General policy.* (1) An institution that applies for or receives PHS support for biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training, must provide HHS with an assurance of compliance with this part by establishing and then maintaining an active research integrity assurance.

(2) PHS funding components may only authorize release of funds for extramural biomedical and behavioral research, biomedical and behavioral research training, or activities related to that research or research training, to institutions that have an active research integrity assurance on file with ORI.

(b) *Research integrity assurance.* The Institutional Certifying Official must assure on behalf of the institution, initially and then annually thereafter, that the institution:

(1) Has written policies and procedures for addressing allegations of research misconduct, in compliance with this part;

(2) Complies with its policies and procedures for addressing allegations of research misconduct; and

(3) Complies with all provisions of this part.

§ 93.302 Maintaining active research integrity assurances.

(a) *Compliance with this part.* ORI considers an institution in compliance with this part when it:

(1) Has policies and procedures for addressing allegations of research misconduct according to this part, keeps them in compliance with this part, and upon request, provides them to ORI and other HHS personnel;

(2) Complies with its policies and procedures for addressing allegations of research misconduct;

(3) Complies with all provisions of this part; and

(4) Takes all reasonable and practical specific steps to foster research integrity

consistent with § 93.300, including, but not limited to:

(i) Informing the institution's members about its policies and procedures for addressing allegations of research misconduct, and the institution's commitment to compliance with the policies and procedures; and

(ii) Making its policies and procedures for addressing allegations of research misconduct publicly available.

(b) *Annual report.* An institution must file an annual report with ORI, which contains information specified by ORI, on the institution's compliance with this part. The Institutional Certifying Official is responsible for certifying the content of this report and for ensuring the report is submitted as required.

(c) *Additional information.* Along with its research integrity assurance or annual report, an institution must send ORI such other information as ORI may request on the institution's research misconduct proceedings covered by this part and the institution's compliance with the requirements of this part.

§ 93.303 Research integrity assurances for small institutions.

(a) Small institutions may file a "Small Institution Statement" with ORI in place of the institutional policies and procedures required by §§ 93.300(a), 93.301, and 93.304, upon approval by ORI.

(b) The Small Institution Statement does not relieve the institution from complying with any other provision of this part.

(c) By submitting a Small Institution Statement, the institution agrees to report all allegations of research misconduct to ORI. ORI or another appropriate HHS office will work with the institution to develop and/or advise on a process for handling allegations of research misconduct consistent with this part.

(d) If a small institution has or believes it has a conflict of interest during any phase of a research misconduct proceeding, the small institution should contact ORI for guidance.

§ 93.304 Institutional policies and procedures.

Institutions seeking an approved research integrity assurance must have written policies and procedures for addressing allegations of research misconduct. Such policies and procedures must:

(a) Address and be consistent with all applicable requirements pertaining to institutional responsibilities included in this part;

(b) Include and be consistent with applicable definitions in this part; and

(c) Be made available to ORI in English.

§ 93.305 General conduct of research misconduct proceedings.

(a) *Sequestration of research records and other evidence.* An institution must promptly take all reasonable and practical steps to obtain all research records and other evidence, which may include copies of the data or other evidence so long as those copies are substantially equivalent in evidentiary value, needed to conduct the research misconduct proceeding; inventory the records and other evidence; and sequester them in a secure manner. Where the research records or other evidence are located on or encompass scientific instruments shared by multiple users, institutions may obtain copies of the data or other evidence from such instruments, so long as those copies are substantially equivalent to the evidentiary value of the instruments. Whenever possible, the institution must obtain the research records or other evidence:

(1) Before or at the time the institution notifies the respondent of the allegation(s); and

(2) Whenever additional items become known or relevant to the inquiry or investigation.

(b) *Access to research records.* Where appropriate, an institution must give the respondent copies of, or reasonable supervised access to, the research records that are sequestered in accordance with § 93.305(a).

(c) *Maintenance of the institutional record.* An institution, as the responsible legal entity for the PHS supported research, has a continuing obligation under this part to ensure that it maintains an adequate institutional record for a research misconduct proceeding. An institution must maintain the institutional record as required by § 93.317.

(d) *Multiple respondents.* Institutions must consider whether any additional researchers are responsible for the alleged research misconduct. Notably, the principal investigator, other coauthors on the publication(s), co-investigators on the funding proposal(s), collaborators, and laboratory members who were involved in conducting the experiments that generated the primary data or in generating the text and figures in the research records (e.g., published papers and funding proposals) must be considered as potential respondents during the assessment, inquiry, and/or subsequent investigation. If any additional respondent(s) are identified throughout the inquiry/investigation, they must be notified of the allegations,

in accordance with §§ 93.307(c), 93.308(a), and 93.310(c).

(e) *Multiple institutions.* When multiple institutions are involved in the allegations, one institution must be designated as the lead institution if a joint research misconduct proceeding (inquiry and/or investigation) is conducted. In a joint research misconduct proceeding, the lead institution should obtain research records pertinent to the inquiry/investigation and witness' testimonies from the other relevant institutions. By mutual agreement, the joint research misconduct proceeding may include committee members from the institutions involved. The determination of whether further inquiry and/or investigation is warranted, whether research misconduct occurred, and which institutional actions are to be taken may be made by the institutions jointly or the responsibilities tasked to the lead institution.

(f) *Pursue leads.* An institution must diligently pursue all significant issues and leads discovered in information obtained from evidence and/or testimony during the inquiry and/or investigation that are determined relevant to the inquiry and/or investigation, including any evidence of additional instances of possible research misconduct. The pursuit of any such issues and/or leads may extend to the examination of additional research records (e.g., published papers, grant applications) of the respondent(s) that contain similar data elements as that of the initial allegation(s). If additional allegations are raised during the inquiry or investigation, the respondent(s) must be notified in writing of the additional allegations raised against them.

(g) *Interviews.* An institution must interview each respondent, complainant, and any other available person who has been reasonably identified as having information regarding any relevant aspects of the investigation, including witnesses identified by the respondent. Institutions may, but are not required to, conduct interviews during the assessment or inquiry. Interviews conducted during an assessment, inquiry, and/or investigation must be consistent with the requirements of this section.

(1) Interviews must be transcribed.

(2) Any exhibits shown to the interviewee during the interview must be numbered and referred to by that number in the interview.

(3) The transcript of the interview must be made available to the relevant interviewee for correction.

(4) The transcript(s) with any corrections and numbered exhibits must be included in the record of the investigation.

(5) The respondent must not be present during the witnesses' interviews but must be provided a transcribed copy of the interview.

Using a committee, consortium, or other person for research misconduct proceedings. (1) An institution may use the services of a committee, consortium, or person that the institution reasonably determines to be qualified by practice and/or experience to conduct, support, or participate in the research misconduct proceedings. An institution may choose to use the same committee, consortium, or person for the assessment, inquiry, and/or investigation.

(2) An institution must address any potential, perceived, or actual personal, professional, or financial conflicts of interest between members of the committee or consortium, or the qualified person and the complainant, respondent, or witnesses.

(3) A consortium may be a group of institutions, professional organizations, mixed groups, or individuals that will conduct research misconduct proceedings for other institutions.

(4) An institution must ensure that a committee, consortium, or person acting on its behalf conducts research misconduct proceedings in compliance with the requirements of this part.

(5) An institution is not required to provide respondents or complainants the opportunity to object to the person or to one or more committee or consortium members chosen to conduct, support, or participate in the research misconduct proceedings. If an institution chooses to provide one respondent the opportunity to object in a proceeding, it must provide all respondents the opportunity to object in that proceeding. If an institution chooses to provide one complainant the opportunity to object in a proceeding, it must provide all complainants the opportunity to object in that proceeding.

(i) *Notifying ORI of special circumstances.* At any time during a research misconduct proceeding, as defined in § 93.239, an institution must notify ORI immediately if it has reason to believe that any of the following conditions exist:

(1) Health or safety of the public is at risk, including an immediate need to protect human or animal subjects.

(2) HHS resources or interests are threatened.

(3) Research activities should be suspended.

(4) There is reasonable indication of possible violations of civil or criminal law.

(5) Federal action is required to protect the interests of those involved in the research misconduct proceeding.

(6) HHS may need to take appropriate steps to safeguard evidence and protect the rights of those involved.

The Institutional Assessment

§ 93.306 Institutional assessment.

(a) *Purpose.* An assessment's purpose is to decide if an allegation warrants an inquiry.

(b) *Conducting the institutional assessment.* (1) Upon receiving an allegation of research misconduct, the RIO or another designated institutional official must promptly assess the allegation to determine whether the allegation:

(i) Falls within the definition of research misconduct under this part,

(ii) Is within the jurisdictional criteria of 42 CFR 93.102, and

(iii) Is sufficiently credible and specific so that potential evidence of research misconduct may be identified.

(2) In conducting the assessment, the RIO or another designated institutional official must review readily accessible information relevant to the allegation. The RIO or another designated institutional official does not need to interview the complainant, respondent, or other witnesses, or gather information beyond what may have been submitted with the allegation, except as necessary to determine whether the allegation is sufficiently credible and specific so that potential evidence of research misconduct may be identified. Should it be necessary to conduct interviews or gather information, such interviews must be conducted according to the requirements of § 93.305(g).

Assessment results. (1) An inquiry must be conducted if the allegation meets the three assessment criteria at § 93.306(b)(1).

(2) If the RIO or another designated institutional official determines that requirements for an inquiry are met, they must:

(i) Document the assessment, in the form of an assessment report (see § 93.306(d)); and

(ii) Promptly take all reasonable and practical steps to obtain all research records and other evidence that are needed, before or at the time the institution notifies the respondent of the allegation(s), consistent with § 93.305, and promptly initiate the inquiry.

(2) If the RIO or another designated institutional official determines that requirements for an inquiry are not met,

they must keep sufficiently detailed documentation of the assessment to permit a later review by ORI of the reasons why the institution decided not to conduct an inquiry.

(d) *Assessment report.* (1) The RIO or another designated institutional official must document the process undertaken and the outcome of the assessment, including:

(i) The allegation(s) assessed;

(ii) The name(s), professional alias(es), and position(s) of the respondent(s);

(iii) Any evidence reviewed;

(iv) Whether the allegation falls within the definition of research misconduct under this part;

(v) Whether the allegation is within the jurisdictional criteria of § 93.102;

(vi) Whether the allegation is sufficiently credible and specific so that potential evidence of research misconduct may be identified; and

(vii) Whether the institution will proceed to inquiry. If the assessment automatically moves to inquiry as required by § 93.306(e)(2), the assessment report must document this action.

(2) The assessment report must be completed within 15 days of when the decision is made to move to inquiry under § 93.306(c) or the institution moves to inquiry under § 93.306(e)(2).

(3) Institutions must keep these records in a secure manner for at least 7 years after the assessment was conducted, and upon request, provide them to ORI.

(e) *Time for completion.* (1) The institution must complete the assessment within 30 days of its initiation.

(2) If the assessment will take longer than 30 days, the institution must initiate an inquiry consistent with § 93.307.

The Institutional Inquiry

§ 93.307 Institutional inquiry.

(a) *Criteria warranting an inquiry.* An inquiry is warranted if the allegation:

(1) Was not assessed within the 30-day period for review provided in § 93.306(e); or

(2) Meets the following three criteria:

(i) Falls within the definition of research misconduct under this part;

(ii) Is within the jurisdictional criteria of § 93.102; and

(iii) Is sufficiently credible and specific so that potential evidence of research misconduct may be identified.

(b) *Purpose.* An inquiry's purpose is to conduct an initial review of the evidence to decide if an allegation warrants an investigation.

(c) *Notice to respondent.* At the time of or before beginning an inquiry, an institution must make a good faith effort to notify in writing the presumed respondent, if any. If the inquiry subsequently identifies additional respondents, the institution must notify them. Only allegations specific to a particular respondent are to be included in the notification to that respondent.

(d) *Sequestration of the records.* An institution must obtain all research records and other evidence needed to conduct the research misconduct proceeding, consistent with § 93.305(a).

(e) *Conducting the inquiry—(1) Multiple institutions.* A joint research misconduct proceeding must be conducted consistent with § 93.305(e).

(2) *Person conducting the inquiry.* Institutions may, but are not required to, convene committees of experts to conduct reviews at the inquiry stage to determine whether an investigation is warranted. The inquiry review may be done by a RIO or another designated institutional official in lieu of a committee, with the caveat that if needed, these individuals may utilize one or more subject matter experts to assist them in the inquiry review.

(3) *Review of evidence.* The purpose of an inquiry is to conduct an initial review of the evidence to determine whether to conduct an investigation. Therefore, an inquiry does not require a full review of all the evidence related to the allegation.

(4) *Interviews.* Institutions may, but are not required to, call witnesses or respondents for interviews that would provide additional information for the institution's review. Any interviews conducted must follow the requirements of § 93.305(g).

(5) *Pursue leads.* Institutions must diligently pursue all significant issues and leads, consistent with the requirements of § 93.305(f).

(f) *Inquiry results—(1) Criteria warranting an investigation.* An investigation is warranted if:

(i) There is a reasonable basis for concluding that the allegation falls within the definition of research misconduct under this part and involves PHS supported biomedical or behavioral research, biomedical or behavioral research training, or activities related to that research or research training, as provided in § 93.102; and

(ii) Preliminary information-gathering and fact-finding from the inquiry indicates that the allegation may have substance.

(2) *Honest error and difference of opinion.* (i) A conclusion of honest error or difference of opinion must not be made at the inquiry stage.

(ii) An inquiry cannot determine that an allegation lacks sufficient substance based solely on a respondent's unsubstantiated claim that the alleged research misconduct was a result of honest error or difference of opinion.

(3) *Findings of research misconduct.* Findings of research misconduct, including the determination of whether the alleged misconduct is intentional, knowing, or reckless, cannot be made at the inquiry stage.

(g) *Inquiry report.* (1) The institution must prepare a written report that meets the requirements of this section and § 93.309.

(2) If there is potential evidence of honest error or difference of opinion, the institution must note this in the inquiry report.

(3) The institution must provide the respondent an opportunity to review and comment on the inquiry report and attach any comments received to the report.

(h) *Time for completion.* (1) The institution must complete the inquiry within 60 days of its initiation unless circumstances clearly warrant a longer period.

(2) If the inquiry will take longer than 60 days, the institution must notify ORI and request an extension. As part of the request, the institution must describe the particular circumstances or issues that would warrant additional time to complete the inquiry.

(3) If the inquiry takes longer than 60 days to complete, the inquiry report must document the reasons for exceeding the 60-day period.

§ 93.308 Notice of the results of the inquiry.

(a) *Notice to respondent.* The institution must notify the respondent whether the inquiry found that an investigation is warranted. The notice must include a copy of the inquiry report and include a copy of or refer to this part and the institution's policies and procedures adopted under its research integrity assurance.

(b) *Notice to complainants.* The institution is not required to notify the complainant(s) whether the inquiry found that an investigation is warranted. The institution may, but is not required to, provide relevant portions of the report to the complainant(s) for comment. If an institution provides notice to one complainant in a case, it must provide notice, to the extent possible, to all complainants in the case.

§ 93.309 Reporting to ORI on the decision to initiate an investigation.

(a) Within 30 days of deciding that an investigation is warranted, the

institution must provide ORI with the written decision by the institutional deciding official and a copy of the inquiry report which includes the following information:

(1) The names, professional aliases, and positions of the respondent and complainant;

(2) A description of the allegation(s) of research misconduct;

(3) The PHS support, including, for example, grant numbers, grant applications, contracts, and publications listing PHS support;

(4) The composition of the inquiry committee, including name(s), position(s), and subject matter expertise;

(5) Inventory of sequestered research records and other evidence and description of how sequestration was conducted;

(6) Transcripts of interviews, if conducted;

(7) Timeline and procedural history;

(8) Any scientific or forensic analyses conducted;

(9) The basis for recommending that the allegation(s) warrant an investigation;

(10) The basis on which any allegation(s) do not merit further investigation;

(11) Any comments on the inquiry report by the respondent or the complainant;

(12) Any institutional actions implemented, including communications with journals or funding agencies; and

(13) Written decision from the institutional deciding official that an investigation is warranted.

(b) The institution must provide the following information to ORI whenever requested:

(1) The institutional policies and procedures under which the inquiry was conducted;

(2) The research records and other evidence reviewed, transcripts of any interviews, and copies of all relevant documents; and

(3) The charges for the investigation to consider.

(c) Institutions must keep sufficiently detailed documentation of inquiries to permit a later assessment by ORI of the reasons why the institution decided not to conduct an investigation. Consistent with § 93.317, institutions must keep these records in a secure manner for at least 7 years after the termination of the inquiry, and upon request, provide them to ORI.

(d) In accordance with § 93.305(i), institutions must notify ORI and other PHS agencies, as relevant, of any special circumstances that may exist.

The Institutional Investigation

§ 93.310 Institutional investigation.

Institutions conducting research misconduct investigations must:

(a) *Time.* Begin the investigation within 30 days after deciding that an investigation is warranted.

(b) *Notice to ORI.* Notify ORI of the decision to begin an investigation on or before the date the investigation begins and provide an inquiry report that meets the requirements of §§ 93.307 and 93.309.

(c) *Notice to the respondent.* Notify the respondent in writing of the allegation(s) within a reasonable amount of time after determining that an investigation is warranted, but before the investigation begins.

(1) The institution must give the respondent written notice of any allegation(s) of research misconduct not addressed during the inquiry or in the initial notice of investigation within a reasonable amount of time of deciding to pursue such allegation(s).

(2) If the institution identifies additional respondents during the investigation that were not identified during the inquiry, the institution is not required to conduct a separate inquiry. If any additional respondent(s) are identified during the investigation, the institution must notify them of the allegation(s).

(3) While an investigation into multiple respondents can convene with the same investigation committee members, separate investigation reports and research misconduct determinations are required for each respondent.

(d) *Sequestration of the records.* An institution must obtain all research records and other evidence needed to conduct the research misconduct proceeding, consistent with § 93.305(a).

(e) *Documentation.* Use diligent efforts to ensure that the investigation is thorough and sufficiently documented and includes examination of all research records and other evidence relevant to reaching a decision on the merits of the allegation(s).

(f) *Ensuring a fair investigation.* Take reasonable steps to ensure an impartial and unbiased investigation to the maximum extent practicable, including participation of persons with appropriate scientific expertise who do not have unresolved personal, professional, or financial conflicts of interest relevant to the investigation. An institution may use the same committee members from the inquiry in their subsequent investigation.

(g) *Interviews.* Conduct interviews, consistent with § 93.305(g).

(h) *Pursue leads.* Pursue diligently all significant issues and leads, consistent with the requirements of § 93.305(f), and continue the investigation to completion. Once a proceeding reaches the investigation stage, the institution may choose to add to or expand the ongoing investigation by including any allegation(s) pertaining to the same respondent or research records in question (e.g., manuscripts or funding proposals) that come to the institution's attention during the investigation, rather than opening an inquiry to review those allegation(s).

(i) *Multiple respondents.* Consider, consistent with § 93.305(d), the prospect of additional researchers being responsible for the alleged research misconduct.

(j) *Multiple institutions.* A joint research misconduct proceeding must be conducted consistent with § 93.305(e).

§ 93.311 Investigation time limits.

(a) *Time limit for completing an investigation.* An institution must complete all aspects of an investigation within 180 days of beginning it, including conducting the investigation, preparing the draft investigation report for each respondent, providing the draft report to each respondent for comment in accordance with § 93.312, and sending the final institutional record including the final report to ORI under § 93.315.

(b) *Extension of time limit.* If unable to complete the investigation in 180 days, the institution must ask ORI for an extension in writing that includes the circumstances or issues warranting additional time.

(c) *Progress reports.* If ORI grants an extension, it may direct the institution to file periodic progress reports.

(d) *Investigation report.* If the investigation takes longer than 180 days to complete, the investigation report must include the reasons for exceeding the 180-day period.

§ 93.312 Opportunity to comment on the draft investigation report.

(a) The institution must give the respondent a copy of the draft investigation report and, concurrently, a copy of, or supervised access to, the records on which the report is based. The respondent must submit any comments on the draft report to the institution within 30 days of the date on which the respondent received the draft investigation report.

(b) The institution is not required to provide the complainant(s) a copy of the draft investigation report or relevant portions of that report. Should the

institution choose to do so, all complainants must be treated in the same way—absent extenuating circumstances. The complainant must submit any comments on the draft report to the institution within 30 days of the date on which the complainant received the draft investigation report or relevant portions of it.

§ 93.313 Investigation report.

A final investigation report for each respondent must be in writing and include:

(a) Describe the nature of the allegation(s) of research misconduct, including any additional allegation(s) addressed during the research misconduct proceeding.

(b) Describe and document the PHS support, including, for example, any grant numbers, grant applications, contracts, and publications listing PHS support.

(c) Describe the specific allegation(s) of research misconduct for consideration in the investigation for each respondent.

(d) Composition of investigation committee, including name(s), position(s), and subject matter expertise.

(e) Inventory of sequestered research records/other evidence and how sequestration was conducted during the investigation, if applicable.

(f) Listing of all manuscripts, funding proposals, and research records that were examined during the investigation.

(g) Transcripts of all interviews conducted, as described in § 93.305(g).

(h) Identification of the specific published papers, manuscripts submitted but not accepted for publication (including online publication), PHS grant/contract applications, progress reports, presentations, posters, or other research records that allegedly contained the falsified, fabricated, or plagiarized material.

(i) Any scientific or forensic analyses conducted.

(j) If not already provided to ORI with the inquiry report, include the institutional policies and procedures under which the investigation was conducted.

(k) Identify and summarize the research records and other evidence reviewed and identify any evidence obtained and sequestered but not reviewed.

(l) For each separate allegation of research misconduct identified during the investigation, provide a finding as to whether research misconduct did or did not occur, and if so:

(1) Identify the individual(s) responsible for the misconduct;

(2) Indicate whether the research misconduct was falsification, fabrication, and/or plagiarism; and if the requirements for a finding of research misconduct, as described in § 93.104, have been met. Voting or split decisions by the investigation committee members are not permitted in the final recommendation in the investigation report.

(3) Summarize the facts and the analysis which support the conclusion and consider the merits of any explanation by the respondent;

(4) Identify the specific PHS support;

(5) Identify whether any publications need correction or retraction; and

(6) List any current support or known applications or proposals for support that the respondent has pending with PHS and non-PHS Federal agencies.

Include and consider any comments made by the respondent and complainant on the draft investigation report.

(n) The basis on which allegation(s) did not result in a research misconduct determination.

(o) Any institutional actions recommended or implemented including communications with journals or funding agencies.

§ 93.314 Institutional appeals.

(a) While not required by this part, if the institution's policies and procedures provide for an appeal by the respondent that could result in a reversal or modification of the findings of research misconduct in the investigation report, the institution must notify ORI of and complete any such appeal within 120 days of its initiation. Appeals of institutional personnel actions or other actions that would not result in a reversal or modification of the findings of research misconduct are excluded from the 120-day limit.

(b) If unable to complete any appeals within 120 days, the institution must ask ORI for an extension in writing that includes the circumstances or issues warranting additional time.

(c) ORI may grant requests for extension for good cause. If ORI grants an extension, it may direct the institution to file periodic progress reports.

§ 93.315 Transmittal of the institutional record to ORI.

The institution must transmit to ORI the institutional record. The institutional record must be consistent with § 93.223 and logically organized.

§ 93.316 Completing the research misconduct process.

(a) ORI expects institutions to carry inquiries and investigations through to

completion and to pursue diligently all significant issues and credible allegations of research misconduct. Institutions must notify ORI in advance if the institution plans to close a research misconduct proceeding at the assessment, inquiry, investigation, or appeal stage on the basis that the respondent has admitted to committing research misconduct, a settlement with the respondent has been reached, or for any other reason.

(b) A respondent's admission of research misconduct must be made in writing and signed by the respondent. An admission must specify the falsification, fabrication, and/or plagiarism that occurred and which research records were affected. The admission statement must meet all the elements required for a research misconduct finding under § 93.104 and must be provided to ORI before the institution closes its research misconduct proceeding. The institution must also provide a statement to ORI describing how it determined that the scope of the misconduct was fully addressed by the admission and confirmed the respondent's culpability.

(c) After consulting with the institution on its basis for closing a case under paragraph (a) of this section, ORI may conduct an oversight review of the institution's handling of the case and take appropriate action including:

(1) Approving or conditionally approving closure of the case;

(2) Directing the institution to complete its process;

(3) Directing the institution to address deficiencies in the institutional record;

(4) Referring the matter for further investigation by HHS; or,

(5) Taking a compliance action.

Other Institutional Responsibilities

§ 93.317 Retention and custody of the institutional record.

(a) *Maintenance of institutional record.* Unless custody has been transferred to HHS under paragraph (b) of this section, or ORI has advised the institution in writing that it no longer needs to retain the institutional record, an institution must maintain the institutional record in a secure manner for 7 years after completion of the proceeding or the completion of any PHS proceeding involving the research misconduct allegation under subparts D and E of this part, whichever is later.

(b) *Provision for HHS custody.* On request, institutions must transfer custody of or provide copies to HHS of the institutional record or any component of the institutional record and any sequestered physical objects,

such as a computer hard drive, for ORI to conduct its oversight review, to develop the administrative record, or to present the administrative record in any proceeding under subparts D and E of this part.

§ 93.318 Institutional standards of conduct.

(a) Institutions may have standards of conduct different from the standards for research misconduct under this part. Therefore, an institution may find conduct to be actionable under its standards even if the conduct does not meet this part's definition of research misconduct.

(b) An HHS or ORI finding or settlement on research misconduct findings does not affect institutional findings or actions taken based on an institution's standards of conduct.

Subpart D—Responsibilities of the U.S. Department of Health and Human Services

General Information

§ 93.400 General statement of ORI authority.

(a) *ORI review.* ORI may respond directly to any allegation of research misconduct at any time before, during, or after an institution's response to the matter. The ORI response may include, but is not limited to:

(1) Conducting allegation assessments;

(2) Determining independently if jurisdiction exists under this part;

(3) Forwarding allegations of research misconduct to the appropriate institution or HHS component for inquiry or investigation;

(4) Requesting clarification or additional information, documentation, research records, or other evidence as necessary from an institution or its members or other persons or sources to carry out ORI's review;

(5) Notifying or requesting assistance and information from PHS funding components or other affected Federal and state offices and agencies or institutions;

(6) Reviewing the institutional record and directing the institution to address deficiencies or additional allegations in the institutional record;

(7) Making a finding of research misconduct; and

(8) Proposing or taking administrative actions.

(b) *ORI assistance to institutions.* ORI will:

(1) Provide information, technical assistance, and procedural advice to institutional officials as needed regarding an institution's research

misconduct proceedings and the sufficiency of the institutional record.

(2) Issue guidance and provide information to support institutional implementation of and/or compliance with the requirements of this part.

(c) *Review of institutional research integrity assurances.* ORI will review institutional research integrity assurances and policies and procedures for compliance with this part.

(d) *Institutional compliance.* ORI may make findings and impose HHS compliance actions related to an institution's compliance with this part and with its policies and procedures, including an institution's participation in research misconduct proceedings.

§ 93.401 Interaction with other entities and interim actions.

(a) ORI may notify and consult with other entities including government funding agencies, institutions, private organizations, journals, publishers, and editors at any time if those entities have a need to know about or have information relevant to a research misconduct proceeding.

(b) If ORI believes that a criminal or civil fraud violation may have occurred, it shall promptly refer the matter to the Department of Justice (DOJ), the HHS Inspector General (OIG), or other appropriate investigative body. ORI may provide expertise and assistance to the DOJ, OIG, PHS offices, other Federal offices, and state or local offices involved in investigating or otherwise pursuing research misconduct allegations or related matters.

(c) ORI may notify affected PHS offices and funding components at any time to enable them to take appropriate interim actions.

(d) The information provided will not be disclosed as part of the peer review and advisory committee review processes but may be used by the Secretary in making decisions about the award or continuation of funding.

Research Misconduct Issues

§ 93.402 ORI allegation assessments.

(a) When ORI receives an allegation, it may conduct an assessment or refer the matter to the relevant institution for an assessment, inquiry, or other appropriate actions.

(b) If ORI decides that an inquiry is warranted, it forwards the matter to the appropriate institution or HHS component.

(c) If ORI decides that an inquiry is not warranted it will close the case and forward the allegation in accordance with paragraph (d) of this section.

(d) ORI may forward allegations that do not fall within the jurisdiction of this

part to the appropriate HHS component, Federal or state agency, institution, organization, journal, or other appropriate entity.

§ 93.403 ORI review of research misconduct proceedings.

(a) In conducting its review of research misconduct proceedings, ORI will:

(1) Determine whether PHS has jurisdiction under this part;

(2) Consider the institutional record and decide whether the institutional record is sufficient, provide instructions to the institution(s) if ORI determines that revisions are needed or additional allegations of research misconduct should be addressed, and require institutions to provide the respondent with an opportunity to respond to information or allegations added to the institutional record;

(3) Determine if the institution conducted the proceedings in a timely and fair manner in accordance with this part with sufficient thoroughness, objectivity, and competence to support the conclusions; and

(4) After reviewing in accordance with paragraphs (a)(1) through (3) of this section, decide whether to close the case without further action or proceed with the case.

(b) If ORI decides to proceed with the case, ORI will:

(1) Obtain additional information or materials from the institution, the respondent, complainants, or other sources, as needed;

(2) Conduct additional analyses, as needed;

(3) Provide the respondent the opportunity to access the institutional record, any additional information provided to ORI while the case is pending before ORI, and any analysis or additional information generated or obtained by ORI;

(4) Provide the respondent the opportunity to submit information to ORI;

(5) Allow the respondent and the respondent's attorney, if represented, to meet virtually or in person with ORI to discuss the information that the respondent has provided to ORI and have ORI's meetings with the respondent transcribed, with a copy of the transcript provided to the respondent for review and suggested correction;

(6) Close the administrative record following paragraphs (b)(3) through (5) of this section;

(7) Provide the respondent the opportunity to access the complete administrative record; and

(8) Take any other actions necessary to complete ORI's review.

§ 93.404 Findings of research misconduct and proposed administrative actions.

(a) After completing its review of the administrative record, ORI can:

(1) Close the case without a separate ORI finding of research misconduct;

(2) Make findings of research misconduct and propose and take administrative actions based on the administrative record; or

(3) Seek to settle the case.

(b) The lack of an ORI finding of research misconduct does not overturn an institution's determination that the conduct constituted professional or research misconduct warranting remediation under the institution's policy.

§ 93.405 Notifying the respondent of findings of research misconduct and HHS administrative actions.

(a) When ORI makes a finding of research misconduct or seeks to impose HHS administrative actions, other than suspension or debarment, it notifies the respondent in a charge letter. The charge letter includes the ORI findings of research misconduct, including the basis for such findings in the administrative record, and any proposed administrative actions. The charge letter also advises the respondent how they can access the administrative record and of the opportunity to contest the findings and administrative actions under subpart E of this part. In cases involving a suspension or debarment action, the HHS SDO issues a notice of suspension or proposed debarment to the respondent as part of the charge letter. The notice of suspension or proposed debarment issued by the HHS SDO will include instructions on how the respondent can contest the suspension and/or proposed debarment.

(b) ORI sends the charge letter by certified mail, private delivery service, or electronic mail to the last known address of the respondent or the last known principal place of business of the respondent's attorney, if represented.

§ 93.406 Final HHS actions.

(a) Unless the respondent contests the findings and/or the administrative actions, other than suspension and/or proposed debarment, contained in the charge letter within the 30-day period prescribed in § 93.501, the ORI finding of and HHS administrative actions, other than suspension and/or proposed debarment, proposed for research misconduct issues are final.

(b) Unless the respondent contests a suspension and/or proposed debarment within the 30-day period prescribed in the NCR or FAR, respectively, the SDO may close the record and issue a final

debarment decision in the matter. Respondents may request reconsideration of a final debarment decision with the SDO.

§ 93.407 HHS administrative actions.

(a) Based on the administrative record, HHS may impose administrative actions that include but are not limited to:

- (1) Clarification, correction, or retraction of the research record.
 - (2) Letters of reprimand.
 - (3) Imposition of special certification or research integrity assurance requirements to ensure compliance with applicable regulations or terms of PHS grants, contracts, or cooperative agreements.
 - (4) Suspension or termination of a PHS grant, contract, or cooperative agreement.
 - (5) Restriction on specific activities or expenditures under an active PHS grant, contract, or cooperative agreement.
 - (6) Special review of all requests for PHS funding.
 - (7) Imposition of supervision requirements on a PHS grant, contract, or cooperative agreement.
 - (8) Certification of attribution or authenticity in all requests for support and reports to the PHS.
 - (9) Prohibition on participating in any advisory capacity to the PHS.
 - (10) Adverse personnel action if the respondent is a Federal employee, in compliance with relevant Federal personnel policies and laws.
 - (11) Suspension or debarment administrative actions under the Nonprocurement Common Rule (NCR) at 2 CFR part 180 for nonprocurement transactions (as further implemented by HHS at 2 CFR part 376) or under the Federal Acquisition Regulation (FAR) at 48 CFR 9.406 and 9.407 for procurement transactions (as further supplemented by HHS at 48 CFR 309.4). Such administrative actions have reciprocal effect; exclusions issued under one system will result in ineligibility for all government procurement and nonprocurement programs.
- (b) In connection with findings of research misconduct, HHS also may seek to recover PHS funds spent in support of the activities that involved research misconduct.
- (c) Any authorized HHS component may impose, administer, or enforce administrative actions separately or in coordination with other HHS components, including, but not limited to ORI, OIG, the PHS funding component, and the SDO.

§ 93.408 Mitigating and aggravating factors in HHS administrative actions.

The purpose of HHS administrative actions is remedial. The appropriate administrative action is commensurate with the seriousness of the misconduct and the need to protect the health and safety of the public, promote the integrity of the PHS supported research and research process, and conserve public funds. ORI considers the following aggravating and mitigating factors in determining appropriate HHS administrative actions and their terms. Distinct from ORI's process, the SDO considers the aggravating and mitigating factors listed in the NCR or FAR, whichever is appropriate to the funding mechanism, when considering suspension and debarment actions. The existence or nonexistence of any factor is not determinative.

(a) *Knowing, intentional, or reckless.* Were the respondent's actions knowing or intentional or were the actions reckless?

(b) *Pattern.* Was the research misconduct an isolated event or part of a continuing or prior pattern of dishonest conduct?

(c) *Impact.* Did the misconduct have significant impact on the proposed or reported research record, research subjects, other researchers, institutions, or the public health or welfare?

(d) *Acceptance of responsibility.* Has the respondent accepted responsibility for the misconduct by:

- (1) Admitting the conduct;
- (2) Cooperating with the research misconduct proceedings;
- (3) Demonstrating remorse and awareness of the significance and seriousness of the research misconduct; and
- (4) Taking steps to correct or prevent the recurrence of the research misconduct?

(e) *Failure to accept responsibility.* Does the respondent blame others rather than accepting responsibility for the actions?

(f) *Retaliation.* Did the respondent retaliate against complainants, witnesses, committee members, or other individuals?

(g) *Continued risk to PHS funding.* Does the respondent demonstrate responsible stewardship of research resources?

(h) *Other factors.* Are other factors relevant to the circumstances of a particular case?

§ 93.409 Settlement of research misconduct proceedings.

(a) HHS may settle a research misconduct proceeding at any time it concludes that settlement is in the best

interests of the Federal Government and the public health or welfare.

(b) A settlement agreement precludes the respondent from contesting any ORI findings of research misconduct, HHS administrative actions (other than a suspension or debarment decision), or ORI's jurisdiction in handling the research misconduct proceeding.

(c) Settlement agreements are publicly available, regardless of whether ORI made a finding of research misconduct.

§ 93.410 Final HHS action with no settlement or finding of research misconduct.

When the final HHS action does not result in a settlement or finding of research misconduct, ORI may:

(a) Provide written notice to the respondent, the relevant institution, the complainant, and HHS officials, as it deems necessary.

(b) To the extent permitted by the Privacy Act, 5 U.S.C. 552a, and ORI's system of records notice for research misconduct proceedings, publish notice of institutional research misconduct findings and implemented institutional actions related to the falsified, fabricated, or plagiarized material in the research record, but not the names or other identifying information of the respondent(s), if doing so is within the best interests of HHS to protect the health and safety of the public, to promote the integrity of the PHS supported research and research process, or to conserve public funds.

§ 93.411 Final HHS action with a settlement or finding of misconduct.

When a final HHS action results in a settlement or research misconduct finding, ORI:

(a) Shall provide final notification of any research misconduct findings and HHS administrative actions to the respondent, the relevant institution, and HHS officials, including the SDO. The SDO shall provide a separate notice of final HHS action on any suspension or debarment actions.

(b) May provide final notification of any research misconduct findings and HHS administrative actions to the complainant(s).

(c) Shall send a notice to the relevant journal, publisher, data repository, or other similar entity identifying publications or research records which require correction or retraction.

(d) Shall publish notice of the research misconduct findings.

(e) Shall notify the respondent's current employer, if the employer is an institution subject to this part.

Institutional Compliance Issues

§ 93.412 Making decisions on institutional noncompliance.

ORI may decide that an institution is not compliant with this part if the institution does not implement and follow the requirements of this part and its own research integrity assurance. In making this decision, ORI may consider, but is not limited to the following factors:

(a) Failure to establish and comply with policies and procedures under this part;

(b) Failure to respond appropriately when allegations of research misconduct arise;

(c) Failure to report to ORI all investigations and findings of research misconduct under this part;

(d) Failure to cooperate with ORI's review of research misconduct proceedings; or

(e) Other actions or omissions that have a material, adverse effect on reporting and responding to allegations of research misconduct.

§ 93.413 HHS compliance actions.

(a) An institution's failure to comply with the requirements of this part may result in enforcement action against the institution.

(b) If an institution fails to comply with the requirements of this part, HHS may take some or all of the following compliance actions:

(1) Require the institution to accept and/or implement technical assistance provided by HHS.

(2) Issue a letter of reprimand.

(3) Require the institution to take corrective actions.

(4) Place the institution on special review status. For a designated period, ORI will closely monitor the institution's activities for compliance with this part. Monitoring may consist of, but is not limited to, compliance reviews and/or audits.

(5) Direct that research misconduct proceedings be handled by HHS.

(6) Recommend that HHS debar or suspend the institution.

(7) Any other action appropriate to the circumstances.

(c) If the institution's actions constitute a substantial or recurrent failure to comply with this part, ORI may revoke the institution's research integrity assurance under § 93.301 or § 93.303.

(d) ORI may make public any findings of institutional noncompliance and HHS compliance actions.

Disclosure of Information

§ 93.414 Notice.

(a) ORI may disclose information to other persons for the purpose of providing or obtaining information about research misconduct as permitted under the Privacy Act, 5 U.S.C. 552a and ORI's system of records notice for research misconduct proceedings.

(b) ORI shall disclose or publish a notice regarding settlements and HHS administrative actions, and release or withhold information as permitted by the Privacy Act and the Freedom of Information Act, 5 U.S.C. 552.

(c) ORI shall disclose or publish final findings of research misconduct when they become final.

(1) HHS may publish the respondent's name, professional alias, respondent's current and/or former position, a detailed summary of the findings, and corrective actions imposed, in any venue it deems appropriate.

(2) Such venues include, but are not limited to, Federal Government exclusionary lists (if relevant), the **Federal Register**, ORI's website, other HHS publications, professional journals and other publications, and media outlets.

(d) To the extent allowed by law, ORI will not release information that would reveal a confidential source.

(e) When ORI closes a case without a settlement or a finding of research misconduct, disclosure may be made to the respondent, relevant institution, and complainant(s). Prior to making any disclosure, ORI will first consider the privacy interests of respondent(s), complainant(s), witnesses, research subjects or others who may be identified in the disclosure and determine whether limited disclosures or confidentiality agreements are needed to protect those interests.

(f) Any publications or disclosures pursuant to this section are not considered appealable "administrative actions" under this part.

Subpart E—Opportunity To Contest ORI Findings of Research Misconduct and HHS Administrative Actions

General Information

§ 93.500 General policy.

(a) This subpart provides a respondent an opportunity to contest ORI findings of research misconduct and/or HHS administrative actions, other than suspension or proposed debarment, included in a charge letter. To contest a suspension or proposed debarment included in a charge letter, the respondent must provide the SDO directly with information and argument

in opposition to the suspension or proposed debarment in accordance with 2 CFR part 180 (or successor regulation) or with 48 CFR 9.406 and 9.407, as governed by the mechanism of PHS funding involved. A respondent may contest ORI findings and/or HHS administrative actions other than suspension and proposed debarment under this subpart; contest only the suspension or proposed debarment action under 2 CFR part 180 or 48 CFR 9.406 and 9.407; or both.

(b) A respondent may contest ORI research misconduct findings and HHS administrative actions, other than suspension and proposed debarment, by filing a notice of appeal with an Administrative Law Judge (ALJ) at the DAB.

(c) Based on the administrative record, the ALJ shall rule on the reasonableness of the ORI research misconduct findings and the HHS administrative actions other than suspension or debarment.

(d) The ALJ's ruling made under § 93.512 is the final HHS action with respect to the research misconduct findings and administrative actions, other than suspension or proposed debarment. Where a respondent contests a suspension or proposed debarment, the ALJ shall provide a copy of the ruling to the SDO to be included in the official record under 2 CFR part 180 or 48 CFR 9.406 and 9.407; the SDO decides the debarment action under the appropriate regulation.

Process for Contesting Research Misconduct Findings and/or Administrative Actions

§ 93.501 Notice of appeal.

(a) *Time to file.* A respondent may contest ORI findings of research misconduct and/or HHS administrative actions other than suspension and proposed debarment by filing a notice of appeal within 30 days of receipt of the charge letter provided under § 93.405.

(b) *Form of a notice of appeal.* The respondent's notice of appeal must be:

(1) In writing;

(2) Signed by the respondent or by the respondent's attorney; and

(3) Submitted to the DAB Chair through the DAB electronic filing system with a copy sent by certified mail, electronic mail, or other equivalent (*i.e.*, with a verified method of delivery), to ORI. If the respondent is also contesting suspension or proposed debarment under 2 CFR part 180, the respondent must send a courtesy copy of the notice of appeal to the SDO.

(c) *Contents of a notice of appeal.* The notice of appeal must:

(1) Admit or deny each finding of research misconduct and each factual assertion made in support of each finding;

(2) Accept or challenge each proposed administrative action;

(3) Provide detailed, substantive reasons for each denial or challenge with references to the administrative record;

(4) Identify any legal issues or defenses that the respondent intends to raise during the proceeding with references to the administrative record;

(5) Identify any mitigating factors in the administrative record; and

(6) State whether a suspension or proposed debarment is also being contested under 2 CFR part 180 or 48 CFR 9.406 and 9.407.

§ 93.502 Appointment of the Administrative Law Judge.

(a) Within 30 days of receiving a notice of appeal, the DAB Chair, in consultation with the Chief ALJ, must designate an ALJ to determine whether the notice of appeal is timely filed and within the ALJ's jurisdiction under this subpart. If the appeal is determined to be timely and within the ALJ's jurisdiction, the ALJ shall decide the reasonableness of the ORI research misconduct findings and administrative actions in accordance with this subpart. The ALJ shall dismiss an appeal if it is untimely or not within the ALJ's jurisdiction under this subpart.

(b) No ALJ may serve in any proceeding under this subpart if they have any actual or apparent conflict of interest, bias, or prejudice that might reasonably impair their objectivity in the proceeding.

(c) Any party to the proceeding may request the ALJ to withdraw from the proceeding because of an actual or apparent conflict of interest, bias, or prejudice under paragraph (b) of this section. The motion to disqualify must be timely and state with particularity the grounds for disqualification. The ALJ may rule upon the motion or certify it to the Chief ALJ for decision. If the ALJ rules upon the motion, either party may appeal the decision to the Chief ALJ.

(d) An ALJ must withdraw from any proceeding for any reason found by the ALJ or Chief ALJ to be disqualifying.

§ 93.503 Filing of the administrative record.

(a) For appeals that are not dismissed under § 93.502(a), ORI will file the administrative record for this appeal.

(b) The ALJ's review will be based on the administrative record.

(c) The parties have no right to supplement the administrative record.

§ 93.504 Standard of review.

(a) The ALJ shall review the administrative record to determine whether ORI's findings and HHS's proposed administrative actions, other than suspension and debarment, reflected in the charge letter are reasonable and not based on a material error of law or fact.

(b) The ALJ may permit the parties to file briefs making legal and factual arguments based on the administrative record.

(c) If the ALJ determines that there is a genuine dispute over facts material to the ORI findings of research misconduct or HHS administrative actions other than suspension and debarment, the ALJ may hold a limited hearing to resolve that genuine factual dispute.

§ 93.505 Rights of the parties.

(a) The parties to the appeal are the respondent and ORI. The investigating institution is not a party to the case unless it is a respondent.

(b) Except as otherwise limited by this subpart, the parties may:

(1) Be accompanied, represented, and advised by an attorney;

(2) Participate in any case-related conference held by the ALJ;

(3) File motions or briefs in writing before the ALJ;

(4) Present evidence relevant to the factual issues at a hearing, if applicable; and

(5) Present and cross-examine witnesses at a hearing, if applicable.

(c) The parties have no right to discovery before the ALJ.

§ 93.506 Authority of the Administrative Law Judge.

(a) The ALJ assigned to the case must conduct a fair and impartial proceeding, avoid unnecessary delay, maintain order, and assure that a complete and accurate record of the proceeding is properly made. The ALJ is bound by, and may not refuse to follow or find invalid, all Federal statutes and regulations, Secretarial delegations of authority, and applicable HHS policies, as provided in paragraph (c)(5) of this section.

(b) Subject to review as provided elsewhere in this subpart, the ALJ may:

(1) Review the administrative record and issue a ruling without convening a hearing;

(2) Hold conferences with the parties to identify or simplify the issues, or to consider other matters that may aid in the prompt disposition of the proceeding;

(3) Rule on motions and other procedural matters;

(4) Except for the respondent's notice of appeal, modify the time for the filing

of any document required or authorized under the rules in this subpart.

(5) Upon motion of a party, decide cases, in whole or in part, by summary judgment where there is no disputed issue of material fact;

(6) Regulate the course of the appeal and the conduct of representatives, parties, and witnesses;

(7) Take action against any party for failing to follow an order or procedure or for disruptive conduct;

(8) Set and change the date, time, schedule, and place of the hearing, if applicable, upon reasonable notice to the parties;

(9) Continue or recess the hearing, if applicable, in whole or in part for a reasonable period of time;

(10) Administer oaths and affirmations at the hearing, if applicable;

(11) Require each party before the hearing, if applicable, to provide the other party and the ALJ with copies of any exhibits that the party intends to introduce into evidence; and

(12) Examine witnesses and receive evidence presented at the hearing, if applicable.

(c) The ALJ does not have the authority to:

(1) Enter an order in the nature of a directed verdict;

(2) Compel settlement negotiations;

(3) Enjoin any act of the Secretary;

(4) Review suspension or proposed debarment;

(5) Find invalid or refuse to follow Federal statutes or regulations, Secretarial delegations of authority, or HHS policies;

(6) Authorize the parties to engage in discovery; and

(7) Modify the time for filing the respondent's notice of appeal.

(d) The Federal Rules of Evidence and the Federal Rules of Civil Procedure do not govern the proceedings under this subpart.

§ 93.507 Ex parte communications.

(a) No party, attorney, or other party representative may communicate ex parte with the ALJ on any matter at issue in a case, unless both parties have notice and an opportunity to participate in the communication.

(b) If an ex parte communication occurs, the ALJ will disclose it to the other party and offer the other party an opportunity to comment.

(c) The provisions of this section do not apply to communications between an employee or contractor of the DAB and the ALJ.

§ 93.508 Filing, format, and service.

(a) *Filing.* (1) Unless the ALJ provides otherwise, all submissions required or

authorized to be filed in the proceeding must be filed with the ALJ.

(2) Submissions are considered filed when they are filed with the DAB according to the DAB's filing guidance.

(b) *Format.* (1) The ALJ may designate the format for copies of nondocumentary materials such as videotapes, computer disks, or physical evidence. This provision does not apply to the charge letter or other written notice provided under § 93.405.

(2) Every submission filed in the proceeding must include the title of the case, the docket number, and a designation of the nature of the submission.

(3) Every submission filed in the proceeding must be signed by and contain the address and telephone number of the party on whose behalf the document or paper was filed, or the attorney of record for the party.

(c) *Service.* Service of a submission on other parties is accomplished by filing the submission with the ALJ through the DAB electronic filing system.

§ 93.509 Filing motions.

(a) Parties must file all motions and requests for an order or ruling with the ALJ, serve them on the other party, state the nature of the relief requested, provide the legal authority relied upon, and state the facts alleged in support of the motion or request.

(b) All motions must be in writing except for those made during a prehearing conference or at a hearing.

(c) Within 10 days after being served with a motion, or other time as set by the ALJ, a party may file a response to the motion. The moving party may not file a reply to the response unless allowed by the ALJ.

(d) The ALJ may not grant a motion before the time for filing a response has expired, except with the parties' consent or after a hearing on the motion. However, the ALJ may overrule or deny any motion without awaiting a response.

(e) The ALJ must make a reasonable effort to dispose of all motions promptly, and, whenever possible, dispose of all outstanding motions before the hearing.

§ 93.510 Conferences.

(a) The ALJ must schedule an initial conference with the parties within 30 days of the DAB Chair's assignment of the case.

(b) The ALJ may use the initial conference to discuss:

(1) Identification and simplification of the issues, specification of genuine disputes of fact and their materiality to the ORI findings of research misconduct and any administrative actions;

(2) Identification of material legal issues and any need for briefing;

(3) Scheduling dates for the filing of briefs based on the administrative record or the hearing, if applicable; and

(4) Other matters that may encourage the fair, just, and prompt disposition of the proceedings.

(c) The ALJ may schedule additional conferences as appropriate, upon reasonable notice to or request of the parties.

(d) All conferences will be recorded with copies provided to the parties upon request.

(e) The ALJ shall memorialize in writing any oral rulings within 10 days after a conference is held.

(f) By 15 days before the scheduled hearing date, if applicable, the ALJ must hold a prehearing conference to resolve to the maximum extent possible all outstanding issues about evidence, witnesses, motions and all other matters that may encourage the fair, just, and prompt resolution of genuine factual disputes.

§ 93.511 Hearing to resolve genuine factual dispute.

(a) The ALJ may hold a virtual or in-person hearing that is limited to resolving a genuine factual dispute.

(b) The ALJ shall permit the parties to call witnesses and to question witnesses. The ALJ may also question witnesses.

(c) The parties are not required to submit prehearing briefs.

(d) The parties are not required to give opening or closing statements at the hearing.

(e) The hearing will be transcribed, and the parties will have an opportunity to review the transcript and submit proposed corrections to the ALJ.

(f) Following receipt of the transcript and proposed corrections to the transcript, the ALJ may permit the parties to file briefs with suggested factual findings based on the transcript.

(g) The ALJ will issue findings of fact to the parties that resolves the genuine factual dispute.

§ 93.512 The Administrative Law Judge's ruling.

(a) Based on the administrative record and any findings of fact as a result of a hearing, if applicable, the ALJ shall issue a ruling in writing setting forth whether ORI's findings and HHS's proposed administrative actions, other than suspension and debarment, reflected in the charge letter are reasonable and not based on a material error of law or fact within 60 days after the last submission by the parties in the case. If unable to meet the 60-day

deadline, the ALJ must set a new deadline and promptly notify the parties and the SDO if a suspension or proposed debarment is contested. The ALJ shall serve a copy of the ruling upon the parties. If a suspension or proposed debarment is contested, the ALJ shall provide a copy of the ruling to the SDO to be included in the official record under 2 CFR part 180.

(b) The ruling of the ALJ constitutes the final HHS action on the findings of research misconduct and administrative actions other than suspension or debarment. The decision of the SDO constitutes the final HHS action regarding suspension or debarment under 2 CFR part 180.

Dated: September 27, 2023.

Xavier Becerra,
Secretary.

[FR Doc. 2023-21746 Filed 10-5-23; 8:45 am]

BILLING CODE 4150-31-P

CORPORATION FOR NATIONAL AND COMMUNITY SERVICE

45 CFR Parts 2520, 2521 and 2522

RIN 3045-AA84

AmeriCorps State and National Updates

AGENCY: Corporation for National and Community Service.

ACTION: Proposed rule with request for comments.

SUMMARY: The Corporation for National and Community Service (operating as AmeriCorps) proposes to revise its regulations governing the AmeriCorps State and National program. This proposed rule would make four substantive changes to the regulations governing the AmeriCorps State and National program to provide programmatic and grantmaking flexibilities. Specifically, this proposed rule would: limit AmeriCorps State and National grantees' required share of program costs (known as "match" or "cost share") to a scale that starts at 24 percent for the first three-year grant cycle and increases more incrementally with each successive three-year grant cycle, until it reaches 50 percent in the sixth three-year grant cycle (that is, the sixteenth year of the grant) and beyond; simplify the criteria that allow AmeriCorps to waive match for AmeriCorps State and National grantees; allow AmeriCorps to grant waivers of education hour limitations under certain circumstances to permit AmeriCorps State and National AmeriCorps members to spend an

increased number of hours on education and training activities; and remove the four-term limit on service in AmeriCorps State and National programs, instead referring to the limitation on total value of the Segal Education Awards (education awards) a member may earn. The main non-substantive change in this proposed rule updates nomenclature to reflect that the Corporation for National and Community Service operates as AmeriCorps.

DATES: Written comments must be submitted by December 5, 2023.

ADDRESSES: Please send your comments electronically through the Federal government's one-stop rulemaking website at www.regulations.gov. Alternatively, you may send your comments to Elizabeth Appel, Associate General Counsel, at eappel@cns.gov or by mail to AmeriCorps (ATTN: Elizabeth Appel), 250 E Street SW, Washington DC 20525.

FOR FURTHER INFORMATION CONTACT: Elizabeth Appel, Associate General Counsel, at eappel@cns.gov, (202) 967-5070.

SUPPLEMENTARY INFORMATION:

I. Background

AmeriCorps is proposing changes to its AmeriCorps State and National program regulations based on its desire to address stakeholder feedback on match requirements, be more consistent with other grant programs within the agency, and reduce barriers to grantee organizations specifically designed to provide education and training to members as part of their national service program. AmeriCorps State and National provides grants to states, territories, Indian tribes, public and private nonprofit organizations, local governments, and institutions of higher education to carry out national service programs, offering a wide range of service opportunities. AmeriCorps State and National also provides general operating funding for state service commissions. AmeriCorps is proposing these changes under the authority of the National and Community Service Act, as amended, at 42 U.S.C. 12651c(c).

II. Overview of Proposed Rule

This proposed rule would make four substantive changes to the AmeriCorps State and National regulations, as described below. In addition, this proposed rule would make nomenclature changes to add a definition for “AmeriCorps” and change “the Corporation” to “AmeriCorps” throughout these regulations to reflect that the Corporation for National and

Community Service now operates as AmeriCorps.

A. Waiver of the Current 20 Percent Limit on Education and Training Activities—§ 2520.50

The current regulation sets a 20 percent limit to the aggregate total of all AmeriCorps member service hours in a program that may be spent in education and training activities. As a result, each program must have at least 80 percent of the aggregate of all AmeriCorps member hours in service. The proposed rule would allow AmeriCorps to waive this limit under certain circumstances, to allow up to 50 percent of the aggregate AmeriCorps member hours in a program to be spent in education and training activities. The criteria AmeriCorps will consider when deciding whether a waiver is appropriate are whether the AmeriCorps program:

- is a Registered Apprenticeship program, or
- is a job training or job readiness program, or
- includes activities to support member attainment of a GED or high school diploma or occupational, technical, or safety credentials, or
- the AmeriCorps program primarily enrolls economically disadvantaged AmeriCorps members and is designed to provide soft skills or life skills development for those members.

This proposed rule would allow individuals who might benefit from additional education and training, such as those reentering society after incarceration, to participate in national service while acquiring skills and knowledge to ease their transition.

The current regulation creates a significant barrier to entry for workforce development/Registered Apprenticeship programs and results in their participants being unable to get credit for a large portion of their hours. Programs with full-time participants are only able to offer “less than full-time” AmeriCorps member slots, which limits the amount of the education award available to their participants and could limit their participants’ access to health care, childcare, and other benefits afforded to members enrolled in full-time slots.

AmeriCorps expects to grant waivers to new and existing Registered Apprenticeship programs, job training or job readiness programs, programs that include activities to support member attainment of a GED or high school diploma or other credentials, or programs that primarily enroll economically disadvantaged AmeriCorps members and are designed

to provide soft skills or life skills development for those members. Grantees would request waivers in writing as part of their grant application. Decisions about the waivers would be provided prior to grant award. As most of the programs that would benefit from this waiver have participants who are serving in the program full time but may only serve part-time as AmeriCorps members because of the current limits on in-service educational time, there is no expectation that the level of service provided to communities would decline. While the level of service provided to communities is expected to remain constant under this proposal, participants would benefit because they could count the majority of their existing training hours toward earning a larger education award.

B. Revising Match Requirements—§ 2521.60

This proposed rule would revise the scale that sets out grantees’ program costs not provided by AmeriCorps (known as “match” or “cost share”). The current regulations require a graduated match that incrementally increases each year to a total of 50 percent overall share by the tenth year and for each year afterward without a break in funding of five years or more. The proposed rule would establish a match that gradually increases at the end of each three-year grant period (rather than annually) over a longer period of time to reach a total of 50 percent overall share by the sixteenth year (rather than by the tenth year) and for each year afterward without a break in funding of five years or more.

This proposed change is intended to address the increased difficulty many grantees experience in raising match funds, as evidenced by the increase in waiver requests AmeriCorps receives, and address many of the comments AmeriCorps received in response to the Request for Information from Non-Federal Stakeholders: Grantee Match Requirements (RFI) it published in 2022. See 87 FR 26740 (May 5, 2022). Waiver requests have increased significantly since 2017 and 2018. From March 2022 to March 2023, AmeriCorps received more than 60 requests for full or partial waivers of AmeriCorps State and National match requirements, meaning that requests have been submitted for more than 7 percent of AmeriCorps State and National cost-reimbursement grants. Many of the respondents to the RFI stated that they have difficulty securing match and that current match requirements are a barrier to equity and limit people’s ability to serve. These respondents specifically

proposed a return to “original Congressional intent” as evidenced by language in the National and Community Service Act of 1990 providing that AmeriCorps’ share may not exceed 75 percent. For several years, Congress has, through appropriations laws, provided that AmeriCorps programs receiving grants under the National Service Trust program must meet an overall minimum match of 24 percent for the first three years of receiving funding, and then must meet the overall match requirements in section 2521.60 of the current regulations. *See, e.g.*, Consolidated Appropriations Act, 2022, Public Law 117–103, Section 402. The current regulations at section 2521.60 set out a graduated match schedule in which the required match increases from 26 percent as of the fourth consecutive year they receive a grant to 50 percent as of year 10 and beyond for the total budget. This requires grantees to match the AmeriCorps’ investment one-to-one once they reach year 10 and beyond.

AmeriCorps proposes a match that increases more gradually until it reaches 50 percent of the overall program cost by the sixteenth year to replace the current regulations’ more abrupt and steep match scale. A match that increases less often (by grant period, rather than annually) would reduce the burden on grantees of raising, tracking, and reporting increasing annual percentages. While some grantees can raise the currently required additional match for years five and beyond (ranging from 30 percent to 50 percent), it is a barrier for other existing grantees that are smaller or in geographic areas where there is not a philanthropic community. It is also a barrier to entry for new applicants that have less capacity and less access to matching funds. Lowering the match amount does not change the cost to run a strong AmeriCorps program. Thus, grantees will continue to have to raise additional funds beyond the required match generally, for the sustainability of their organization, but they will no longer be in danger of having to return AmeriCorps funds at the end of their grants if they fail to raise match that is so far in excess of the 25 percent indicated by statutory text. To the extent they are able, grantees are strongly encouraged to raise funding beyond the required match amount to extend the reach of national service as much as possible.

C. Criteria for Waiving Match Requirements—§ 2521.70

This proposed rule would revise the criteria that grantees must demonstrate

when they request a waiver of the matching requirements. Currently, the regulation requires grantees to demonstrate: (1) a lack of resources at the local level; (2) that the lack of resources is unique or unusual; (3) the efforts the grantee has made to raise matching resources; and (4) the amount of matching resources the grantee has raised or reasonably expects to raise. The proposed rule would instead specify four criteria and require grantees to demonstrate only one of them, and in addition provide supporting documentation and a description of the efforts made to raise match. The proposed waiver criteria mirror the waiver criteria required in AmeriCorps Seniors programs, with one additional criterion to allow waivers for organizations with revenue of less than \$500,000. Specifically, under the proposed rule, grantees would have to demonstrate one of the following: initial difficulties in developing local funding sources during the first three years of operations; an economic downturn, natural disaster, or similar event in the grantee’s service area that severely restricts or reduces sources of local funding support; the unexpected discontinuation of local support from one or more sources that a project has relied on for a period of years; or an organizational revenue of less than \$500,000.

The current regulations’ waiver requirements are overly burdensome to grantees and enhance the risk that AmeriCorps funds will not be fully expended because grantees must return AmeriCorps funds at closeout if they do not meet the match requirement or receive a waiver. The proposed waiver criteria reduce this burden. Furthermore, the agency desires to have more consistency between its programs, and the proposed change aligns AmeriCorps State and National’s match waiver criteria with AmeriCorps Seniors’ match waiver criteria, with one additional criterion. The additional criterion, for organizations with less than \$500,000 in revenue (as shown on an IRS Form 990, for example) is intended to encourage new, small organizations and those with programs in underserved communities. The proposed rule would still require a description of efforts made to raise matching resources but clarifies that this description must be provided with the waiver request.

D. Limit on Number of Terms an Individual May Serve in AmeriCorps State and National—§ 2522.235

The current regulation provides that individuals who serve in AmeriCorps

State and National may receive the benefits offered by AmeriCorps for serving up to, but not more than, four terms. It also includes information on how terms are calculated if an individual is released early under various circumstances. The benefits offered to AmeriCorps members include the AmeriCorps Segal Education Award from the National Service Trust upon successful completion of their terms of service. Benefits during service include a living allowance, financial benefits during an extended term of disaster-related service, childcare, and health care.

Separate regulations at 45 CFR 2525.50 limit participants to receiving no more than the value of two full-time education awards. The proposed rule would remove the four term limit, thus allowing any individual to serve as many terms as necessary to earn the value of two full-time education awards, regardless of whether those terms are served on a full-time, part-time, or reduced part-time basis. This revision removes an artificial barrier on individuals’ ability to continue to serve.

In 2010, AmeriCorps established the four-term limit in the current regulations to ensure that there would be opportunities for all interested Americans to serve because, at the time, applications for AmeriCorps far exceeded available positions. *See* 75 FR 51395, 51406–07 (August 20, 2010). An excess demand for AmeriCorps positions no longer exists to justify this term limit. Even accounting for the possibility that demand will at some point exceed the number of AmeriCorps positions available, the current regulation’s term limit is too broad a prohibition. Service terms vary considerably, encompassing full-time, part-time, reduced part-time, quarter-time, and minimum-time terms, as well as any term from which one exits after serving 15 percent of the agreed term of service. Treating each of these terms of service as equivalent for the purposes of a term limit is unfair to those who may have served shorter terms of service but would like to serve more. Individuals should be encouraged, rather than discouraged, from participating in national service. AmeriCorps believes a term limit is unnecessary, as there is already an existing limit to education awards—a significant incentive for participation in national service.

III. Regulatory Analyses

A. Executive Orders 12866 and 13563

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory

alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. The Office of Information and Regulatory Affairs in the Office of Management and Budget has determined that this proposed rule is not a significant regulatory action.

B. Regulatory Flexibility Act

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*), AmeriCorps certifies that this rule, if adopted, will not have a significant economic impact on a substantial number of small entities. Most AmeriCorps State and National grantees are State Commissions and organizations that do not meet the definition of a small entity. Therefore, AmeriCorps has not performed the initial regulatory flexibility analysis that is required under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) for rules that are expected to have such results.

C. Unfunded Mandates Reform Act of 1995

For purposes of Title II of the Unfunded Mandates Reform Act of 1995, 2 U.S.C. 1531–1538, as well as Executive Order 12875, this regulatory action does not contain any Federal mandate that may result in increased expenditures in Federal, State, local, or Tribal Governments in the aggregate, or impose an annual burden exceeding \$100 million on the private sector.

D. Paperwork Reduction Act

Under the PRA, an agency may not conduct or sponsor a collection of information unless the collections of information display valid control numbers. The application for AmeriCorps State and National grants are authorized under OMB Control Number 3045–0047, which expires September 30, 2026. Applicants for grants who would like to request a waiver under this proposed rule would do so as part of the application process, but the request is exempted from the definition of “information” subject to PRA requirements because it is a simple acknowledgment that the applicant is requesting a waiver based on one of the criteria. See 5 CFR 1320.3(h)(1). Therefore, this proposed rule does not affect require submission of a revision of this information collection.

E. Executive Order 13132, Federalism

Executive Order 13132, Federalism, prohibits an agency from publishing any rule that has federalism implications if the rule imposes substantial direct compliance costs on State and local Governments and is not required by statute, or the rule preempts State law, unless the agency meets the consultation and funding requirements of section 6 of the Executive Order. This rulemaking does not have any federalism implications, as described above.

F. Takings (Executive Order 12630)

This proposed rule does not affect a taking of private property or otherwise have taking implications under Executive Order 12630 because this proposed rule does not affect individual property rights protected by the Fifth Amendment or involve a compensable “taking.” A takings implication assessment is not required.

G. Civil Justice Reform (Executive Order 12988)

This proposed rule complies with the requirements of Executive Order 12988. Specifically, this rulemaking: (a) meets the criteria of section 3(a) requiring that all regulations be reviewed to eliminate errors and ambiguity and be written to minimize litigation; and (b) meets the criteria of section 3(b)(2) requiring that all regulations be written in clear language and contain clear legal standards.

H. Consultation With Indian Tribes (Executive Order 13175)

AmeriCorps recognizes the inherent sovereignty of Indian tribes and their right to self-governance. We have evaluated this rulemaking under our consultation policy and the criteria in Executive Order 13175 and determined that this proposed rule does not impose substantial direct effects on federally recognized Tribes.

I. Clarity of This Regulation

We are required by Executive Orders 12866 (section 1(b)(12)), and 12988 (section 3(b)(1)(B)), and 13563 (section 1(a)), and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each proposed rule we publish must: (a) be logically organized; (b) use the active voice to address readers directly; (c) use clear language rather than jargon; (d) be divided into short sections and sentences; and (e) use lists and tables wherever possible. If you feel that we have not met these requirements, please send us comments by one of the methods listed in the

ADDRESSES section. To help us revise the rule, your comments should be as specific as possible.

List of Subjects

45 CFR Part 2520

Grant programs—social programs, Volunteers.

45 CFR Part 2521

Grant programs—social programs, Volunteers.

45 CFR Part 2522

Grant programs—social programs, Reporting and recordkeeping requirements, Volunteers.

For the reasons stated in the preamble, under the authority of 42 U.S.C. 12651c(c), the Corporation for National and Community Service is proposing to amend Chapter XXV, title 45 of the Code of Federal Regulations as follows:

PART 2520—GENERAL PROVISIONS: AMERICORPS SUBTITLE C PROGRAMS

- 1. The authority citation for part 2520 continues to read as follows:

Authority: 42 U.S.C. 12571–12595.

- 2. Amend § 2520.5 by adding in alphabetical order the definition “AmeriCorps” to read as follows:

§ 2520.5 What definitions apply to this part?

AmeriCorps means the Corporation for National and Community Service, established pursuant to section 191 of the National and Community Service Act of 1990, as amended, 42 U.S.C. 12651, which operates as AmeriCorps.

* * * * *

§§ 2520.10 through 2520.65 [Amended]

- 3. In §§ 2520.10 through 2520.65, remove the words “the Corporation” wherever they appear and add in their place the word “AmeriCorps”.
- 4. In §§ 2520.10 through 2520.65, remove the word “Corporation” and add in its place the word “AmeriCorps”.
- 5. Amend § 2520.50 by, revising paragraph (a) and adding new paragraph (c) to read as follows:

§ 2520.50 How much time may AmeriCorps members in my program spend in education and training activities?

(a) No more than 20 percent of the aggregate of all AmeriCorps member service hours in your program, as reflected in the member enrollments in the National Service Trust, may be spent in education and training activities,

unless AmeriCorps grants a waiver under paragraph (c) of this section.

* * * * *

(c) AmeriCorps may waive the limit in paragraph (a) of this section to allow up to 50 percent of the aggregate of all AmeriCorps member service hours in your program to be spent in education and training activities if your program:

- (1) Is a Registered Apprenticeship program;
- (2) Is a job training or job readiness program;
- (3) Includes activities to support member attainment of a GED or high school diploma or occupational, technical, or safety credentials; or
- (4) Primarily enrolls economically disadvantaged AmeriCorps members and employs a program design that also includes soft skills or life skills development.

PART 2521—ELIGIBLE AMERICORPS SUBTITLE C PROGRAM APPLICANTS AND TYPES OF GRANTS AVAILABLE FOR AWARD

■ 6. The authority for part 2521 continues to read as follows:

Authority: 42 U.S.C. 12571–12595

■ 7. Amend § 2521.5 by adding in alphabetical order the definition “AmeriCorps” to read as follows:

§ 2521.5 What definitions apply to this part?

AmeriCorps means the Corporation for National and Community Service, established pursuant to section 191 of the National and Community Service Act of 1990, as amended, 42 U.S.C. 12651, which operates as AmeriCorps.

* * * * *

§§ 2521.10 through 2521.95 [Amended]

- 8. In §§ 2521.10 through 2521.95, remove the words “the Corporation” and add in their place the word “AmeriCorps”.
- 9. In §§ 2521.10 through 2521.95, remove the word “Corporation” and add in its place the word “AmeriCorps”.
- 10. In § 2521.60, revise the introductory text, paragraph (a)(1), and paragraph (b) to read as follows:

§ 2521.60 What will my share of program costs be?

Except as provided in paragraph (b) of this section, if your program continues to receive funding after an initial three-year grant period, you must continue to meet the minimum requirements in § 2521.45 of this part. In addition, your required share of program costs, including member support and operating costs, will incrementally increase each grant period to a 50 percent overall share by the sixth grant period and beyond (sixteenth year and any year thereafter that you receive a grant), without a break in funding of five years or more. A 50 percent overall match means that you will be required to match \$1 for every \$1 you receive from the Corporation.

(a) * * *

(1) Subject to the requirements of § 2521.45 of this part, and except as provided in paragraph (b) of this section, your overall share of program costs will increase as of the fourth consecutive year that you receive a grant, according to the following timetable:

TIMETABLE FOR MINIMUM ORGANIZATION SHARE

	First grant period: years 1–3 (percent)	Second grant period: years 4–6 (percent)	Third grant period: years 7–9 (percent)	Fourth grant period: years 10–12 (percent)	Fifth grant period: years 13–15 (percent)	Sixth grant period and beyond: years 16 and beyond (percent)
Minimum member support	15	15	15	15	15	15
Minimum operating costs	33	33	33	33	33	33
Minimum overall share	24	28	32	38	44	50

* * * * *

(b) *Alternative match requirements:* If your program is unable to meet the match requirements set forth in paragraph (a) of this section and is located in a rural or a severely economically distressed community, you may apply to AmeriCorps for a waiver that would decrease the level of your required match.

* * * * *

■ 11. In § 2521.70 revise paragraphs (b) and (c) to read as follows:

§ 2521.70 To what extent may AmeriCorps waive the matching requirements in §§ 2521.45 and 2521.60 of this part?

* * * * *

(b) If you are requesting a waiver, you must demonstrate:

- (1) Initial difficulties in the development of local funding sources during the first three years of operations; or
- (2) An economic downturn, the occurrence of a natural disaster, or

similar events in the service area that severely restrict or reduce sources of local funding support; or

(3) The unexpected discontinuation of local support from one or more sources that a project has relied on for a period of years; or

(4) Organizational revenue of less than \$500,000.

(c) You must provide with your waiver request:

(1) A description of the efforts you have made to raise matching resources; and

(2) A request for the specific amount of match you are asking AmeriCorps to waive; and

(3) A budget and budget narrative that reflect the requested level in matching resources.

PART 2522—AMERICORPS PARTICIPANTS, PROGRAMS, AND APPLICANTS

■ 12. The authority for part 2522 continues to read as follows:

Authority: 42 U.S.C. 12571–12595; 12651b–12651d; E.O. 13331, 69 FR 9911, Sec. 1612, Pub. L. 111–13.

■ 13. Amend § 2522.10 by adding in alphabetical order the definition “AmeriCorps” to read as follows:

§ 2522.10 What definitions apply to this part?

AmeriCorps means the Corporation for National and Community Service, established pursuant to section 191 of the National and Community Service Act of 1990, as amended, 42 U.S.C. 12651, which operates as AmeriCorps.

* * * * *

§§ 2522.100 through 2522.950 [Amended]

■ 14. In §§ 2522.100 through 2522.950, remove the words “the Corporation”

and add in their place the word “AmeriCorps”.

■ 15. In §§ 2522.100 through 2522.950, remove the word “Corporation” and add in its place the word “AmeriCorps”.

■ 16. In §§ 2522.100 through 2522.950, remove the words “the Corporation’s” and add in their place the word “AmeriCorps’”.

■ 17. Revise § 2522.235 to read as follows:

§ 2522.235 Is there a limit on the number of terms an individual may serve in an AmeriCorps State and National program?

The terms an individual may serve in an AmeriCorps State and National

program are limited to the number of terms needed to attain the aggregate value of two full-time education awards.

■ 18. In § 2522.240, revise paragraph (a) to read as follows:

§ 2522.240 What financial benefits do AmeriCorps participants serving in approved AmeriCorps positions receive?

(a) *AmeriCorps education awards.* An individual serving in an approved AmeriCorps State and National position may receive an education award from the National Service Trust upon successful completion of their terms of service as defined in § 2522.220,

consistent with the limitations in § 2525.50.

* * * * *

§ 2522.510 [Amended]

■ 19. In § 2522.510, remove the words “a Corporation” and add in its place the words “an AmeriCorps”.

Fernando Laguarda,
General Counsel.

[FR Doc. 2023–22155 Filed 10–5–23; 8:45 am]

BILLING CODE 6050–28–P

Notices

Federal Register

Vol. 88, No. 193

Friday, October 6, 2023

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

DEPARTMENT OF AGRICULTURE

Forest Service

Proposed New Recreation Fee Sites

AGENCY: Forest Service, (Agriculture) USDA.

ACTION: Notice.

SUMMARY: The Tongass National Forest is proposing to establish several new recreation fee sites. Recreation fee revenues collected at the new recreation fee sites would be used for operation, maintenance, and improvement of the sites. An analysis of nearby recreation fee sites with similar amenities shows the recreation fees that would be charged at the new recreation fee sites are reasonable and typical of similar recreation fee sites in the area.

DATES: If approved, the new recreation fee sites would be established no earlier than six months following the publication of this notice in the **Federal Register**.

ADDRESSES: Tongass National Forest, Attention: Recreation Fees, 648 Mission Street, Suite 110, Federal Building, Ketchikan, AK 99901-6591.

FOR FURTHER INFORMATION CONTACT: John Suomala, Recreation and Wilderness Program Manager, (907) 228-6232, john.p.suomala@usda.gov.

SUPPLEMENTARY INFORMATION: The Federal Lands Recreation Enhancement Act (16 U.S.C. 6803(b)) directs the Secretary of Agriculture to publish a six-month advance notice in the **Federal Register** of establishment of new recreation fee sites. In accordance with Forest Service Handbook 2309.13, Chapter 30, the Forest Service will publish the proposed new recreation fee sites in local newspapers and other local publications for public comment. Most of the new recreation fee revenues would be spent where they are collected to enhance the visitor experience at the new recreation fee sites.

An expanded amenity recreation fee of \$12 per night would be charged for the Sawmill Creek Campground. An expanded amenity recreation fee of \$30 per hour for groups up to 74 people would be charged for the Eagle Shelter, King Salmon Shelter, and Coho Shelter group picnic sites; and an expanded amenity recreation fee of \$20 per night for groups up to 20 people would be charged for the Sawmill Creek Group Campground. In addition, an expanded amenity recreation fee of \$25 per day for groups up to 30 people would be charged for the Sawmill Creek Group Picnic Shelter. An expanded amenity recreation fee of \$35 per night would be charged for rental of Deer Mountain Shelter Cabin, and an expanded amenity recreation fee of \$75 per night would be charged for rental of Signal Creek Cabin. A new season pass costing \$80 per person would be offered for Fish Creek Wildlife Observation Site.

Expenditures from recreation fee revenues collected at the new recreation fee sites would enhance recreation opportunities, improve customer service, and address maintenance needs. Reservations for the campgrounds and cabins at the new recreation fee sites could be made online at www.recreation.gov or by calling 877-444-6777. Reservations would cost \$8.00 per reservation.

Dated: October 2, 2023.

Jacqueline Emanuel,

Associate Deputy Chief, National Forest System.

[FR Doc. 2023-22301 Filed 10-5-23; 8:45 am]

BILLING CODE 3411-15-P

COMMISSION ON CIVIL RIGHTS

Notice of Public Meeting of the Nebraska Advisory Committee to the U.S. Commission on Civil Rights

AGENCY: U.S. Commission on Civil Rights.

ACTION: Announcement of meeting.

SUMMARY: Notice is hereby given, pursuant to the provisions of the rules and regulations of the U.S. Commission on Civil Rights (Commission) and the Federal Advisory Committee Act that the Nebraska Advisory Committee (Committee) to the U.S. Commission on Civil Rights will hold a briefing meeting via web conference. The purpose of the

meeting will be to hear testimony on project related to the Effects of the Covid-19 Pandemic on K-12 Education in the state.

DATES: Wednesday, November 8, 2023 at 1 p.m. Central Time.

ADDRESSES: The meeting will be held via Zoom.

November 8, 2023 Briefing Meeting: Registration Link (Audio/Visual):

[https://www.zoomgov.com/j/1615843630?pwd=](https://www.zoomgov.com/j/1615843630?pwd=WHgrSWpiSjJrd1FZT1krVXhpNHViUT09)

[WHgrSWpiSjJrd1FZT1krVXhpNHViUT09.](https://www.zoomgov.com/j/1615843630?pwd=WHgrSWpiSjJrd1FZT1krVXhpNHViUT09)

Join by Phone (Audio Only): 1-833-435-1820 USA Toll Free; Meeting ID: 161 584 3630.

FOR FURTHER INFORMATION CONTACT: Victoria Moreno, DFO, at vmoreno@usccr.gov or by phone at 434-515-0204.

SUPPLEMENTARY INFORMATION: Members of the public may listen to the discussions through the above call-in numbers (audio only) or online registration links (audio/visual). An open comment period at each meeting will be provided to allow members of the public to make a statement as time allows. Callers can expect to incur regular charges for calls they initiate over wireless lines, according to their wireless plan. The Commission will not refund any incurred charges. Callers will incur no charge for calls they initiate over land-line connections to the toll-free telephone number. Individuals who are deaf, deafblind, and/or hard of hearing may also follow the proceedings by first calling the Federal Relay Service at 1-800-877-8339 and providing the Service with the conference call number and meeting ID number.

Members of the public are entitled to submit written comments; the comments must be received in the regional office within 30 days following the meetings. Written comments may be emailed to Victoria at vmoreno@usccr.gov.

Records generated from this meeting may be inspected and reproduced at the Regional Programs Unit Office, as they become available, both before and after the meetings. Records of the meetings will be available via www.facadatabase.gov under the Commission on Civil Rights, Nebraska Advisory Committee link. Persons interested in the work of this Committee are directed to the Commission's website, <http://www.usccr.gov>, or may

contact the Regional Programs Unit at the above email or street address.

Agenda

- I. Welcome and Roll Call
- II. Chair's Comments
- III. Panel Presentations
- IV. Committee Q & A
- V. Public Comment
- VI. Adjournment

Dated: October 2, 2023.

David Mussatt,

Supervisory Chief, Regional Programs Unit.

[FR Doc. 2023–22266 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF COMMERCE

Foreign-Trade Zones Board

[S–155–2023]

Approval of Subzone Status; BlueOval SK LLC; Glendale, Kentucky

On August 18, 2023, the Executive Secretary of the Foreign-Trade Zones (FTZ) Board docketed an application submitted by the Louisville & Jefferson County Riverport authority, grantee of FTZ 29, requesting subzone status subject to the existing activation limit of FTZ 29, on behalf of BlueOval SK LLC, in Glendale, Kentucky.

The application was processed in accordance with the FTZ Act and Regulations, including notice in the **Federal Register** inviting public comment (88 FR 57412, August 23, 2023). The FTZ staff examiner reviewed the application and determined that it meets the criteria for approval. Pursuant to the authority delegated to the FTZ Board Executive Secretary (15 CFR 400.36(f)), the application to establish Subzone 29U was approved on October 3, 2023, subject to the FTZ Act and the Board's regulations, including section 400.13, and further subject to FTZ 29's 2,000-acre activation limit.

Dated: October 3, 2023.

Elizabeth Whiteman,

Executive Secretary.

[FR Doc. 2023–22306 Filed 10–5–23; 8:45 am]

BILLING CODE 3510–DS–P

DEPARTMENT OF COMMERCE

International Trade Administration

Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; Aluminum Import Licenses

AGENCY: International Trade Administration, Enforcement & Compliance, Commerce.

ACTION: Notice of information collection, request for comment.

SUMMARY: The Department of Commerce, in accordance with the Paperwork Reduction Act of 1995 (PRA), invites the general public and other Federal agencies to comment on proposed, and continuing information collections, which helps us assess the impact of our information collection requirements and minimize the public's reporting burden. The purpose of this notice is to allow for 60 days of public comment preceding submission of the collection to OMB.

DATES: To ensure consideration, comments regarding this proposed information collection must be received on or before December 5, 2023.

ADDRESSES: Interested persons are invited to submit written comments by mail to Julie Al-Saadawi, Director, Industrial Monitoring and Analysis Unit, International Trade Administration or by email to julie.al-saadawi@trade.gov. Please reference OMB Control Number 0625–0279 in the subject line of your comments. Do not submit Confidential Business Information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Requests for additional information or specific questions related to collection activities should be directed to Leo Kim, ITA Paperwork Reduction Act Officer, International Trade Administration; by telephone at (202) 989–5979, or by email to pra@trade.gov.

SUPPLEMENTARY INFORMATION:

I. Abstract

Under the Aluminum Import Monitoring and Analysis (AIM) system, importers, custom brokers, or their agents are required to obtain an import license for each entry of covered aluminum products. To obtain an import license, each applicant must identify, among other fields, the country or countries where the largest and second largest volume of primary aluminum used in the manufacture of the imported aluminum product was smelted and the country where the

aluminum product was most recently cast. On December 23, 2020, Commerce published the final rule adopting regulations establishing the AIM system in 19 CFR part 361 (85 FR 83804; December 23, 2020).

The import license information is necessary to assess import trends of aluminum products. In order to effectively monitor aluminum imports, Commerce must collect and provide timely aggregated summaries about the imports. The Aluminum Import License form is the tool used to collect the necessary information. The Census Bureau currently collects import data and disseminates aggregate information about aluminum imports. However, the time required to collect, process, and disseminate this information through Census can take up to 45 days after importation of the product, giving interested parties and the public far less time to respond to injurious sales.

II. Method of Collection

The license application can be submitted electronically via the Commerce website (<https://trade.gov/aluminum>) or completed electronically and emailed to the Department.

III. Data

OMB Control Number: 0625–0279.
Form Number(s): ITA–4142a (regular license); ITA–4142b (low-value license).
Type of Review: Regular submission.
Affected Public: Business or other for-profit organizations.
Estimated Number of Respondents: 4,000.
Estimated Time per Response: less than 10.5 minutes.
Estimated Total Annual Burden Hours: 35,633 minutes.
Estimated Total Annual Cost to Public: \$0.00.
Respondent's Obligation: Voluntary.
Legal Authority: 13 U.S.C. 301(a) and 302.

IV. Request for Comments

We are soliciting public comments to permit the Department/Bureau to: (a) Evaluate whether the proposed information collection is necessary for the proper functions of the Department, including whether the information will have practical utility; (b) Evaluate the accuracy of our estimate of the time and cost burden for this proposed collection, including the validity of the methodology and assumptions used; (c) Evaluate ways to enhance the quality, utility, and clarity of the information to be collected; and (d) Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of information technology.

Comments that you submit in response to this notice are a matter of public record. We will include or summarize each comment in our request to OMB to approve this ICR. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you may ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary for Economic Affairs, Commerce Department.

[FR Doc. 2023–22289 Filed 10–5–23; 8:45 am]

BILLING CODE 3510–DS–P

DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–088]

Certain Steel Racks and Parts Thereof From the People’s Republic of China: Preliminary Results and Partial Rescission of the Antidumping Duty Administrative Review, and Preliminary Determination of No Shipments; 2021–2022

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: The U.S. Department of Commerce (Commerce) preliminarily determines that certain steel racks and parts thereof (steel racks) from the People’s Republic of China (China) were sold in the United States at prices below normal value (NV) during the period of review (POR) September 1, 2021, through August 31, 2022. Further, we preliminarily determine that two companies had no shipments of subject merchandise during the POR, and two companies do not qualify for a separate rate. Additionally, we are rescinding this review with respect to the four companies for which all review requests were timely withdrawn. We invite interested parties to comment on the preliminary results of this review.

DATES: Applicable October 6, 2023.

FOR FURTHER INFORMATION CONTACT: Jonathan Hill or Elizabeth Bremer, AD/CVD Operations, Office IV, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone:

(202) 482–3518 and (202) 482–4987, respectively.

SUPPLEMENTARY INFORMATION:

Background

On September 1, 2022, Commerce published in the **Federal Register** a notice of opportunity to request an administrative review of the antidumping duty order on steel racks from China.¹ After receiving review requests, Commerce initiated this review with respect to 12 companies.² On May 25, 2023, Commerce extended the deadline for these preliminary results of review by 119 days, to September 29, 2023.³

For a complete description of the events that followed the initiation of this review, see the Preliminary Decision Memorandum.⁴ A list of topics discussed in the Preliminary Decision Memorandum is included as an appendix to this notice. The Preliminary Decision Memorandum is a public document and is on file electronically via Enforcement and Compliance’s Antidumping and Countervailing Duty Centralized Electronic Service System (ACCESS). ACCESS is available to registered users at <https://access.trade.gov>. In addition, a complete version of the Preliminary Decision Memorandum can be accessed directly at <https://access.trade.gov/public/FRNoticesListLayout.aspx>.

Scope of the Order

The merchandise covered by the *Order* is steel racks and parts thereof, assembled, to any extent, or unassembled, including but not limited to, vertical components (e.g., uprights, posts, or columns), horizontal or diagonal components (e.g., arms or beams), braces, frames, locking devices (e.g., end plates and beam connectors),

¹ See *Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity to Request Administrative Review and Join Annual Inquiry Service List*, 87 FR 53719 (September 1, 2022); and *Certain Steel Racks and Parts Thereof from the People’s Republic of China: Amended Final Affirmative Antidumping Duty Determination and Antidumping Duty Order; and Countervailing Duty Order*, 84 FR 48584 (September 16, 2019) (*Order*).

² See *Initiation of Antidumping and Countervailing Duty Administrative Reviews*, 87 FR 66275 (November 3, 2022); see also *Initiation of Antidumping and Countervailing Duty Administrative Reviews*, 88 FR 50 (January 3, 2023).

³ See Memorandum, “Extension of Deadline for Preliminary Results of Antidumping Duty Administrative Review,” dated May 25, 2023.

⁴ See Memorandum, “Decision Memorandum for the Preliminary Results of the Antidumping Duty Administrative Review of Certain Steel Racks and Parts Thereof from the People’s Republic of China: 2021–2022,” dated concurrently with, and hereby adopted by, this notice (Preliminary Decision Memorandum).

and accessories (including, but not limited to, rails, skid channels, skid rails, drum/coil beds, fork clearance bars, pallet supports, row spacers, and wall ties).

Merchandise covered by the *Order* is classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheadings 7326.90.8688, 9403.20.0081, 9403.90.8041, and 9403.99.9041.⁵ Subject merchandise may also be classified under subheadings 7308.90.3000, 7308.90.6000, 7308.90.9590, and 9403.20.0090. The HTSUS subheadings are provided for convenience and U.S. customs purposes only. The written description of the scope is dispositive.

A full description of the scope of the *Order* is contained in the Preliminary Decision Memorandum.

Preliminary Determination of No Shipments

On December 5 and 12, 2022, Hebei Minmetals Co., Ltd. (Hebei Minmetals) and Xiamen Luckyroc Industry Co., Ltd. (Luckyroc), respectively, timely filed certifications that they did not export or sell subject merchandise during the POR and that there were no suspended entries of their subject merchandise into the United States during the POR. On August 9, 2023, we requested that CBP identify any POR entries of subject merchandise from Hebei Minmetals or Luckyroc.⁶ Based on an analysis of information from CBP, and each company’s certification, we preliminarily determine that Hebei Minmetals and Luckyroc had no shipments of subject merchandise during the POR.⁷

Consistent with Commerce’s practice, we are not rescinding this administrative review with respect to Hebei Minmetals and Luckyroc but intend to complete the review of these companies and issue appropriate

⁵ On February 9, 2022, Commerce received a request from U.S. Customs and Border Protection (CBP) to update the ACE Case Reference File (CRF) for certain steel racks and parts thereof from the People’s Republic of China. Specifically, CBP requested that Commerce add a certain HTSUS subheading to case numbers A–570–088 and C–570–089 to reflect the 2022 updates to the HTSUS. On May 4, 2022, Commerce added the HTSUS subheading 9403.99.9041 to the CRF for case A–570–088. See Memorandum, “Request from Customs and Border Protection to Update the ACE AD/CVD Case Reference File: Certain Steel Racks and Parts Thereof from the People’s Republic of China (A–570–088, C–570–089),” dated May 4, 2022.

⁶ See Memorandum, “Information from U.S. Customs and Border Protection Regarding No Shipment Claims,” dated concurrently with this notice.

⁷ See Preliminary Decision Memorandum.

assessment instructions to CBP based on the final results of the review.⁸

Partial Rescission of the Administrative Review

Pursuant to 19 CFR 351.213(d)(1), Commerce will rescind an administrative review, in whole or in part, if all parties who requested a review withdraw their requests within 90 days of the date that the notice of initiation of the requested review was published in the **Federal Register**. All requests to review the following companies were timely withdrawn: (1) Guangdong Wireking Housewares and Hardware Co., Ltd.;⁹ (2) Suzhou (China) Sunshine Hardware & Equipment Imp. & Exp. Co. Ltd.;¹⁰ (3) Jiangsu Starshine Industry Equipment Co., Ltd. (Starshine);¹¹ and (4) Suntop (Xiamen) Display System Inc.¹² Therefore, consistent with 19 CFR 351.213(d)(1), Commerce is rescinding this review, in part, with respect to these companies.

Preliminary Affiliation and Single Entity Determination

Based on record evidence in this review, Commerce preliminarily determines that the following companies are affiliated, pursuant to section 771(33)(F) of the Tariff Act of 1930, as amended (the Act), and that they should be treated as a single collapsed entity (*i.e.*, Xinguang Rack), pursuant to 19 CFR 351.401(f)(1)–(2): (1) Ningbo Xinguang Rack Co., Ltd.; (2) Ningbo Jiabo Rack Co., Ltd.; and (3) Ningbo Lede Hardware Co., Ltd. For additional information, *see* the Preliminary Decision Memorandum.

Methodology

Commerce is conducting this review in accordance with section 751(a)(1)(B) of the Act. We calculated export and constructed export prices in accordance with section 772 of the Act. Further, because China is a non-market economy (NME) country within the meaning of section 771(18) of the Act, we calculated NV in accordance with section 773(c) of

the Act. For a full description of the methodology underlying our preliminary results, *see* the Preliminary Decision Memorandum.

Separate Rates

In all proceedings involving an NME country, Commerce maintains a rebuttable presumption that all companies are subject to government control and, thus, should be assessed a single weighted-average dumping margin unless the company can affirmatively demonstrate an absence of government control, both in law (*de jure*) and in fact (*de facto*), with respect to its exports (*i.e.*, can affirmatively demonstrate that it is eligible for a separate rate).¹³ Commerce has preliminarily determined that information placed on the record by Jiangsu JISE Intelligent Storage Equipment Co., Ltd. (Jiangsu Storage), Jiangsu Nova Intelligent Logistics Equipment Co., Ltd. (Jiangsu Nova), Nanjing Kingmore Logistics Equipment Manufacturing Co., Ltd. (Kingmore), and Xinguang Rack demonstrates that these companies are eligible for separate rate status.¹⁴

However, Commerce has preliminarily determined that Nanjing Dongsheng Shelf Manufacturing Co., Ltd. and Nanjing Ironstone Storage Equipment Co., Ltd. have not demonstrated their eligibility for a separate rate because each company did not file a timely separate rate application or separate rate certification with Commerce. Therefore, we have preliminarily treated these companies as part of the China-wide entity.

Because no party requested a review of the China-wide entity, the China-wide entity is not under review. Accordingly, the weighted-average dumping margin determined for the China-wide entity (*i.e.*, 144.50 percent)¹⁵ is not subject to change in this review. For additional information, *see* the Preliminary Decision Memorandum.

Weighted-Average Dumping Margin for the Non-Examined Companies Granted a Separate Rate

The statute and Commerce's regulations do not address what weighted-average dumping margin to apply to companies not selected for individual examination when Commerce limits its examination in an administrative review pursuant to section 777A(c)(2) of the Act. Generally, Commerce looks to section 735(c)(5) of the Act for guidance regarding establishing a weighted-average dumping margin for respondents which were not individually examined in an administrative review.

Section 735(c)(5)(A) of the Act provides that Commerce will base the all-others rate in an investigation on the weighted average of the estimated weighted-average dumping margins calculated for the individually examined respondents, excluding rates that are zero, *de minimis*, or based entirely on facts available. Where the weighted-average dumping margin for each of the individually examined companies is zero, *de minimis*, or based entirely on facts available, section 735(c)(5)(B) of the Act provides that Commerce may use "any reasonable method" to establish the estimated all-others rate.

Because the preliminary weighted-average dumping margins calculated for the individually examined companies (Jiangsu Nova and Xinguang Rack) in this administrative review are not zero, *de minimis*, or based entirely on facts available, we have preliminarily assigned Jiangsu Storage and Kingmore—which have been found to be eligible for a separate rate, but were not selected for individual examination—a weighted-average dumping margin equal to the average, weighted by the publicly ranged total sales quantities, of the weighted-average dumping margins calculated for Jiangsu Nova and Xinguang Rack, consistent with the guidance in section 735(c)(5)(B) of the Act.¹⁶

Preliminary Results of Review

We are assigning the following weighted-average dumping margins to the companies listed below for the period September 1, 2021, through August 31, 2022:

¹⁶ *See* Memorandum, "Calculation of the Weighted-Average Dumping Margin for Respondents Not Selected for Individual Examination," dated concurrently with this notice.

⁸ *See Non-Market Economy Antidumping Proceedings: Assessment of Antidumping Duties*, 76 FR 65694 (October 24, 2011); *see also* the "Assessment Rates" section, *infra*.

⁹ *See* Coalition for Fair Rack Imports' Letter, "Partial Withdrawal of Request for Administrative Review," dated December 19, 2022.

¹⁰ *Id.*

¹¹ *See* Starshine's Letter, "Request for Review," dated January 5, 2023.

¹² *See* Aladdin Manufacturing Corporation and Mohawk Home's Letter, "Withdrawal of Request for Administrative Review (Administrative Review 9/1/2021–8/31/2022)," dated February 1, 2023.

¹³ *See Notice of Final Determination of Sales at Less Than Fair Value, and Affirmative Critical Circumstances, In Part: Certain Lined Paper Products from the People's Republic of China*, 71 FR 53079, 53082 (September 8, 2006); *see also Final Determination of Sales at Less Than Fair Value and Final Partial Affirmative Determination of Critical Circumstances: Diamond Sawblades and Parts Thereof from the People's Republic of China*, 71 FR 29303, 29307 (May 22, 2006).

¹⁴ *See* Preliminary Decision Memorandum.

¹⁵ *See Order*, 84 FR at 48586.

Exporter	Weighted-average dumping margin (percent)
Jiangsu Nova Intelligent Logistics Equipment Co., Ltd	50.31
Ningbo Xinguang Rack Co., Ltd./Ningbo Jiabo Rack Co., Ltd./Ningbo Lede Hardware Co., Ltd	27.59
Review-Specific Rate Applicable to the Following Non-Examined Companies	
Jiangsu JISE Intelligent Storage Equipment Co., Ltd	48.41
Nanjing Kingmore Logistics Equipment Manufacturing Co., Ltd	48.41

Disclosure and Public Comment

Commerce intends to disclose to parties to the proceeding the calculations performed for these preliminary results of review under administrative protective order within five days of the date of publication of this notice in the **Federal Register**.¹⁷

Interested parties may submit case briefs to Commerce no later than 30 days after the date of publication of these preliminary results of review in the **Federal Register**.¹⁸ Rebuttal briefs may be filed with Commerce no later than seven days after case briefs are due and may respond only to arguments raised in the case briefs.¹⁹ A table of contents, list of authorities used, and an executive summary of issues should accompany any briefs submitted to Commerce. The summary should be limited to five pages total, including footnotes.²⁰

Pursuant to 19 CFR 351.310(c), interested parties who wish to request a hearing, limited to issues raised in the case and rebuttal briefs, must submit a written request to the Assistant Secretary for Enforcement and Compliance, U.S. Department of Commerce, within 30 days after the date of publication of this notice in the **Federal Register**. Requests for a hearing should contain: (1) the requesting party's name, address, and telephone number; (2) the number of individuals associated with the requesting party that will attend the hearing and whether any of those individuals is a foreign national; and (3) a list of the issues the party intends to discuss at the hearing. Oral arguments at the hearing will be limited to issues raised in the case and rebuttal briefs. If a request for a hearing is made, Commerce will announce the date and time of the hearing. Parties should confirm the date and time of the hearing two days before the scheduled hearing date.

All submissions to Commerce, with limited exceptions, must be filed electronically using ACCESS. An

electronically filed document must be received successfully in its entirety by Commerce's electronic records system, ACCESS, by 5:00 p.m. Eastern Time on the due date.²¹ Note that Commerce has temporarily modified certain of its requirements for serving documents containing business proprietary information, until further notice.²²

Final Results of Review

Unless otherwise extended, Commerce intends to issue the final results of this administrative review, which will include the results of its analysis of issues raised in any briefs, within 120 days of publication of these preliminary results of review in the **Federal Register**, pursuant to section 751(a)(3)(A) of the Act.

Assessment Rates

In accordance with section 751(a)(2)(C) of the Act, the assessment of antidumping duties on entries of merchandise covered by the review shall be based on the final results of this review. Therefore, upon issuance of the final results of review, Commerce will determine, and CBP shall assess, antidumping duties on all appropriate entries of subject merchandise covered by this review.²³

Commerce intends to issue assessment instructions to CBP no earlier than 35 days after the date of publication of the final results of this review in the **Federal Register**. If a timely summons is filed at the U.S. Court of International Trade, the assessment instructions will direct CBP not to liquidate relevant entries until the time for parties to file a request for a statutory injunction has expired (*i.e.*, within 90 days of publication).

We will calculate importer or customer-specific assessment rates for the individually examined respondents,

in accordance with 19 CFR 351.212(b)(1).²⁴ Where the respondent reported reliable entered values, we will calculate importer or customer-specific *ad valorem* assessment rates by dividing the total amount of dumping calculated in the final results of this review for all reviewed U.S. sales to the importer/customer by the total entered value of the merchandise sold to the importer/customer.²⁵ Where the respondent did not report entered values, we will calculate importer or customer-specific per-unit assessment rates by dividing the total amount of dumping calculated in the final results of this review for all reviewed U.S. sales to the importer/customer by the total quantity of those sales. While we will calculate estimated *ad valorem* importer or customer-specific assessment rates to determine whether the per-unit assessment rates are *de minimis*, we will use the per-unit assessment rates where entered values were not reported.²⁶ Where either the respondent's *ad valorem* weighted-average dumping margin is zero or *de minimis*, or an importer or customer-specific *ad valorem* assessment rate is zero or *de minimis*,²⁷ we will instruct CBP to liquidate the appropriate entries without regard to antidumping duties.

The assessment rate for a company not individually examined that qualifies for a separate rate will be equal to the weighted-average dumping margin determined for the company in the final results of this review.²⁸ If that rate is zero or *de minimis*, we will instruct CBP

²⁴ We applied the assessment rate calculation method adopted in *Antidumping Proceedings: Calculation of the Weighted-Average Dumping Margin and Assessment Rate in Certain Antidumping Proceedings: Final Modification*, 77 FR 8101 (February 14, 2012).

²⁵ See 19 CFR 351.212(b)(1).

²⁶ *Id.*

²⁷ See 19 CFR 351.106(c)(2).

²⁸ See *Drawn Stainless Steel Sinks from the People's Republic of China: Preliminary Results of the Antidumping Duty Administrative Review and Preliminary Determination of No Shipments*; 2014–2015, 81 FR 29528 (May 12, 2016), and accompanying Preliminary Decision Memorandum at 10–11, unchanged in *Drawn Stainless Steel Sinks from the People's Republic of China: Final Results of Antidumping Duty Administrative Review; Final Determination of No Shipments*; 2014–2015, 81 FR 54042 (August 15, 2016).

¹⁷ See 19 CFR 351.224(b).

¹⁸ See 19 CFR 351.309(c)(1)(ii).

¹⁹ See 19 CFR 351.309(d).

²⁰ See 19 CFR 351.309(c)(2) and (d)(2).

²¹ See 19 CFR 351.303 (for general filing requirements); see also *Antidumping and Countervailing Duty Proceedings: Electronic Filing Procedures: Administrative Protective Order Procedures*, 76 FR 39263 (July 6, 2011).

²² See *Temporary Rule Modifying AD/CVD Service Requirements Due to COVID-19; Extension of Effective Period*, 85 FR 41363 (July 10, 2020).

²³ See 19 CFR 351.212(b)(1).

to liquidate the appropriate entries without regard to antidumping duties.

The assessment rate for companies that are not eligible for a separate rate, which are therefore considered to be part of the China-wide entity, will be equal to the weighted-average dumping margin for the China-wide entity, *i.e.*, 144.50 percent.²⁹

Pursuant to a refinement to Commerce's assessment practice, where sales of subject merchandise exported by an individually examined respondent were not reported in the U.S. sales data submitted by the respondent, but the merchandise was entered into the United States during the POR, we will instruct CBP to liquidate any entries of such merchandise at the antidumping duty assessment rate for the China-wide entity.³⁰ Additionally, where Commerce determines that an exporter under review had no shipments of subject merchandise during the POR, any suspended entries of subject merchandise that entered under that exporter's CBP case number during the POR will be liquidated at the antidumping duty assessment rate for the China-wide entity.

Cash Deposit Requirements

The following cash deposit requirements will be in effect for all shipments of subject merchandise entered, or withdrawn from warehouse, for consumption on, or after, the date of publication of the notice of the final results of this administrative review in the **Federal Register**, as provided for by section 751(a)(2)(C) of the Act: (1) for an exporter granted a separate rate in the final results of this review, the cash deposit rate will be equal to the weighted-average dumping margin established in the final results of this review for the company (except, if the rate is *de minimis*, then a cash deposit rate of zero will be required); (2) for a previously investigated or reviewed exporter of subject merchandise not listed in the final results of review that has a separate rate, the cash deposit rate will continue to be the exporter's existing cash deposit rate; (3) for all China exporters of subject merchandise that do not have a separate rate, the cash deposit rate will be equal to the weighted-average dumping margin assigned to the China-wide entity, which is 144.50 percent; and (4) for a non-China exporter of subject merchandise that does not have a

separate rate, the cash deposit rate will be equal to the weighted-average dumping margin applicable to the China exporter(s) that supplied that non-China exporter.

These cash deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Importers

This notice also serves as a preliminary reminder to importers of their responsibility under 19 CFR 351.402(f) to file a certificate regarding the reimbursement of antidumping and/or countervailing duties prior to liquidation of the relevant entries during the POR. Failure to comply with this requirement could result in Commerce's presumption that reimbursement of antidumping and/or countervailing duties occurred and the subsequent assessment of double antidumping duties, and/or an increase in the amount of antidumping duties by the amount of the countervailing duties.

Notification to Interested Parties

We are issuing and publishing these preliminary results of review in accordance with sections 751(a)(1) and 777(i)(1) of the Act, and 19 CFR 351.213 and 351.221(b)(4).

Dated: September 29, 2023.

Lisa W. Wang,

Assistant Secretary for Enforcement and Compliance.

Appendix

List of Topics in the Preliminary Decision Memorandum

- I. Summary
- II. Background
- III. Period of Review
- IV. Scope of the Order
- V. Affiliation and Single Entity Treatment
- VI. Preliminary Determination of No Shipments
- VII. Selection of Respondents
- VIII. Discussion of Methodology
- IX. Currency Conversion
- X. Recommendation

[FR Doc. 2023-22238 Filed 10-5-23; 8:45 am]

BILLING CODE 3510-DS-P

DEPARTMENT OF COMMERCE

International Trade Administration

United States Investment Advisory Council

AGENCY: SelectUSA, International Trade Administration, Department of Commerce.

ACTION: Notice of an open meeting.

SUMMARY: In accordance with the Federal Advisory Committee Act

(FACA), this notice announces, the United States Investment Advisory Council (IAC) will hold a public meeting on Thursday, October 26, 2023 at the U.S. Department of Commerce in Washington, DC. In August 2022, U.S. Secretary of Commerce Gina M. Raimondo appointed a new cohort of members to serve two-year terms. Members of this cohort will meet for the fourth time to continue to discuss matters related to foreign direct investment (FDI) in the United States and the programs and policies to promote and retain such investments across the country.

DATES: Thursday, October 26, 2023, 2:00 p.m.–3:30 p.m. ET.

ADDRESSES: The meeting will be held in person only at the U.S. Department of Commerce in Washington, DC. Please note that registration is required both to attend the meeting and to make a statement during the public comment portion of the meeting. The meeting has a limited number of spaces for members of the public to attend in-person, and requests to attend will be considered on a first-come first-served basis. Please limit comments to five minutes or less and submit a brief statement summarizing your comments to: *IAC@trade.gov* or United States Investment Advisory Council, U.S. Department of Commerce, 1401 Constitution Avenue NW, Room 30011, Washington, DC 20230. The deadline for members of the public to register, including requests to make comments during the meeting, or to submit written comments for dissemination prior to the meeting is 5:00 p.m. ET on October 19, 2023. Members of the public are encouraged to submit registration requests and written comments via email to ensure timely receipt.

FOR FURTHER INFORMATION CONTACT: Rachel David, United States Investment Advisory Council, Room 30011, 1401 Constitution Avenue NW, Washington, DC 20230, email: *IAC@trade.gov*; phone: 202-302-6858.

SUPPLEMENTARY INFORMATION: The IAC was established under the discretionary authority of the Secretary of Commerce (Secretary) and in accordance with the Federal Advisory Committee Act (5 U.S.C. app.)

At the meeting, the IAC members will discuss work done within the three working groups:

Economic Competitiveness, Workforce, and SelectUSA 2.0. The final agenda will be posted on the Department of Commerce website for the IAC at: <https://www.trade.gov/selectusa-investment-advisory-council>, prior to the meeting.

²⁹ See *Order*, 84 FR at 48586.

³⁰ See *Non-Market Economy Antidumping Proceedings: Assessment of Antidumping Duties*, 76 FR 65694 (October 24, 2011), for a full discussion of this practice.

Public Participation: The meeting will be open to the public on a first-come first-served basis and will be accessible to people with disabilities. All guests are required to register in advance by the deadline identified under the **ADDRESSES** caption. Requests for auxiliary aids must be submitted by the registration deadline. Last minute requests will be accepted but may be impossible to fill. There will be fifteen (15) minutes allotted for oral comments from members of the public joining the meeting. To accommodate as many speakers as possible, the time for public comments may be limited to three (3) minutes per person. Individuals wishing to reserve speaking time during the meeting must submit a request at the time of registration, as well as the name and address of the proposed speaker and a brief statement summarizing the comments. If the number of registrants requesting to make statements is greater than can be reasonably accommodated during the meeting, the International Trade Administration may conduct a lottery to determine the speakers.

Speakers are requested to submit a written copy of their prepared remarks by 5:00 p.m. ET on October 19, 2023, for inclusion in the meeting records and for circulation to the Members of the IAC.

In addition, any member of the public may submit pertinent written comments concerning the IAC's affairs at any time before or after the meeting. Comments may be submitted to Claire Pillsbury at the contact information indicated above. To be considered during the meeting, comments must be received no later than 5:00 p.m. ET on October 19, 2023, to ensure transmission to the IAC members prior to the meeting. Comments received after that date and time will be distributed to the members but may not be considered during the meeting. Comments and statements will be posted on the IAC website (<https://www.trade.gov/selectusa-investment-advisory-council>) without change, including any business or personal information provided such as it includes names, addresses, email addresses, or telephone numbers. All comments and statements received, including attachments and other supporting materials, are part of the public record and subject to public disclosure. You should submit only information that you wish to make publicly available.

Copies of the meeting minutes will be available within 90 days of the meeting date.

Elizabeth Husain,
Acting Executive Director, *SelectUSA*.
[FR Doc. 2023-22260 Filed 10-5-23; 8:45 am]
BILLING CODE 3510-DR-P

DEPARTMENT OF COMMERCE

International Trade Administration

[A-469-822]

Methionine From Spain: Preliminary Results of Antidumping Duty Administrative Review; 2021-2022

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: The U.S. Department of Commerce (Commerce) preliminarily finds that Adisseo España S.A. (Adisseo España) made sales of methionine from Spain at less than normal value (NV) during the period of review (POR) March 4, 2021, through August 31, 2022. We invite interested parties to comment on these preliminary results.

DATES: Applicable October 6, 2023.

FOR FURTHER INFORMATION CONTACT: Elizabeth Bremer, AD/CVD Operations, Office IV, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone: (202) 482-4987.

SUPPLEMENTARY INFORMATION:

Background

On September 1, 2022, Commerce published in the **Federal Register** a notice of opportunity ¹ to request an administrative review of the antidumping duty (AD) order on methionine from Spain.² On November 3, 2022, based on a timely request for an administrative review,³ Commerce initiated an administrative review with respect to Adisseo España.⁴

On May 22, 2023, in accordance with section 751(a)(3)(A) of the Tariff Act of

¹ See *Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity To Request Administrative Review and Join Annual Inquiry Service List*, 87 FR 53719, 53720 (September 1, 2022).

² See *Methionine from Japan and Spain: Antidumping Duty Orders*, 86 FR 51119 (September 14, 2021) (*Order*).

³ See Adisseo España's Letter, "Adisseo España S.A. and Adisseo USA Inc.'s Request for Administrative Review," dated September 30, 2022.

⁴ See *Initiation of Antidumping and Countervailing Duty Administrative Reviews*, 87 FR 66275, 66278 (November 3, 2022), and amended by *Initiation of Antidumping and Countervailing Duty Administrative Reviews*, 88 FR 50, 53 n.5 (January 3, 2023).

1930, as amended (the Act), and 19 CFR 351.213(h)(2), Commerce extended the deadline for completing these preliminary results to September 29, 2023.⁵ For a complete description of the events that followed the initiation of this review, see the Preliminary Decision Memorandum.⁶

A list of the topics included in the Preliminary Decision Memorandum is included as the appendix to this notice. The Preliminary Decision Memorandum is a public document and is on file electronically via Enforcement and Compliance's Antidumping and Countervailing Duty Centralized Electronic Service System (ACCESS). ACCESS is available to registered users at <https://access.trade.gov>. In addition, a complete version of the Preliminary Decision Memorandum can be accessed directly at <https://access.trade.gov/public/FRNoticesListLayout.aspx>.

Scope of the Order

The merchandise covered by the scope of the *Order* is methionine from Spain. A complete description of the scope of the *Order* is contained in the Preliminary Decision Memorandum.⁷

Methodology

Commerce is conducting this review in accordance with section 751(a) of the Act. Constructed export price is calculated in accordance with section 772 of the Act and NV is calculated in accordance with section 773 of the Act. For a full description of the methodology underlying these preliminary results, see the Preliminary Decision Memorandum.

Preliminary Results of Review

Commerce preliminarily determines that the following weighted-average dumping margin exists for the period March 4, 2021, through August 31, 2022:

Producer or exporter	Weighted-average dumping margin (percent)
Adisseo España S.A	35.59

⁵ See Memorandum, "Methionine from Spain: Extension of Deadline for the Preliminary Results of the 2021-2022 Antidumping Duty Administrative Review," dated May 22, 2023.

⁶ See Memorandum, "Decision Memorandum for the Preliminary Results of the Antidumping Duty Administrative Review; 2021-2022: Methionine from Spain," dated concurrently with, and hereby adopted by, this notice (Preliminary Decision Memorandum).

⁷ *Id.*

Verification

As provided in section 782(i)(3) of the Act, Commerce intends to verify certain information reported by Adisseo España prior to issuing its final results.

Disclosure and Public Comment

Commerce will disclose calculations performed in connection with these preliminary results to interested parties within five days of the date of publication of this notice, in accordance with 19 CFR 351.224(b).

Interested parties may submit case briefs or other written comments no later than seven days after the date on which the last verification report is issued in this administrative review.⁸ Rebuttal briefs, limited to issues raised in the case briefs, may be filed no later than seven days after the date for filing case briefs.⁹ Parties who submit case or rebuttal briefs in this proceeding are encouraged to submit with each argument: (1) a statement of the issue; (2) a brief summary of the argument; and (3) a table of authorities.

Pursuant to 19 CFR 351.310(c), interested parties who wish to request a hearing, or to participate if one is requested, must submit a written request to the Assistant Secretary for Enforcement and Compliance, within 30 days of the date of publication of this notice. Requests should contain: (1) the party's name, address, and telephone number; (2) the number of participants; and (3) a list of issues to be discussed. Issues raised in the hearing will be limited to those raised in the respective case and rebuttal briefs. An electronically-filed hearing request must be received successfully in its entirety via ACCESS by 5:00 p.m. Eastern Time on the established deadline. If a request for a hearing is made, Commerce intends to hold the hearing at a date and time to be determined.¹⁰ Parties should confirm the date, time, and location of the hearing two days before the scheduled date.

All submissions should be filed using ACCESS¹¹ and must be served on interested parties.¹² Note that Commerce has temporarily modified certain of its requirements for serving documents containing business proprietary information, until further notice.¹³

⁸ See 19 CFR 351.309(c)(1)(ii).

⁹ See 19 CFR 351.309(d); see also *Temporary Rule Modifying AD/CVD Service Requirements Due to COVID-19; Extension of Effective Period*, 85 FR 41363 (July 10, 2020) (*Temporary Rule*).

¹⁰ See 19 CFR 351.310(d).

¹¹ See 19 CFR 351.309(c)(2) and (d)(2); see also 19 CFR 351.303 (for general filing requirements).

¹² See 19 CFR 351.303(f).

¹³ See *Temporary Rule*.

Final Results of Review

Commerce intends to issue the final results of this administrative review, which will include the results of our analysis of all issues raised in the case and rebuttal briefs, within 120 days of publication of these preliminary results in the **Federal Register**, pursuant to section 751(a)(3)(A) of the Act, unless extended.

Assessment Rates

Upon issuing the final results of this review, Commerce shall determine, and U.S. Customs and Border Protection (CBP) shall assess, antidumping duties on all appropriate entries covered by this review.¹⁴ If the weighted-average dumping margin for Adisseo España is not zero or *de minimis* (*i.e.*, less than 0.5 percent) in the final results of this review, we will calculate importer-specific *ad valorem* assessment rates for the merchandise based on the ratio of the total amount of dumping calculated for the examined sales made during the POR to each importer and the total entered value of those same sales, in accordance with 19 CFR 351.212(b)(1). Where either the respondent's weighted-average dumping margin or an importer-specific rate is zero or *de minimis* within the meaning of 19 CFR 351.106(c)(1), we will instruct CBP to liquidate the appropriate entries without regard to antidumping duties.¹⁵

In accordance with Commerce's "automatic assessment" practice, for entries of subject merchandise during the POR produced by Adisseo España for which the producer did not know its merchandise was destined for the United States, we will instruct CBP to liquidate those entries at the all-others rate, *i.e.*, 37.53 percent determined in the less-than-fair-value (LTFV) investigation,¹⁶ if there is no rate for the intermediate company (or companies) involved in the transaction.¹⁷

Commerce intends to issue assessment instructions to CBP no earlier than 35 days after the date of publication of the final results of this review in the **Federal Register**. If a timely summons is filed at the U.S. Court of International Trade, the assessment instructions will direct CBP not to liquidate relevant entries until the time for parties to file a request for a statutory injunction has expired (*i.e.*, within 90 days of publication).

¹⁴ See 19 CFR 351.212(b)(1).

¹⁵ See 19 CFR 351.106(c)(2).

¹⁶ See *Order*, 86 FR at 51120.

¹⁷ See *Antidumping and Countervailing Duty Proceedings: Assessment of Antidumping Duties*, 68 FR 23954 (May 6, 2003).

Cash Deposit Requirements

The following cash deposit requirements will be effective upon publication of the final results of this administrative review for all shipments of the subject merchandise entered, or withdrawn from warehouse, for consumption on or after the publication date of the final results of this administrative review, as provided by section 751(a)(2)(C) of the Act: (1) the cash deposit rate for Adisseo España will be equal to the weighted-average dumping margin established in the final results of this administrative review, except if the rate is less than 0.50 percent and, therefore, *de minimis* within the meaning of 19 CFR 351.106(c)(1), in which case the cash deposit rate will be zero; (2) for previously reviewed or investigated companies not listed above, the cash deposit rate will continue to be the company-specific rate published for the most recently completed segment of this proceeding in which the company participated; (3) if the exporter is not a firm covered in this review, a prior review, or in the LTFV investigation but the producer is, the cash deposit rate will be the rate established for the most recently completed segment of this proceeding for the producer of the merchandise; and (4) the cash deposit rate for all other producers or exporters will continue to be the all-others rate of 37.53 percent, established in the LTFV investigation of this proceeding.¹⁸

These cash deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Importers

This notice also serves as a preliminary reminder to importers of their responsibility under 19 CFR 351.402(f)(2) to file a certificate regarding the reimbursement of antidumping duties prior to liquidation of the relevant entries during this POR. Failure to comply with this requirement could result in Commerce's presumption that reimbursement of antidumping duties occurred and the subsequent assessment of double antidumping duties.

Notification to Interested Parties

We are issuing and publishing these preliminary results in accordance with sections 751(a)(1) and 777(i) of the Act, and 19 CFR 351.213(h)(2) and 351.221(b)(4).

¹⁸ See *Order*, 86 FR at 51120.

Dated: September 29, 2023.

Lisa. W. Wang,

Assistant Secretary for Enforcement and Compliance.

Appendix

List of Topics Discussed in the Preliminary Decision Memorandum

- I. Summary
- II. Background
- III. Scope of the *Order*
- IV. Discussion of the Methodology
- V. Currency Conversion
- VI. Recommendation

[FR Doc. 2023–22237 Filed 10–5–23; 8:45 am]

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DEPARTMENT OF COMMERCE

International Trade Administration

[A–570–890]

Wooden Bedroom Furniture From the People's Republic of China: Preliminary Results of Antidumping Duty Administrative Review; and Rescission, in Part; 2022

AGENCY: Enforcement and Compliance, International Trade Administration, Department of Commerce.

SUMMARY: In response to requests from interested parties, the U.S. Department of Commerce (Commerce) is conducting an administrative review of the antidumping duty order on wooden bedroom furniture (WBF) from the People's Republic of China (China) covering the period of review (POR) January 1, 2022, through December 31, 2022. Commerce has preliminarily determined that the sole mandatory respondent under review, VidaXL Ningbo Industry Co., Ltd. (aka vidaXL Ningbo Industry Co., Ltd.) (VidaXL), is not eligible for a separate rate and is part of the China-wide entity. Commerce is also rescinding this review with respect to all companies under review, except VidaXL, because all requests to review these companies have been timely withdrawn. We invite interested parties to comment on these preliminary results of review.

DATES: Applicable October 6, 2023.

FOR FURTHER INFORMATION CONTACT: Krisha Hill, AD/CVD Operations, Office IV, Enforcement and Compliance, International Trade Administration, U.S. Department of Commerce, 1401 Constitution Avenue NW, Washington, DC 20230; telephone: (202) 482–4037.

SUPPLEMENTARY INFORMATION:

Background

On January 3, 2023, Commerce published in the **Federal Register** a notice of opportunity to request an

administrative review of the antidumping duty order on WBF from China.¹ After receiving review requests,² Commerce initiated this review.³ With the exception of VidaXL, which requested a review of itself, all other parties timely withdrew their review requests in their entirety.⁴ On July 25, 2023, we issued the initial questionnaire to VidaXL.⁵ On August 25, 2023, VidaXL explained that it “has determined it cannot adequately provide {Commerce} with the information it has requested under the deadlines imposed by {Commerce}.”⁶

Scope of the Order⁷

The product covered by the *Order* is WBF, subject to certain exceptions. Imports of subject merchandise are classified under the Harmonized Tariff Schedule of the United States (HTSUS) subheadings: 9403.50.9041, 9403.50.9042, 9403.50.9045, 9403.50.9080, 9403.91.0005, 9403.91.0010, 9403.91.0080, 7009.92.1090 or 7009.92.5095. Although the HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of the *Order* is dispositive.

¹ See *Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity To Request Administrative Review and Join Annual Inquiry Service List*, 88 FR 45 (January 3, 2023), corrected by *Antidumping or Countervailing Duty Order, Finding, or Suspended Investigation; Opportunity To Request Administrative Review and Join Annual Inquiry Service List*, 88 FR 10292 (February 17, 2023); see also *Notice of Amended Final Determination of Sales at Less Than Fair Value and Antidumping Duty Order: Wooden Bedroom Furniture from the People's Republic of China*, 70 FR 329 (January 4, 2005) (*Order*).

² See American Furniture Manufacturers Committee for Legal Trade and Vaughan-Bassett Furniture Company, Inc.'s (the petitioners) Letter, “Request For Initiation Of Administrative Review,” dated January 31, 2023; see also VidaXL's Letter, “VidaXL Ningbo's Request for Administrative Review,” dated January 31, 2023; and Guangzhou Maria Yee Furnishings Ltd., Pyla HK Limited, and Maria Yee, Inc.'s (collectively, Maria Yee) Letter, “Maria Yee's Request for Administrative Review and Request for Voluntary Respondent Treatment,” dated January 27, 2023.

³ See *Initiation of Antidumping and Countervailing Duty Administrative Reviews*, 88 FR 15642 (March 14, 2023) (*Initiation Notice*).

⁴ See Maria Yee's, Letter, “Maria Yee's Withdrawal of Request for Review,” dated May 30, 2023; see also Petitioners' Letter, “Withdrawal Of Request For Administrative Review,” dated May 26, 2023.

⁵ See Commerce's Letter, “Request for Information,” dated July 25, 2023 (Initial Questionnaire).

⁶ See VidaXL's Letter, “Response to the Department's July 25, 2023 Questionnaire,” dated August 25, 2023.

⁷ For a complete description of the scope of the *Order*, see *Wooden Bedroom Furniture from the People's Republic of China: Final Results of Antidumping Duty Administrative Review; and Final Determination of No Shipments; 2021*, 88 FR 8405 (February 9, 2023).

Methodology

Commerce is conducting this review in accordance with section 751(a)(1)(B) of the Tariff Act of 1930, as amended (the Act), and 19 CFR 351.213.

Separate Rate

In the *Initiation Notice*, we informed parties that all firms for which a non-market economy review was initiated that wished to qualify for separate rate status must complete, as appropriate, either a separate rate application or a separate rate certification.⁸ We also informed parties that firms that submitted a separate rate application or a separate rate certification that are subsequently selected as mandatory respondents, would not be eligible for separate rate status unless they responded to all parts of the initial questionnaire that Commerce issued to them as mandatory respondents.⁹ After VidaXL submitted a separate rate application, Commerce selected VidaXL as the sole mandatory respondent in this review. As noted above, VidaXL failed to respond to Commerce's initial questionnaire. Consistent with Commerce's practice in such situations, as described in the *Initiation Notice*, and because VidaXL ceased responding to Commerce's requests for information, Commerce has preliminarily determined that VidaXL did not establish its eligibility for separate rate status, and is part of the China-wide entity.

Commerce's policy regarding conditional review of the China-wide entity applies to this administrative review.¹⁰ Under this policy, the China-wide entity will not be under review unless a party specifically requests, or Commerce self-initiates, a review of the entity. Because no party requested a review of the China-wide entity, and Commerce has not self-initiated a review of the entity, the entity is not under review and the weighted-average dumping margin assigned to the China-wide entity is not subject to change as a result of this administrative review.

Partial Rescission of Administrative Review

Pursuant to 19 CFR 351.213(d)(1), Commerce will rescind an administrative review, in whole or in part, if a party that requested a review, withdraws its request within 90 days of the date of publication of the notice of

⁸ See *Initiation Notice*, 88 FR at 15643–44.

⁹ *Id.* at 15644.

¹⁰ See *Antidumping Proceedings: Announcement of Change in Department Practice for Respondent Selection in Antidumping Duty Proceedings and Conditional Review of the Nonmarket Economy Entity in NME Antidumping Duty Proceedings*, 78 FR 65963 (November 4, 2013).

initiation of the requested review in the **Federal Register**. Interested parties timely withdrew all review requests for 25 companies/company groupings for which Commerce initiated this review. Therefore, in accordance with 19 CFR 351.213(d)(1), Commerce is rescinding this review of the *Order* with respect to all the companies/company groupings listed in the appendix to this notice.

Disclosure and Public Comment

Normally, Commerce will disclose the calculations performed in connection with the preliminary results of review to parties to the proceeding in accordance with 19 CFR 351.224(b). However, as there were no preliminary margin calculations performed in the instant review, there are no calculations to disclose. This satisfies our regulatory obligation. Additionally, we note that, given the analysis underlying Commerce's preliminary decisions are contained herein, no decision memorandum accompanies this **Federal Register** notice.

Interested parties may submit case briefs to Commerce no later than 30 days after the date of publication of these preliminary results of review in the **Federal Register**.¹¹ Rebuttal briefs may be filed with Commerce no later than seven days after case briefs are due and may respond only to arguments raised in the case briefs.¹² A table of contents, list of authorities used, and an executive summary of issues should accompany any brief submitted to Commerce. The summary should be limited to five pages total, including footnotes.¹³

Pursuant to 19 CFR 351.310(c), interested parties who wish to request a hearing, limited to issues raised in the case and rebuttal briefs, must submit a written request for a hearing to the Assistant Secretary for Enforcement and Compliance, U.S. Department of Commerce, within 30 days after the date of publication of this notice in the **Federal Register**. Requests for a hearing should contain: (1) the requesting party's name, address, and telephone number; (2) the number of individuals associated with the requesting party that will attend the hearing and whether any of those individuals is a foreign national; and (3) a list of the issues the party intends to discuss at the hearing. Oral arguments at the hearing will be limited to issues raised in the case and rebuttal briefs. If a request for a hearing is made, Commerce will announce the date and time of the hearing. Parties

should confirm by telephone the date and time of the hearing two days before the scheduled hearing date.

All submissions to Commerce, with limited exceptions, must be filed electronically using Enforcement and Compliance's Antidumping and Countervailing Duty Centralized Electronic Service System (ACCESS). An electronically filed document must be received successfully in its entirety by Commerce's electronic records system, ACCESS, by 5:00 p.m. Eastern Time on the due date.¹⁴ Note that Commerce has temporarily modified certain of its requirements for serving documents containing business proprietary information, until further notice.¹⁵

Final Results of Review

Unless otherwise extended, Commerce intends to issue the final results of this review no later than 120 days after the date these preliminary results of review are published in the **Federal Register**, pursuant to section 751(a)(3)(A) of the Act.

Assessment Rates

Upon issuance of the final results of this review, Commerce will determine, and U.S. Customs and Border Protection (CBP) shall assess, antidumping duties on all appropriate entries of subject merchandise covered by this review. If we do not alter these preliminary results of review, we intend to instruct CBP to liquidate entries of subject merchandise exported by VidaXL at the China-wide rate (*i.e.*, 216.01 percent).¹⁶

Commerce intends to issue assessment instructions regarding VidaXL to CBP no earlier than 35 days after the date of publication of the final results of this review in the **Federal Register**. If a timely summons is filed at the U.S. Court of International Trade, the assessment instructions will direct CBP not to liquidate relevant entries until the time for parties to file a request for a statutory injunction has expired (*i.e.*, within 90 days of publication).

Commerce intends to issue assessment instructions regarding the companies for which it rescinded this review no earlier than 35 days after the

date of publication of this notice in the **Federal Register**. Commerce will instruct CBP to liquidate entries of subject merchandise exported by the companies for which we rescinded the review at the cash deposit rate required at the time of entry.

Cash Deposit Requirements

The following cash deposit requirements will be in effect for all shipments of subject merchandise entered, or withdrawn from warehouse, for consumption on, or after, the date of publication of the notice of the final results of this administrative review in the **Federal Register**, as provided for by section 751(a)(2)(C) of the Act: (1) for any previously investigated or reviewed China or non-China exporter that has a separate rate, the cash deposit rate will continue to be the exporter's existing cash deposit rate; (2) for all China exporters of subject merchandise that do not have a separate rate, including VidaXL, if Commerce continues to find the company is not entitled to separate rate status in the final results of review, the cash deposit rate will be equal to the dumping margin assigned to the China-wide entity, which is 216.01 percent;¹⁷ and (3) for all non-China exporters of subject merchandise that do not have a separate rate, the cash deposit rate will be equal to the dumping margin applicable to the China exporter(s) that supplied that non-China exporter. These deposit requirements, when imposed, shall remain in effect until further notice.

Notification to Importers

This notice also serves as a preliminary reminder to importers of their responsibility under 19 CFR 351.402(f)(2) to file a certificate regarding the reimbursement of antidumping duties prior to liquidation of the relevant entries during the POR. Failure to comply with this requirement could result in Commerce's presumption that reimbursement of antidumping duties occurred and the subsequent assessment of double antidumping duties.

Notification to Interested Parties

We are issuing and publishing these preliminary results of review in accordance with sections 751(a)(1) and 777(i)(1) of the Act, 19 CFR 351.213(d)(4), and 19 CFR 351.221(b)(4).

¹¹ See 19 CFR 351.309(c)(1)(ii).

¹² See 19 CFR 351.309(d).

¹³ See 19 CFR 351.309(c)(2) and (d)(2).

¹⁴ See 19 CFR 351.303 (for general filing requirements); *Antidumping and Countervailing Duty Proceedings: Electronic Filing Procedures; Administrative Protective Order Procedures*, 76 FR 39263 (July 6, 2011).

¹⁵ See *Temporary Rule Modifying AD/CVD Service Requirements Due to COVID-19; Extension of Effective Period*, 85 FR 41363 (July 10, 2020).

¹⁶ See *Amended Final Results of Antidumping Duty Administrative Review and New Shipper Reviews: Wooden Bedroom Furniture From the People's Republic of China*, 72 FR 46957 (August 22, 2007).

¹⁷ *Id.*, 72 FR at 46964.

Dated: October 2, 2023.

Lisa W. Wang,

Assistant Secretary for Enforcement and Compliance.

Appendix

Companies/Company Groupings for Which the Administrative Review Is Being Rescinded

1. Dongguan Chengcheng Furniture Co., Ltd.
2. Eurosa (Kunshan) Co., Ltd.; Eurosa Furniture Co., (PTE) Ltd.
3. Golden Lion International Trading Ltd.; Shenzhen Jiafa High Grade Furniture Co., Ltd.
4. Golden Well International (HK), Ltd.
5. Guangzhou Maria Yee Furnishings Ltd.; Pyla HK Ltd.
6. Jiangmen Kinwai International Furniture Co., Ltd.
7. Jiangmen Kinwai Furniture Decoration Co., Ltd.
8. Jiangsu Xiangsheng Bedtime Furniture Co., Ltd.
9. Jiangsu Yuexing Furniture Group Co., Ltd.
10. Nanhai Jiantai Woodwork Co. Ltd.; Fortune Glory Industrial, Ltd. (HK Ltd.)
11. Perfect Line Furniture Co., Ltd.
12. PuTian JingGong Furniture Co., Ltd.
13. Shenyang Shining Dongxing Furniture Co., Ltd.
14. Shenzhen New Fudu Furniture Co., Ltd.
15. Shenzhen Wonderful Furniture Co., Ltd.
16. Tradewinds Furniture Ltd. (successor-in-interest to Nanhai Jiantai Woodwork Co.); Fortune Glory Industrial Ltd. (H.K. Ltd.)
17. Wuxi Yushea Furniture Co., Ltd.
18. Yeh Brothers World Trade Inc.
19. Zhangjiagang Daye Hotel Furniture Co. Ltd.
20. Zhangzhou Guohui Industrial & Trade Co. Ltd.
21. Zhangzhou XYM Furniture Product Co., Ltd.
22. Zhejiang Tianyi Scientific & Educational Equipment Co., Ltd.
23. Zhongshan Fookyik Furniture Co., Ltd.
24. Zhongshan Golden King Furniture Industrial Co., Ltd.
25. Zhoushan For-Strong Wood Co., Ltd.

[FR Doc. 2023-22307 Filed 10-5-23; 8:45 am]

BILLING CODE 3510-DS-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; Analysis of and Participation in Ocean Exploration Video Products

The Department of Commerce will submit the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication

of this notice. We invite the general public and other Federal agencies to comment on proposed, and continuing information collections, which helps us assess the impact of our information collection requirements and minimize the public's reporting burden. Public comments were previously requested via the **Federal Register** on June 21, 2023 during a 60-day comment period. This notice allows for an additional 30 days for public comments.

Agency: National Oceanic and Atmospheric Administration (NOAA), Commerce.

Title: Analysis of and Participation in Ocean Exploration Video Products.

OMB Control Number: 0648-0748.

Form Number(s): None.

Type of Request: Regular submission (revision of a current information collection).

Number of Respondents: 4,100 total (3,100 unique respondents).

Average Hours per Response: 10 minutes.

Burden Hours: 714.

Needs and Uses: NOAA Ocean Exploration (OER) is the only federal organization dedicated to ocean exploration. By using unique capabilities in terms of personnel, technology, infrastructure, and exploration missions, OER is reducing unknowns in deep-ocean areas and providing high-value environmental intelligence needed by NOAA and the nation to address both current and emerging science and management needs. Through live video and data streams, online coverage, training opportunities, and events, we allow scientists, resource managers, students, members of the general public, and others to actively experience ocean exploration, allowing broader scientific participation, and cultivating the next generation of ocean explorers, and engaging the public in exploration activities. To better understand our ocean, our office makes exploration data available to the public. This allows us, collectively, to more effectively maintain ocean health, sustainably manage our marine resources, accelerate our national economy, and build a better appreciation of the value and importance of the ocean in our everyday lives. It is only through leveraging resources internally and externally that we can truly achieve our mission.

Since the inception of NOAA's exploration program in 2001, OER data management has been guided by the 2000 President's Panel Report recommendations which prioritized rapid and unrestricted data sharing as one of five critical exploration program components. More recently, Public Law

111-11 [Section XII Ocean Exploration] reinforced and expanded OER data management objectives, continuing to stress the importance of sharing unique exploration data and information to improve public understanding of the oceans, and for research and management purposes.

Telepresence satellite communication from the ship to shore brings the unknown ocean to the screens of both scientists and the general public in their homes, schools or offices in near real time. With technology constantly evolving, it is important to address the needs of the shore-based scientists and public to maintain a high level of participation. We use voluntary surveys to identify the needs of users of data, best approaches to leverage expertise of shore-based participants for meaningful public engagement focused on ocean exploration.

The five forms used to collect information are as follows: (1) Sailing Contact Information. This form is sent to the few scientists that directly sail on NOAA Ship *Okeanos Explorer*. The ship's operational officer needs certain information such as: if a sailing individual has securely submitted their proper medical documents to NOAA's Office of Marine and Aviation Operations; if the person is up to date with required security documents, such as a passport, if the ship is traveling to a foreign port; any dietary restrictions so that the person will be served food that is safe. (2) *Okeanos Explorer* Participation Assessment. This voluntary form is sent to the scientists that sailed on or participated remotely in any *Okeanos Explorer* cruise funded by OER to record any feedback they wish to provide to the office about their experience. The office uses their feedback in assessments for improving the utility and experience of these scientific guests sailing on the *Okeanos Explorer*. (3) EX Collaboration Tools Feedback. This voluntary form is sent to members of the marine scientific community at the beginning of a fiscal year to ask if members would like to participate in any of the upcoming cruises and to what degree, such as simply asking to be included in emailed updates or if they want to be on a direct line to the ship for remotely operated vehicle dive operations. (4) Citizen Scientist. This voluntary form is available to general members of the public and is used for members to improve the annotation efforts when watching short video clips of 30 seconds to 5 minutes. (5) Science Lead Interest. This voluntary form will be used to solicit interest from the scientific community to serve as a Science Lead

on one of NOAA Ocean Exploration's expeditions.

The first forms described above will include minor revisions, and the fifth form is a new addition. The Sailing Contact Information form will be revised to include updated informational attachments (e.g., links to updated COVID guidance, medical clearance, underwater cultural heritage protocols) and updated expedition names and dates for a given calendar year. The *Okeanos Explorer* Participation Assessment will be revised to replace some technical/scientific questions with questions that relate to communication, leadership, and workplace climate. The EX Collaboration Tools form will be revised to include updated informational attachments (e.g., underwater cultural heritage protocols) and updated expedition names and dates for a calendar year. The Citizen Scientist form will be updated for expedition names and dates for a calendar year.

Affected Public: Targeted towards the greater ocean exploration community; Individuals or households; business or other for-profit organizations; not-for-profit institutions; Federal government.

Frequency: EX Collaboration Tools Feedback: annually; all other forms are on occasion.

Respondent's Obligation: Sailing Contact Information: Required to obtain or retain benefits; all other forms are voluntary.

Legal Authority: Public Law 111-11 [Section XII Ocean Exploration].

This information collection request may be viewed at www.reginfo.gov. Follow the instructions to view the Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be submitted within 30 days of the publication of this notice on the following website www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting "Currently under 30-day Review—Open for Public Comments" or by using the search function and entering either the title of the collection or the OMB Control Number 0648-0748.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary for Economic Affairs, Commerce Department.

[FR Doc. 2023-22320 Filed 10-5-23; 8:45 am]

BILLING CODE 3510-KD-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XD371]

Pacific Islands Pelagic Fisheries; American Samoa Longline Limited Entry Program

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; availability of permits.

SUMMARY: NMFS announces that 25 American Samoa pelagic longline limited entry permits in 2 permit size classes are available for 2023. NMFS is accepting applications for these available permits.

DATES: NMFS must receive complete permit applications including payment by February 5, 2024.

ADDRESSES: Download a blank application from the NOAA Fisheries website: <https://www.fisheries.noaa.gov/permit/american-samoa-longline-limited-entry-permit>. Submit your application and pay the processing fee electronically per instructions at <https://www.fisheries.noaa.gov/pacific-islands/commercial-fishing/apply-pacific-islands-fishing-permit>.

FOR FURTHER INFORMATION CONTACT: Walter Ikehara, NMFS Pacific Islands Regional Office (PIRO), Sustainable Fisheries, tel 808-725-5175 or email PIRO-permits@noaa.gov.

SUPPLEMENTARY INFORMATION: Federal regulations at 50 CFR 665.816 allow NMFS to re-issue permits for the American Samoa pelagic longline limited entry program if the number of permits falls below the maximum allowed. At least 25 permits are available for issuance in the following permit size classes, as follows:

- 17 in Small (vessels up to 50 feet or 15.24 meters in overall length); and
- 8 in Large (vessels overall length 50 feet or 15.24 meters and longer).

Please note that the number of available permits may change before the application period closes. Applicants must specify the permit size class (one only) for which they are applying on the application form.

If there are more applications than available permits in a particular size class, the Regional Administrator shall issue permits to persons according to the following priority standard:

(i) Priority accrues to the person with the earliest documented participation in the pelagic longline fishery in the Exclusive Economic Zone (EEZ) around

American Samoa from smallest to largest vessel; and

(ii) In the event of a tie in the priority ranking between two or more applicants, the applicant whose second documented participation in the pelagic longline fishery in the EEZ around American Samoa is first in time will be ranked first in priority. If there is still a tie between two or more applicants, the Regional Administrator will select the successful applicant by an impartial lottery.

NMFS will only consider complete applications, which must include the completed and signed application form, copy of current United States Coast Guard Certificate of Documentation or state or territory vessel registration, evidence of documented participation in the fishery if needed for prioritization, and non-refundable payment of the application processing fee. Incomplete applications may be abandoned 30 days after receipt if deficiencies are not addressed.

Documented participation means participation proved by, but not necessarily limited to, a properly submitted NMFS or American Samoa logbook, an American Samoa creel survey record, a delivery or payment record from an American Samoa-based cannery, retailer or wholesaler, an American Samoa tax record, an individual wage record, ownership title, vessel registration, or other official documents showing:

(i) Ownership of a vessel that was used to fish in the EEZ around American Samoa; or

(ii) Evidence of work on a fishing trip during which longline gear was used to harvest western Pacific pelagic management unit species in the EEZ around American Samoa. If the applicant does not possess the necessary documentation of evidence of work on a fishing trip based on records available only from NMFS or the Government of American Samoa (e.g., creel survey record or logbook), the applicant may issue a request to PIRO to obtain such records from the appropriate agencies, if available. The applicant should provide sufficient information on the fishing trip to allow PIRO to retrieve the records.

If an applicant requests NMFS, in writing, to use NMFS longline logbook data as evidence of documented participation, the applicant must specify the qualifying vessel, official number, and month and year of the logbook records. NMFS will not conduct an unlimited search for records.

NMFS must receive applications by February 5, 2024 to be considered for a permit (see **ADDRESSES**). NMFS will not

accept applications received after that date.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: October 3, 2023.

Jennifer M. Wallace,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2023–22295 Filed 10–5–23; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; Electronic Monitoring Systems for Atlantic Highly Migratory Species

The Department of Commerce will submit the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication of this notice. We invite the general public and other Federal agencies to comment on proposed, and continuing information collections, which helps us assess the impact of our information collection requirements and minimize the public's reporting burden. Public comments were previously requested via the **Federal Register** on October 19, 2022, during a 60-day comment period. This notice allows for an additional 30 days for public comments.

Agency: National Oceanic and Atmospheric Administration (NOAA), Commerce.

Title: Electronic Monitoring Systems for Atlantic Highly Migratory Species.

OMB Control Number: 0648–0372.

Form Number(s): None.

Type of Request: Regular.

Number of Respondents: 132.

Average Hours per Response: 4 hours for initial VMS installation; 5 minutes per VMS initial activation checklist; 2 minutes per hail-out/hail-in declaration; 6 hours for initial electronic monitoring installation; 1 hour for camera boom installation; 5 minutes for pelagic longline and greenstick bluefin tuna catch records; 1 minute for dockside review of bluefin tuna catch records; 1 hour for electronic monitoring data retrieval.

Burden Hours: 2,697.

Needs and Uses: Vessel monitoring systems (VMS) and other electronic monitoring systems collect important information on fishing effort, catch, and

the geographic location of fishing effort and catch for certain sectors of the Atlantic HMS fleet. Data collected through these systems are used in both domestic and international fisheries management, including for law enforcement, stock assessments, and quota management purposes. Atlantic HMS vessels required to use VMS are pelagic longline, bottom longline (directed shark permit holders in North Carolina, South Carolina, and Virginia), and gillnet (directed shark permit holders consistent with the requirements of the Atlantic large whale take reduction plan requirements at 50 CFR 229.39.(h)) vessels. In addition to VMS, pelagic longline vessels are also required to have electronic monitoring systems to monitor catch and account for bluefin tuna interactions, and, when appropriate, monitoring the harvest of shortfin mako sharks.

NMFS Office of Law Enforcement monitors fleet adherence to gear- and time-area restrictions with VMS position location data. Gear restricted areas and time-area closures are important. Atlantic HMS management tools that have been implemented to reduce bycatch of juvenile swordfish, sea turtles, and bluefin tuna, among other species. Electronic monitoring data from the pelagic longline fleet are used by NMFS to accurately monitor bluefin tuna catch by the pelagic longline fleet, to ensure compliance with Individual Bluefin Quota (IBQ) limits and requirements, and to ensure that the Longline category bluefin tuna quota is not over-harvested. Additionally, electronic monitoring is used to verify disposition of retained shortfin mako sharks, when retention is allowed, consistent with binding international agreements. VMS reporting of bluefin tuna catch is used to monitor IBQ allocations in real-time.

Atlantic HMS fisheries are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Atlantic Tunas Conservation Act (ATCA). Under the MSA, management measures must be consistent with the National Standards, and fisheries must be managed to maintain optimum yield, rebuild overfished fisheries, and prevent overfishing. Under ATCA, the Secretary of Commerce shall promulgate regulations, as necessary and appropriate, to implement measures adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Affected Public: Businesses or other for-profit organizations (vessel owners).

Frequency: VMS reports at the start and end of each trip; VMS set reports at the end of each day of fishing; EM data retrieval after every other trip, unless the hard drive is full after the first trip.

Respondent's Obligation: Mandatory.

Legal Authority: Under the provisions of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 *et seq.*), the National Marine Fisheries Service (NMFS) is responsible for management of the Nation's marine fisheries. NMFS must also promulgate regulations, as necessary and appropriate, to carry out obligations the United States (U.S.) undertakes internationally regarding tuna management through the Atlantic Tunas Convention Act (ATCA, 16 U.S.C. 971 *et seq.*).

This information collection request may be viewed at reginfo.gov. Follow the instructions to view Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be submitted within 30 days of the publication of this notice on the following website www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting "Currently under 30-day Review—Open for Public Comments" or by using the search function and entering either the title of the collection or the OMB Control Number 0648–0372.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary of Economic Affairs, Commerce Department.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; NOAA Marine Fisheries Advisory Committee Survey on Marine Mammal Deterrents

The Department of Commerce will submit the following information collection request to the Office of Management and Budget (OMB) for review and clearance in accordance with the Paperwork Reduction Act of 1995, on or after the date of publication of this notice. We invite the general public and other Federal agencies to comment on proposed, and continuing

information collections, which helps us assess the impact of our information collection requirements and minimize the public's reporting burden. Public comments were previously requested via the **Federal Register** on June 23, 2023 (88 FR 41081) during a 60-day comment period. This notice allows for an additional 30 days for public comments.

Agency: National Oceanic & Atmospheric Administration (NOAA), Commerce.

Title: NOAA Marine Fisheries Advisory Committee Survey on Marine Mammal Deterrents.

OMB Control Number: 0648–XXXX.

Form Number(s): None.

Type of Request: New Information Collection.

Number of Respondents: 15,000.

Average Hours per Response: 5 minutes.

Total Annual Burden Hours: 1,250.

Needs and Uses: This is a request for a new collection of information.

A recent summary of a series of marine mammal deterrent workshops by NOAA Fisheries states, “under a recent proposed rule, NOAA Fisheries developed guidelines for deterring marine mammals under its jurisdiction, and recommended specific measures for species listed under the Endangered Species Act (ESA). The guidelines focus on how to safely use deterrents to avoid injuring or killing marine mammals. However, evaluation of the efficacy of each deterrent was beyond the scope of the rulemaking process, and available data on deterrent effectiveness is lacking.”¹

Consequently, the Protected Resources Subcommittee of the Marine Fisheries Advisory Committee (MAFAC) was asked to help NOAA Fisheries narrow down the scope for assessing the effectiveness of the marine mammal deterrents listed in the proposed guidelines and create a decision-making process to prioritize areas to begin characterizing the effectiveness. To achieve this, the Subcommittee plans to rank relative risk of expected losses from interactions with marine mammals by various user groups nationwide, which will identify where the biggest impacts of marine mammals are likely to be occurring. The information for the relative risk and expected loss analysis will be generated through a survey of five user groups (commercial fishermen, recreational fishermen, tribal fishermen (inclusive of tribal nations and other coastal indigenous populations), aquaculture operators, and waterfront

property managers (e.g. harbor masters and harbor facility assistants)).

Affected Public: Individuals/ Households, Private Sector, State, Local, or Tribal Government.

Frequency: One-time use.

Respondent's Obligation: Voluntary.

Legal Authority: The Secretary of Commerce approved the establishment of the Marine Fisheries Advisory Committee (MAFAC or Committee) on December 28, 1970. The Committee was initially chartered on February 17, 1971, and has been renewed periodically under the Federal Advisory Committee Act, as amended (FACA), 5 U.S.C., App. It has been determined the Committee's continuance is in the public interest in accordance with the duties and the laws imposed on the Department. The Committee advises the Secretary of Commerce (Secretary) on all living marine resource matters that are the responsibility of the Department of Commerce. Specifically, the Committee draws on the expertise of its members, its task forces, and other appropriate sources, such as the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), to evaluate and recommend priorities and needed changes in national program direction. Its objective is to ensure the Nation's living marine resource policies and programs meet the needs of commercial and recreational fishermen, aquaculture activities, and environmental, consumer, academic, tribal, governmental, and other national interests.

This information collection request may be viewed at www.reginfo.gov. Follow the instructions to view the Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be submitted within 30 days of the publication of this notice on the following website www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting “Currently under 30-day Review—Open for Public Comments” or by using the search function and entering the title of the collection.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Under Secretary for Economic Affairs, Commerce Department.

[FR Doc. 2023–22322 Filed 10–5–23; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648–XD377]

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of issuance of letter of authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA), as amended, its implementing regulations, and NMFS' MMPA Regulations for Taking Marine Mammals Incidental to Geophysical Surveys Related to Oil and Gas Activities in the Gulf of Mexico, notification is hereby given that a Letter of Authorization (LOA) has been issued to Cantium, LLC (Cantium) for the take of marine mammals incidental to geophysical survey activity in the Gulf of Mexico.

DATES: The LOA is effective from October 1, 2023 through December 31, 2023.

ADDRESSES: The LOA, LOA request, and supporting documentation are available online at: <https://www.fisheries.noaa.gov/action/incidental-take-authorization-oil-and-gas-industry-geophysical-survey-activity-gulf-mexico>. In case of problems accessing these documents, please call the contact listed below (see **FOR FURTHER INFORMATION CONTACT**).

FOR FURTHER INFORMATION CONTACT: Rachel Wachtendonk, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds

¹ (Raum-Suryan et al.) p. 1.

that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined “negligible impact” in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment), or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

On January 19, 2021, we issued a final rule with regulations to govern the unintentional taking of marine mammals incidental to geophysical survey activities conducted by oil and gas industry operators, and those persons authorized to conduct activities on their behalf (collectively “industry operators”), in U.S. waters of the Gulf of Mexico (GOM) over the course of 5 years (86 FR 5322, January 19, 2021). The rule was based on our findings that the total taking from the specified activities over the 5-year period will have a negligible impact on the affected species or stock(s) of marine mammals and will not have an unmitigable adverse impact on the availability of those species or stocks for subsistence uses. The rule became effective on April 19, 2021.

Our regulations at 50 CFR 217.180 *et seq.* allow for the issuance of LOAs to industry operators for the incidental take of marine mammals during geophysical survey activities and prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat (often referred to as mitigation), as well as requirements pertaining to the monitoring and reporting of such taking. Under 50 CFR 217.186(e), issuance of an LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations and a

determination that the amount of take authorized under the LOA is of no more than small numbers.

Summary of Request and Analysis

Cantium plans to conduct a 3-Dimensional (3D) ocean bottom node (OBN) survey as part of ancillary activities associated with Cantium’s Federal lease blocks in the Bay Marchand area. See Section G of the LOA application for a map of the area.

Cantium anticipates using a single source vessel, towing two airguns with a total volume of 300 cubic inches (in³). Please see Cantium’s application for additional detail.

Consistent with the preamble to the final rule, the survey effort proposed by Cantium in its LOA request was used to develop LOA-specific take estimates based on the acoustic exposure modeling results described in the preamble (86 FR 5398, January 19, 2021). In order to generate the appropriate take numbers for authorization, the following information was considered: (1) survey type; (2) location (by modeling zone¹); (3) number of days; and (4) season.² The acoustic exposure modeling performed in support of the rule provides 24-hour exposure estimates for each species, specific to each modeled survey type in each zone and season.

Summary descriptions of modeled survey geometries (*i.e.*, 2D, 3D NAZ, 3D WAZ, Coil) are available in the preamble to the proposed rule (83 FR 29220, June 22, 2018). Surveys using a single (90 in³) airgun and high-resolution geophysical sources were also modeled. The single airgun was selected as the best available proxy survey type for Cantium’s survey effort. Although Cantium is using two airguns, the take numbers authorized in the LOA based on use of the single airgun proxy are substantially similar to those anticipated to occur through use of the planned sound source (two airguns, 300 in³) in the planned survey location. The acoustic exposure modeling necessarily averages fine-scale information about marine mammal distribution over the large area of each modeling zone. As the survey will take place in very shallow water (30–50 feet (ft); 9–15 meters (m)) compared to the acoustic exposure modeling, where few species are likely to occur, we have determined that the single airgun proxy is most representative of the effort planned by

Cantium in terms of predicted Level B harassment exposures.

The survey will take place over approximately 45 days, within Zone 2 and adjacent state waters. The seasonal distribution of survey days is not known in advance. Therefore, the take estimates for each species are based on the season that produces the greater value.

Based on the results of our analysis, NMFS has determined that the level of taking expected for this survey and authorized through the LOA is consistent with the findings made for the total taking allowable under the regulations. See Table 1 in this notice and Table 9 of the rule (86 FR 5322, January 19, 2021).

Small Numbers Determination

Under the GOM rule, NMFS may not authorize incidental take of marine mammals in an LOA if it will exceed “small numbers.” In short, when an acceptable estimate of the individual marine mammals taken is available, if the estimated number of individual animals taken is up to, but not greater than, one-third of the best available abundance estimate, NMFS will determine that the numbers of marine mammals taken of a species or stock are small. For more information please see NMFS’ discussion of the MMPA’s small numbers requirement provided in the final rule (86 FR 5438, January 19, 2021).

The take numbers for authorization are determined as described above in the Summary of Request and Analysis section. Subsequently, the total incidents of harassment for each species are multiplied by scalar ratios to produce a derived product that better reflects the number of individuals likely to be taken within a survey (as compared to the total number of instances of take), accounting for the likelihood that some individual marine mammals may be taken on more than 1 day (see 86 FR 5404, January 19, 2021). The output of this scaling, where appropriate, is incorporated into adjusted total take estimates that are the basis for NMFS’ small numbers determinations, as depicted in Table 1.

This product is used by NMFS in making the necessary small numbers determinations through comparison with the best available abundance estimates (see discussion at 86 FR 5391, January 19, 2021). For this comparison, NMFS’ approach is to use the maximum theoretical population, determined through review of current stock assessment reports (SAR; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine->

¹ For purposes of acoustic exposure modeling, the GOM was divided into seven zones. Zone 1 is not included in the geographic scope of the rule.

² For purposes of acoustic exposure modeling, seasons include Winter (December–March) and Summer (April–November).

mammal-stock-assessments) and model-predicted abundance information (<https://seamap.env.duke.edu/models/Duke/GOM/>). For the latter, for taxa where a density surface model could be produced, we use the maximum mean

seasonal (*i.e.*, 3-month) abundance prediction for purposes of comparison as a precautionary smoothing of month-to-month fluctuations and in consideration of a corresponding lack of data in the literature regarding seasonal

distribution of marine mammals in the GOM. Information supporting the small numbers determinations is provided in Table 1.

TABLE 1—TAKE ANALYSIS

Species	Authorized take	Scaled take ¹	Abundance ²	Percent abundance
Rice's whale	0	n/a	51	n/a
Sperm whale	0	n/a	2,207	n/a
<i>Kogia</i> spp	³ 0	n/a	4,373	n/a
Beaked whales	0	n/a	3,768	n/a
Rough-toothed dolphin	23	6.7	4,853	0.1
Bottlenose dolphin	1,389	398.7	176,108	0.2
Clymene dolphin	0	n/a	11,895	n/a
Atlantic spotted dolphin	301	86.3	74,785	0.1
Pantropical spotted dolphin	0	n/a	102,361	n/a
Spinner dolphin	0	n/a	25,114	n/a
Striped dolphin	0	n/a	5,229	n/a
Fraser's dolphin	0	n/a	1,665	n/a
Risso's dolphin	0	n/a	3,764	n/a
Melon-headed whale	0	n/a	7,003	n/a
Pygmy killer whale	0	n/a	2,126	n/a
False killer whale	³ 0	n/a	3,204	n/a
Killer whale	0	n/a	267	n/a
Short-finned pilot whale	0	n/a	1,981	n/a

¹ Scalar ratios were applied to "Authorized Take" values as described at 86 FR 5322, 5404 (January 19, 2021) to derive scaled take numbers shown here.

² Best abundance estimate. For most taxa, the best abundance estimate for purposes of comparison with take estimates is considered here to be the model-predicted abundance (Roberts *et al.*, 2016). For those taxa where a density surface model predicting abundance by month was produced, the maximum mean seasonal abundance was used. For those taxa where abundance is not predicted by month, only mean annual abundance is available. For Rice's whale and the killer whale, the larger estimated SAR abundance estimate is used.

³ Modeled take of two decreased to zero. For false killer whales, use of the exposure modeling produces results that are smaller than the average GOM group size (*i.e.*, estimated exposure value of 2, relative to assumed average group size of 28) (Maze-Foley and Mullin, 2006). NMFS' typical practice is to increase exposure estimates to the assumed average group size for a species in order to ensure that, if the species is encountered, exposures will not exceed the authorized take number. However, given the depth of the survey area (9–15 m) in relation to the depths this species is normally sighted (>200 m), NMFS has determined that is unlikely the species would be encountered at all. As a result, in this case NMFS has not authorized take for this species.

Based on the analysis contained herein of Cantium's proposed survey activity described in its LOA application and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the affected species or stock sizes (*i.e.*, less than one-third of the best available abundance estimate) and therefore the taking is of no more than small numbers.

Authorization

NMFS has determined that the level of taking for this LOA request is consistent with the findings made for the total taking allowable under the incidental take regulations and that the amount of take authorized under the LOA is of no more than small numbers. Accordingly, we have issued an LOA to Cantium authorizing the take of marine mammals incidental to its geophysical survey activity, as described above.

Dated: October 2, 2023.

Catherine Marzin,
Deputy Director, Office of Protected Resources, National Marine Fisheries Service.
[FR Doc. 2023–22257 Filed 10–5–23; 8:45 am]

BILLING CODE 3510–22–P

COMMITTEE FOR PURCHASE FROM PEOPLE WHO ARE BLIND OR SEVERELY DISABLED

Procurement List; Proposed Deletions

AGENCY: Committee for Purchase From People Who Are Blind or Severely Disabled.

ACTION: Proposed deletions from the Procurement List.

SUMMARY: The Committee is proposing to delete product(s) from the Procurement List that were furnished by nonprofit agencies employing persons who are blind or have other severe disabilities.

DATES: Comments must be received on or before: November 05, 2023.

ADDRESSES: Committee for Purchase From People Who Are Blind or Severely Disabled, 355 E Street SW, Suite 325, Washington, DC 20024.

FOR FURTHER INFORMATION CONTACT: For further information or to submit comments contact: Michael R. Jurkowski, telephone: (703) 785–6404, or email CMTEFedReg@AbilityOne.gov.

SUPPLEMENTARY INFORMATION: This notice is published pursuant to 41 U.S.C. 8503 (a)(2) and 41 CFR 51–2.3. Its purpose is to provide interested persons an opportunity to submit comments on the proposed actions.

Deletions

The following product(s) are proposed for deletion from the Procurement List:

Product(s)

- NSN(s)—Product Name(s):
7510–01–600–8023—Dated 2023 12-Month 2-Sided Laminated Wall Planner, 24" x 37"
- 7510–01–600–7581—Wall Calendar, Dated 2023, Wire Bound w/hanger, 15.5" x 22"

7510-01-600-7588—Monthly Wall Calendar, Dated 2023, Jan–Dec, 8-1/2" x 11"

7510-01-600-7634—Wall Calendar, Dated 2023, Wire Bound w/Hanger, 12" x 17"

7510-01-682-8100—Wall Calendar, Recycled, Dated 2023, Vertical, 3 Months, 12-1/4" x 26"

7510-01-682-8093—Monthly Planner, Recycled, Dated 2023, 14-month, 6-7/8" x 8-3/4"

7510-01-682-8112—Professional Planner, Dated 2023, Recycled, Weekly, Black, 8-1/2" x 11"

7530-01-600-7580—Daily Desk Planner, Dated 2023, Wire bound, Non-refillable, Black Cover

7530-01-600-7606—Monthly Desk Planner, Dated 2023, Wire Bound, Non-refillable, Black Cover

7530-01-600-7615—Weekly Desk Planner, Dated 2023, Wire Bound, Non-refillable, Black Cover

7530-01-600-7626—Weekly Planner Book, Dated 2023, 5" x 8", Black

Designated Source of Supply: Chicago Lighthouse Industries, Chicago, IL

Contracting Activity: GSA/FAS ADMIN SVCS ACQUISITION BR(2, NEW YORK, NY

Michael R. Jurkowski,

Acting Director, Business Operations.

[FR Doc. 2023-22275 Filed 10-5-23; 8:45 am]

BILLING CODE 6353-01-P

DEPARTMENT OF EDUCATION

[Docket No.: ED-2023-SCC-0137]

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Comment Request; Report of Dispute Resolution Under Part C of the Individuals With Disabilities Education Act

AGENCY: Office of Special Education and Rehabilitative Services (OSERS), Department of Education (ED).

ACTION: Notice.

SUMMARY: In accordance with the Paperwork Reduction Act (PRA) of 1995, the Department is proposing an extension without change of a currently approved information collection request (ICR).

DATES: Interested persons are invited to submit comments on or before November 6, 2023.

ADDRESSES: Written comments and recommendations for proposed information collection requests should be submitted within 30 days of publication of this notice. Click on this link www.reginfo.gov/public/do/PRAMain to access the site. Find this information collection request (ICR) by selecting "Department of Education"

under "Currently Under Review," then check the "Only Show ICR for Public Comment" checkbox. *Reginfo.gov* provides two links to view documents related to this information collection request. Information collection forms and instructions may be found by clicking on the "View Information Collection (IC) List" link. Supporting statements and other supporting documentation may be found by clicking on the "View Supporting Statement and Other Documents" link.

FOR FURTHER INFORMATION CONTACT: For specific questions related to collection activities, please contact Amy Bae, 202-987-1557.

SUPPLEMENTARY INFORMATION: The Department is especially interested in public comment addressing the following issues: (1) is this collection necessary to the proper functions of the Department; (2) will this information be processed and used in a timely manner; (3) is the estimate of burden accurate; (4) how might the Department enhance the quality, utility, and clarity of the information to be collected; and (5) how might the Department minimize the burden of this collection on the respondents, including through the use of information technology. Please note that written comments received in response to this notice will be considered public records.

Title of Collection: Report of Dispute Resolution Under Part C of the Individuals with Disabilities Education Act.

OMB Control Number: 1820-0678.

Type of Review: An extension without change of a currently approved ICR.

Respondents/Affected Public: State, local, and Tribal governments.

Total Estimated Number of Annual Responses: 56.

Total Estimated Number of Annual Burden Hours: 2,240.

Abstract: The Individuals with Disabilities Education Act (IDEA; Pub. L. 108-446) directs the Secretary of Education to obtain data on the dispute resolution process described in section 615 of the law. Specific legislative authority in section 618 of IDEA requires that:

"(a) IN GENERAL—Each State that receives assistance under this part, and the Secretary of the Interior, shall provide data each year to the Secretary of Education and the public on the following:

(1)(F) The number of due process complaints filed under section 615 and the number of hearings conducted.

(H) The number of mediations held, and the number of settlement agreements reached through such mediations".

In addition to the specific data requirements described in section 618, section 616(a)(3)(B) of IDEA identifies the dispute resolution process as a monitoring priority. The law states specifically that:

"(3) MONITORING PRIORITIES—The Secretary shall monitor the States, and shall require each State to monitor the local educational agencies located in the State (except the State exercise of general supervisory responsibility), using quantifiable indicators in each of the following priority areas, and using such qualitative indicators as are needed to adequately measure performance in the following priority areas:

(B) State exercise of general supervisory authority, including child find, effective monitoring, the use of resolution sessions, mediation, voluntary binding arbitration, and a system of transition services as defined in sections 602(34) and 637(a)(9)".

The data collection form provides instructions and information for States when submitting their dispute resolution data. The form collects data on the number of written, signed complaints; mediation requests; and hearing requests and the status of these actions initiated during the reporting year with regards to children served under part C of IDEA. The purposes of these data are to: (1) assess the progress, impact, and effectiveness of State and local efforts to implement the legislation and (2) provide Congress, the public, and Federal, State, and local educational agencies with relevant information. These data are used for monitoring activities, planning purposes, congressional reporting requirements, and dissemination to individuals and groups.

Dated: October 3, 2023.

Kun Mullan,

PRA Coordinator, Strategic Collections and Clearance, Governance and Strategy Division, Office of Chief Data Officer, Office of Planning, Evaluation and Policy Development.

[FR Doc. 2023-22283 Filed 10-5-23; 8:45 am]

BILLING CODE 4000-01-P

DEPARTMENT OF ENERGY**[Docket No. 21–99–LNG]****Carib Energy (USA), LLC; Request for Amendment To Order Granting Blanket Authorization To Export Previously Imported Liquefied Natural Gas in ISO Containers by Vessel to Non-Free Trade Agreement Nations****AGENCY:** Office of Fossil Energy and Carbon Management, Department of Energy.**ACTION:** Notice of request.

SUMMARY: The Office of Fossil Energy and Carbon Management (FECM) of the Department of Energy (DOE) gives notice (Notice) of receipt of a Request for Amendment (Request), filed by Carib Energy (USA), LLC (Carib Energy) on September 7, 2023, and Supplemental Information Supporting Request for Export Authorization Amendment (Supplement) filed on September 21, 2023. Carib Energy is currently authorized to export liquefied natural gas (LNG) previously imported into the United States by vessel from foreign sources in a volume equivalent to 0.48 billion cubic feet (Bcf) of natural gas on a cumulative basis over a two-year period to countries in Central America, South America, and the Caribbean. Carib Energy requests an increase in its authorized export volume of previously imported foreign-sourced LNG from the equivalent of 0.48 Bcf to 1.4 Bcf on a cumulative basis, effective June 1, 2023, and continuing through the end of its export term, April 6, 2024. Carib Energy filed the Request and Supplement under the Natural Gas Act (NGA).

DATES: Protests, motions to intervene, or notices of intervention, as applicable, and written comments are to be filed as detailed in the Public Comment Procedures section no later than 4:30 p.m., Eastern time, October 23, 2023.

ADDRESSES:

Electronic Filing by Email (strongly encouraged): fergas@hq.doe.gov.

Postal Mail, Hand Delivery, or Private Delivery Services (e.g., FedEx, UPS, etc.): U.S. Department of Energy (FE–34), Office of Regulation, Analysis, and Engagement, Office of Fossil Energy and Carbon Management, Forrestal Building, Room 3E–056, 1000 Independence Avenue SW, Washington, DC 20585.

Due to potential delays in DOE's receipt and processing of mail sent through the U.S. Postal Service, we encourage respondents to submit filings electronically to ensure timely receipt.

FOR FURTHER INFORMATION CONTACT:

Jennifer Wade or Peri Ulrey, U.S. Department of Energy (FE–34), Office of

Regulation, Analysis, and Engagement, Office of Resource Sustainability, Office of Fossil Energy and Carbon Management, Forrestal Building, Room 3E–042, 1000 Independence Avenue SW, Washington, DC 20585, (202) 586–4749 or (202) 586–7893, jennifer.wade@hq.doe.gov or peri.ulrey@hq.doe.gov.

Cassandra Bernstein, U.S. Department of Energy (GC–76), Office of the Assistant General Counsel for Energy Delivery and Resilience, Forrestal Building, Room 6D–033, 1000 Independence Avenue SW, Washington, DC 20585, (202) 586–9793, cassandra.bernstein@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

Background: On December 20, 2021, in DOE/FECM Order No. 4772,¹ DOE authorized Carib Energy to export LNG previously imported from foreign sources in a volume equivalent to 0.48 Bcf of natural gas on a cumulative basis over a two-year period. Under this blanket order, Carib Energy is authorized to export the LNG in approved IMO7/TVAC–ASME LNG containers (ISO containers) loaded at the Crowley LNG Truck Loading Facility (Crowley Facility) located in Peñuelas, Puerto Rico,² and transported on ocean-going carriers or container vessels to any country in Central America, South America, or the Caribbean that has, or in the future develops, the capacity to import LNG via approved ISO containers on ocean-going carriers or container vessels. This includes both countries with which the United States has entered into a free trade agreement (FTA) requiring national treatment for trade in natural gas (FTA countries),³ and any other country with which trade is not prohibited by U.S. law or policy (non-FTA countries).⁴

Carib Energy's two-year blanket authorization under Order No. 4772 commenced on April 6, 2022, the date

of first export under that authorization.⁵ Because the export authorization is effective (in relevant part) “for a two-year term beginning on . . . the date of first export,”⁶ Carib Energy's export term under Order No. 4772 is effective through April 6, 2024.

Request for Amendment of Non-FTA Portion of Order No. 4772: On September 7, 2023, Carib Energy filed its Request to amend Order No. 4772.⁷ Carib Energy provided additional information in its Supplement,⁸ filed on September 21, 2023. Carib Energy states that its ongoing exports of previously imported LNG to countries in the Caribbean (including to Barbados, a non-FTA country, and the Dominican Republic, a FTA country) have increased more rapidly than originally projected and recently exceeded the cumulative export volume authorized by Order No. 4772. Carib Energy further states that it anticipates exporting this previously imported LNG to Antigua (a non-FTA country) beginning in January 2024. Consequently, Carib Energy requests an amendment to Order No. 4772, increasing the overall level of LNG export volumes by 0.92 Bcf—from 0.48 Bcf to 1.4 Bcf on a cumulative basis—effective June 1, 2023, through April 6, 2024.

Carib Energy asserts that this export of foreign-sourced LNG will continue to play a critical role in meeting the natural gas supply needs of Barbados and Antigua (as well as the Dominican Republic), and that no new construction will be required to accommodate the amended export volume.

This Notice applies only to the portion of the Request and Supplement seeking an amendment of Carib Energy's exports of previously imported LNG to the applicable non-FTA countries pursuant to NGA section 3(a).⁹ DOE will review the FTA portion of the Request and Supplement separately pursuant to NGA section 3(c).¹⁰

Additional details can be found in Carib Energy's Request and Supplement, posted on the DOE website at: <https://www.energy.gov/fecm/articles/carib-energy-usa-llc-fe-dkt-no-21-99-lng>.

⁵ See Carib Energy (USA) LLC, Notice of First Export of LNG, Docket No. 21–99–LNG (Apr. 6, 2022).

⁶ Carib Energy (USA) LLC, DOE/FECM Order No. 4772, at 18 (Ordering Para. A).

⁷ Carib Energy (USA), LLC, Request for Amendment—LNG Export Authorization (Order No. 4772, Docket No. 21–99–LNG), Docket No. 21–99–LNG (Sept. 7, 2023).

⁸ Carib Energy (USA), LLC, Supplemental Information Supporting Request for Export Authorization Amendment, Docket No. 21–99–LNG (Sept. 21, 2023).

⁹ 15 U.S.C. 717b(a).

¹⁰ 15 U.S.C. 717b(c).

¹ Carib Energy (USA) LLC, DOE/FECM Order No. 4772, Docket No. 21–99–LNG, Order Granting Blanket Authorization to Export Previously Imported Liquefied Natural Gas in ISO Containers By Vessel to Free Trade and Non-Free Trade Agreement Nations (Dec. 20, 2021).

² The Crowley Facility receives LNG that has been imported from foreign sources into Puerto Rico via the EcoElectrica LNG Terminal. See *id.* at 5.

³ 15 U.S.C. 717b(c). The United States currently has FTAs requiring national treatment for trade in natural gas with Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore. FTAs with Israel and Costa Rica do not require national treatment for trade in natural gas.

⁴ 15 U.S.C. 717b(a); see Carib Energy (USA) LLC, DOE/FECM Order No. 4772, at 18 (Ordering Paras. A & B).

DOE Evaluation

In reviewing Carib's Request and Supplement, DOE will consider any issues required by law or policy. DOE will consider domestic need for the natural gas, as well as any other issues determined to be appropriate, including whether the arrangement is consistent with DOE's policy of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements. Parties that may oppose the Request and Supplement should address these issues and documents in their comments and/or protests, as well as other issues deemed relevant to the Request.

The National Environmental Policy Act (NEPA), 42 U.S.C. 4321 *et seq.*, requires DOE to give appropriate consideration to the environmental effects of its proposed decisions. No final decision will be issued in this proceeding until DOE has met its NEPA responsibilities.

Public Comment Procedures

In response to this Notice, any person may file a protest, comments, or a motion to intervene or notice of intervention, as applicable. Interested parties will be provided 15 days from the date of publication of this Notice in which to submit comments, protests, motions to intervene, or notices of intervention.

Any person wishing to become a party to this proceeding evaluating Carib Energy's Request and Supplement must file a motion to intervene or notice of intervention. The filing of comments or a protest with respect to the Request and Supplement will not serve to make the commenter or protestant a party to this proceeding, although protests and comments received from persons who are not parties will be considered in determining the appropriate action to be taken on the Request and Supplement. All protests, comments, motions to intervene, or notices of intervention must meet the requirements specified by the regulations in 10 CFR part 590, including the service requirements.

Filings may be submitted using one of the following methods:

(1) Submitting the filing electronically at fergas@hq.doe.gov;

(2) Mailing the filing to the Office of Regulation, Analysis, and Engagement at the address listed in the **ADDRESSES** section; or

(3) Hand delivering the filing to the Office of Regulation, Analysis, and Engagement at the address listed in the **ADDRESSES** section.

For administrative efficiency, DOE prefers electronic filings. All filings

must include a reference to "Docket No. 21-99-LNG" or "Carib Energy Request" in the title line.

For electronic submissions: Please include all related documents and attachments (e.g., exhibits) in the original email correspondence. Please do not include any active hyperlinks or password protection in any of the documents or attachments related to the filing. All electronic filings submitted to DOE must follow these guidelines to ensure that all documents are filed in a timely manner.

The Request, Supplement, and any filed protests, motions to intervene, notices of interventions, and comments will also be available electronically on the DOE website at: www.energy.gov/fecm/regulation.

A decisional record on the Request and Supplement will be developed through responses to this Notice by parties, including the parties' written comments and replies thereto. Additional procedures will be used as necessary to achieve a complete understanding of the facts and issues. If an additional procedure is scheduled, notice will be provided to all parties. If no party requests additional procedures, a final Order may be issued based on the official record, including the Request, Supplement, and responses filed by parties pursuant to this Notice, in accordance with 10 CFR 590.316.

Signed in Washington, DC, on September 29, 2023.

Amy Sweeney,

Director, Office of Regulation, Analysis, and Engagement, Office of Resource Sustainability.

[FR Doc. 2023-22297 Filed 10-5-23; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

21st Century Energy Workforce Advisory Board

AGENCY: Office of Energy Jobs, Department of Energy.

ACTION: Notice of open meeting.

SUMMARY: This notice announces an open virtual meeting for members and the public of the 21st Century Energy Workforce Advisory Board (EWAB). The Federal Advisory Committee Act requires that public notice of these meetings be announced in the **Federal Register**.

DATES: Tuesday, October 31, 2023; 12 p.m. to 1:30 p.m. eastern.

ADDRESSES: Virtual meeting for members of the public.

Registration to participate remotely is available: <https://doe.webex.com/>

[weblink/register/rcb79034826529ab23d28b035d6b98b07](https://doe.webex.com/register/rcb79034826529ab23d28b035d6b98b07)

The meeting information will be posted on the 21st Century Energy Workforce Advisory Board website at: <https://www.energy.gov/policy/21st-century-energy-workforce-advisory-board-ewab>, and can also be obtained by contacting EWAB@hq.doe.gov.

FOR FURTHER INFORMATION CONTACT:

Piper O'Keefe, Designated Federal Officer, EWAB; email: EWAB@hq.doe.gov or at 202-809-5110.

SUPPLEMENTARY INFORMATION:

Purpose of the Board: The 21st Century Energy Workforce Advisory Board (EWAB) advises the Secretary of Energy in developing a strategy for the Department of Energy (DOE) to support and develop a skilled energy workforce to meet the changing needs of the U.S. energy system. It was established pursuant to section 40211 of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58 (42 U.S.C. 18744) in accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C. 10. This is the second meeting of the EWAB.

Tentative Agenda: The meeting will start at 12:00 p.m. Eastern Time on October 31, 2023. The tentative meeting agenda includes: roll call, remarks related to and continuing discussion of DOE's role in meeting future energy workforce needs, and public comments. The meeting will conclude at approximately 3:30 p.m.

Public Participation: The meeting is open to the public via a virtual meeting option. Individuals who would like to attend must register for the meeting here: <https://doe.webex.com/weblink/register/rcb79034826529ab23d28b035d6b98b07>

It is the policy of the EWAB to accept written public comments no longer than 5 pages and to accommodate oral public comments, whenever possible. The EWAB expects that public statements presented at its meetings will not be repetitive of previously submitted oral or written statements. The public comment period for this meeting will take place on October 31, 2023, at a time specified in the meeting agenda. This public comment period is designed only for substantive commentary on the EWAB's work, not for business marketing purposes. The Designated Federal Officer will conduct the meeting to facilitate the orderly conduct of business.

Oral Comments: To be considered for the public speaker list at the meeting, interested parties should register to speak by contacting EWAB@hq.doe.gov

no later than 12 p.m. eastern time on October 24, 2023. To accommodate as many speakers as possible, the time for public comments will be limited to three (3) minutes per person, with a total public comment period of up to 15 minutes. If more speakers register than there is space available on the agenda, the EWAB will select speakers on a first-come, first-served basis from those who applied. Those not able to present oral comments may always file written comments with the Board.

Written Comments: Although written comments are accepted continuously, written comments relevant to the subjects of the meeting should be submitted to EWAB@hq.doe.gov no later than 12:00 p.m. Eastern Time on October 24, 2023, so that the comments may be made available to the EWAB members prior to this meeting for their consideration. Please note that because EWAB operates under the provisions of FACA, all public comments and related materials will be treated as public documents and will be made available for public inspection, including being posted on the EWAB website.

Minutes: The minutes of this meeting will be available on the 21st Century Energy Workforce Advisory Board website at <https://www.energy.gov/policy/21st-century-energy-workforce-advisory-board-ewab> or by contacting Piper O'Keefe at EWAB@hq.doe.gov.

Signed in Washington, DC, on October 3, 2023.

LaTanya Butler,

Deputy Committee Management Officer.

[FR Doc. 2023-22300 Filed 10-5-23; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings #1

Take notice that the Commission received the following electric corporate filings:

Docket Numbers: EC23-140-000.
Applicants: Chestnut Flats Lessee, LLC.

Description: Application for Authorization Under Section 203 of the Federal Power Act of Chestnut Flats Lessee, LLC.

Filed Date: 9/29/23.
Accession Number: 20230929-5363.
Comment Date: 5 p.m. ET 10/20/23.

Docket Numbers: EC23-141-000.
Applicants: Chalk Point Power, LLC, Dickerson Power, LLC, Lanyard Power Marketing, LLC.

Description: Joint Application for Authorization Under Section 203 of the Federal Power Act of Chalk Point Power, LLC, et al.

Filed Date: 9/29/23.
Accession Number: 20230929-5366.
Comment Date: 5 p.m. ET 10/20/23.

Take notice that the Commission received the following electric rate filings:

Docket Numbers: ER23-2333-001.
Applicants: PJM Interconnection, L.L.C.

Description: Tariff Amendment: Submission of Response to Deficiency Letter, Original ISA, SA No. 6961 to be effective 12/31/9998.

Filed Date: 10/2/23.
Accession Number: 20231002-5127.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER23-2355-001.
Applicants: PJM Interconnection, L.L.C.

Description: Tariff Amendment: Submission of Response to Deficiency Letter, Amended ISA, SA No. 5833 to be effective 9/6/2023.

Filed Date: 10/2/23.
Accession Number: 20231002-5187.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER23-2925-001.
Applicants: PJM Interconnection, L.L.C.

Description: Tariff Amendment: Amendment of Original NSA, SA No. 7106; Queue No. AE2-309, Docket No. ER23-2925 to be effective 11/25/2023.

Filed Date: 10/2/23.
Accession Number: 20231002-5299.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER23-2976-000.
Applicants: Public Service Company of Colorado.

Description: § 205(d) Rate Filing: 2023-09-29 GVH-DWA-Orchard Mesa-756-0.0.0 to be effective 10/1/2023.

Filed Date: 9/29/23.
Accession Number: 20230929-5316.
Comment Date: 5 p.m. ET 10/20/23.

Docket Numbers: ER23-2977-000.
Applicants: Midcontinent Independent System Operator, Inc.

Description: § 205(d) Rate Filing: 2023-09-29 Reliability Based Demand Curve to be effective 6/3/2024.

Filed Date: 9/29/23.
Accession Number: 20230929-5322.
Comment Date: 5 p.m. ET 10/27/23.

Docket Numbers: ER23-2978-000.
Applicants: Public Service Company of Colorado.

Description: § 205(d) Rate Filing: 2023-09-29-GVH-SGDIA-766-0.0.0 to be effective 10/1/2023.

Filed Date: 9/29/23.
Accession Number: 20230929-5331.

Comment Date: 5 p.m. ET 10/20/23.
Docket Numbers: ER23-2979-000.
Applicants: CPV Maple Hill Solar, LLC.

Description: Initial rate filing: Reactive Power Rate Schedule to be effective 11/1/2023.

Filed Date: 9/29/23.
Accession Number: 20230929-5336.
Comment Date: 5 p.m. ET 10/20/23.

Docket Numbers: ER23-2980-000.
Applicants: Public Service Company of Colorado.

Description: Tariff Amendment: 2023-09-29 HLYCRS-Dist Wheeling Agrmt-625-NOC 0.1.0 to be effective 10/1/2023.

Filed Date: 9/29/23.
Accession Number: 20230929-5339.
Comment Date: 5 p.m. ET 10/20/23.

Docket Numbers: ER24-1-000.
Applicants: Consolidated Edison Company of New York, Inc.

Description: § 205(d) Rate Filing: 86 Value Stack Credit 9-2023 to be effective 10/2/2023.

Filed Date: 10/2/23.
Accession Number: 20231002-5001.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24-2-000.
Applicants: PJM Interconnection, L.L.C.

Description: § 205(d) Rate Filing: Original NSA, Service Agreement No. 7085; Queue No. AF2-165 to be effective 12/4/2023.

Filed Date: 10/2/23.
Accession Number: 20231002-5074.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24-3-000.
Applicants: Pennsylvania Electric Company, PJM Interconnection, L.L.C.

Description: § 205(d) Rate Filing: Pennsylvania Electric Company submits tariff filing per 35.13(a)(2)(iii) Penelec Amends 10 ECSAs (5929 5935 5936 5937 5940 5950 5953 6039 6040 6051) to be effective 12/31/9998.

Filed Date: 10/2/23.
Accession Number: 20231002-5098.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24-4-000.
Applicants: Tri-State Generation and Transmission Association, Inc.

Description: § 205(d) Rate Filing: Initial Filing of Rate Schedule FERC No. 360 to be effective 8/31/2023.

Filed Date: 10/2/23.
Accession Number: 20231002-5125.
Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24-5-000.
Applicants: Tri-State Generation and Transmission Association, Inc.

Description: § 205(d) Rate Filing: Amendment to Rate Schedule FERC No. 61 to be effective 12/1/2023.

Filed Date: 10/2/23.

Accession Number: 20231002–5178.
Comment Date: 5 p.m. ET 10/23/23.
Docket Numbers: ER24–6–000.
Applicants: PJM Interconnection, L.L.C.

Description: § 205(d) Rate Filing: Original ISA, Service Agreement No. 7086; Queue No. AE2–323 to be effective 8/31/2023.

Filed Date: 10/2/23.

Accession Number: 20231002–5182.

Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24–7–000.

Applicants: Alabama Power Company, Georgia Power Company, Mississippi Power Company.

Description: Tariff Amendment: Alabama Power Company submits tariff filing per 35.15: Pine Gate Renewables (Fable Solar) LGIA Termination Filing to be effective 10/2/2023.

Filed Date: 10/2/23.

Accession Number: 20231002–5196.

Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24–8–000.

Applicants: PJM Interconnection, L.L.C.

Description: § 205(d) Rate Filing: Original ISA, SA No. 7092 & Original ICSA, SA No. 7093; Queue No. AF1–092 to be effective 12/1/2023.

Filed Date: 10/2/23.

Accession Number: 20231002–5283.

Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24–9–000.

Applicants: Pacific Gas and Electric Company.

Description: § 205(d) Rate Filing: Revisions to Shelter Cove (SA 382) to be effective 12/4/2023.

Filed Date: 10/2/23.

Accession Number: 20231002–5289.

Comment Date: 5 p.m. ET 10/23/23.

Docket Numbers: ER24–10–000.

Applicants: Idaho Power Company.

Description: Compliance filing: Attachment M & Attachment N—Revisions per FERC Order to be effective 1/1/2024.

Filed Date: 10/2/23.

Accession Number: 20231002–5294.

Comment Date: 5 p.m. ET 10/23/23.

The filings are accessible in the Commission's eLibrary system (<https://elibrary.ferc.gov/idmws/search/fercgensearch.asp>) by querying the docket number.

Any person desiring to intervene, to protest, or to answer a complaint in any of the above proceedings must file in accordance with Rules 211, 214, or 206 of the Commission's Regulations (18 CFR 385.211, 385.214, or 385.206) on or before 5:00 p.m. Eastern time on the specified comment date. Protests may be considered, but intervention is necessary to become a party to the proceeding.

eFiling is encouraged. More detailed information relating to filing requirements, interventions, protests, service, and qualifying facilities filings can be found at: <http://www.ferc.gov/docs-filing/efiling/filing-req.pdf>. For other information, call (866) 208–3676 (toll free). For TTY, call (202) 502–8659.

The Commission's Office of Public Participation (OPP) supports meaningful public engagement and participation in Commission proceedings. OPP can help members of the public, including landowners, environmental justice communities, Tribal members and others, access publicly available information and navigate Commission processes. For public inquiries and assistance with making filings such as interventions, comments, or requests for rehearing, the public is encouraged to contact OPP at (202) 502–6595 or OPP@ferc.gov.

Dated: October 2, 2023.

Debbie-Anne A. Reese,

Deputy Secretary.

[FR Doc. 2023–22315 Filed 10–5–23; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings

Take notice that the Commission has received the following Natural Gas and Oil Pipeline Rate and Refund Report filings:

Filings Instituting Proceedings

Docket Numbers: RP23–1124–000.

Applicants: Natural Gas Pipeline

Company of America LLC.

Description: § 4(d) Rate Filing: Negotiated Rate Agreement Filing—MU Marketing #155829 to be effective 10/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5179.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1125–000.

Applicants: Transcontinental Gas Pipe Line Company, LLC.

Description: § 4(d) Rate Filing: Non-Conforming—Leidy Southeast Piedmont Superseding to be effective 11/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5181.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1126–000.

Applicants: Pine Needle LNG Company, LLC.

Description: § 4(d) Rate Filing: Tariff Title Page—Contact Info—2023–09 to be effective 11/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5189.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1127–000.

Applicants: Tuscarora Gas Transmission Company.

Description: Compliance filing: 2023 Fuel and Line Loss Report to be effective N/A.

Filed Date: 9/29/23.

Accession Number: 20230929–5193.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1128–000.

Applicants: DTM Birdsboro Pipeline, LLC.

Description: § 4(d) Rate Filing: Administrative Update—FERC Gas Tariff Original Volume No. 1 to be effective 11/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5200.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1129–000.

Applicants: Washington 10 Storage Corporation.

Description: § 4(d) Rate Filing: Administrative Update—FERC Gas Tariff, Volume No. 1 to be effective 11/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5204.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1130–000.

Applicants: Rockies Express Pipeline LLC.

Description: § 4(d) Rate Filing: REX 2023–09–29 Negotiated Rate Agreement to be effective 10/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5214.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1131–000.

Applicants: Columbia Gas Transmission, LLC.

Description: § 4(d) Rate Filing: NR NC Agreement—EQT 287537 (Permanent Release from THQ 198800) to be effective 10/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5222.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1132–000.

Applicants: Transcontinental Gas Pipe Line Company, LLC.

Description: § 4(d) Rate Filing: Tariff Title Page—Contact Info—2023–09 to be effective 11/1/2023.

Filed Date: 9/29/23.

Accession Number: 20230929–5227.

Comment Date: 5 p.m. ET 10/11/23.

Docket Numbers: RP23–1133–000.

Applicants: Northern Border Pipeline Company.

Description: § 4(d) Rate Filing: Negotiated Rate Agreements—Arconic 276540 & 276541 to be effective 10/1/2023.

Filed Date: 9/29/23.
Accession Number: 20230929–5228.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1134–000.
Applicants: Transcontinental Gas Pipe Line Company, LLC.
Description: § 4(d) Rate Filing: Cash Out Surcharge Annual Update Filing 2023 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5233.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1135–000.
Applicants: Transcontinental Gas Pipe Line Company, LLC.
Description: § 4(d) Rate Filing: Tariff Title Page—Contact Info—2023–09 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5238.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1136–000.
Applicants: Transcontinental Gas Pipe Line Company, LLC.
Description: § 4(d) Rate Filing: Tariff Title Page—Contact Info—2023–09 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5253.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1137–000.
Applicants: Panhandle Eastern Pipe Line Company, LP.
Description: § 4(d) Rate Filing: Fuel Filing on 9/29/23 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5272.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1138–000.
Applicants: Wyoming Interstate Company, L.L.C.
Description: Compliance filing: Powder River Implementation Compliance Filing in Docket No. CP23–59 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5279.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1139–000.
Applicants: Adelpia Gateway, LLC.
Description: § 4(d) Rate Filing: Adelpia Non-Conforming Agreements filing to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5289.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1140–000.
Applicants: Ozark Gas Transmission, L.L.C.
Description: Compliance filing: Ozark Gas AOG Non-Conforming Agreements to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5303.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1141–000.

Applicants: Ruby Pipeline, L.L.C.
Description: § 4(d) Rate Filing: RP 2023–09–29 Non-Conforming Negotiated Rate Amendment to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5314.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1142–000.
Applicants: Double E Pipeline, LLC.
Description: § 4(d) Rate Filing: Negotiated Rate & Non-Conforming Agreements—ExxonMobil Oil Corporation to be effective 10/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5319.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP23–1143–000.
Applicants: Cimarron River Pipeline, LLC.
Description: § 4(d) Rate Filing: Fuel Rates—2023 to be effective 11/1/2023.
Filed Date: 9/29/23.
Accession Number: 20230929–5324.
Comment Date: 5 p.m. ET 10/11/23.
Docket Numbers: RP24–1–000.
Applicants: Equitrans, L.P.
Description: § 4(d) Rate Filing: Negotiated Rate Capacity Release Agreements—10/1/2023 to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5015.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–2–000.
Applicants: Texas Eastern Transmission, LP.
Description: § 4(d) Rate Filing: Negotiated Rates—Various Releases 10–2–23 Filing to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5028.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–3–000.
Applicants: Crown Energy Services, Inc., EnergyMark, LLC.
Description: Joint Petition for Temporary and Limited Waiver of Capacity Release Regulations, et al. of Crown Energy Services, Inc., et al.
Filed Date: 10/2/23.
Accession Number: 20231002–5053.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–4–000.
Applicants: Gulf South Pipeline Company, LLC.
Description: § 4(d) Rate Filing: Neg Rate Agmt (Permanent Release XTO 51761 to ExxonMobil 57263) to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5112.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–5–000.
Applicants: Gulf South Pipeline Company, LLC.
Description: § 4(d) Rate Filing: Cap Rel Neg Rate Agmts (Aethon 53154,

52545 to Scona 57211, 57210) to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5115.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–6–000.
Applicants: Gulf South Pipeline Company, LLC.
Description: § 4(d) Rate Filing: Cap Rel Neg Rate Agmt (Osaka 46429 to Texla 57216, ConocoPhillips 57288) to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5118.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–7–000.
Applicants: Gulf South Pipeline Company, LLC.
Description: § 4(d) Rate Filing: Amendments to Neg Rate Agmts (Calyx 51762, 51780) to be effective 10/1/2023.
Filed Date: 10/2/23.
Accession Number: 20231002–5121.
Comment Date: 5 p.m. ET 10/16/23.
Docket Numbers: RP24–8–000.
Applicants: WBI Energy Transmission, Inc.
Description: Annual Penalty Revenue Credit Report of WBI Energy Transmission, Inc.
Filed Date: 10/2/23.
Accession Number: 20231002–5132.
Comment Date: 5 p.m. ET 10/16/23.
 Any person desiring to intervene, to protest, or to answer a complaint in any of the above proceedings must file in accordance with Rules 211, 214, or 206 of the Commission's Regulations (18 CFR 385.211, 385.214, or 385.206) on or before 5:00 p.m. Eastern time on the specified comment date. Protests may be considered, but intervention is necessary to become a party to the proceeding.

Filings in Existing Proceedings

Docket Numbers: RP19–78–012.
Applicants: Panhandle Eastern Pipe Line Company, LP.
Description: Compliance filing: Opinion No. 885–A Compliance Filing—Docket Nos. RP19–78, RP19–1523 & RP19–257 to be effective 3/1/2020.
Filed Date: 9/29/23.
Accession Number: 20230929–5263.
Comment Date: 5 p.m. ET 10/11/23.
 Any person desiring to protest in any of the above proceedings must file in accordance with Rule 211 of the Commission's Regulations (18 CFR 385.211) on or before 5:00 p.m. Eastern time on the specified comment date.
 The filings are accessible in the Commission's eLibrary system (<https://elibrary.ferc.gov/idmws/search/fercgensearch.asp>) by querying the docket number.

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Dated: October 2, 2023.

Debbie-Anne A. Reese,
Deputy Secretary.

[FR Doc. 2023-22314 Filed 10-5-23; 8:45 am]

BILLING CODE 6717-01-P

ENVIRONMENTAL PROTECTION AGENCY

[FRL OP-OFA-089]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information 202-564-5632 or <https://www.epa.gov/nepa>. Weekly receipt of Environmental Impact Statements (EIS)

Filed September 25, 2023 10 a.m. EST
Through October 2, 2023 10 a.m. EST
Pursuant to 40 CFR 1506.9.

Notice: Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: <https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/search>.

EIS No. 20230131, Draft, USAF, MS, T-7A Recapitalization at Columbus Air Force Base, Mississippi, Comment Period Ends: 11/20/2023, Contact: Chinling Chen 210-395-0979.

EIS No. 20230132, Draft, BOEM, MD, Maryland Offshore Wind, Comment Period Ends: 11/20/2023, Contact: Lorena Edenfield 907-231-7679.

EIS No. 20230133, Final, BOEM, PRO, 2024-2029 National Outer Continental Shelf Oil and Gas Leasing Program, Review Period Ends: 11/06/2023, Contact: Dr. Jill Lewandowski 703-787-1703.

Dated: October 2, 2023.

Cindy S. Barger,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2023-22304 Filed 10-5-23; 8:45 am]

BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OPPT-2023-0098; FRL-10582-05-OCSP]

Certain New Chemicals or Significant New Uses; Statements of Findings for August 2023

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Toxic Substances Control Act (TSCA) requires EPA to publish in the **Federal Register** a statement of its findings after its review of certain TSCA submissions when EPA makes a finding that a new chemical substance or significant new use is not likely to present an unreasonable risk of injury to health or the environment. Such statements apply to premanufacture notices (PMNs), microbial commercial activity notices (MCANs), and significant new use notices (SNUNs) submitted to EPA under TSCA. This document presents statements of findings made by EPA on such submissions during the period from August 1, 2023, to August 31, 2023.

ADDRESSES: The docket for this action, identified by docket identification (ID) number EPA-HQ-OPPT-2023-0098, is available online at <https://www.regulations.gov> or in-person at the Office of Pollution Prevention and Toxics Docket (OPPT Docket), Environmental Protection Agency Docket Center (EPA/DC), West William Jefferson Clinton Bldg., Rm. 3334, 1301 Constitution Ave. NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the OPPT Docket is (202) 566-0280. For the latest status information on EPA/DC services and docket access, visit <https://www.epa.gov/dockets>.

FOR FURTHER INFORMATION CONTACT:

For technical information contact: Rebecca Edelstein, New Chemical Division (7405M), Office of Pollution Prevention and Toxics, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460-0001; telephone number: (202) 564-1667

email address: edelstein.rebecca@epa.gov.

For general information contact: The TSCA-Hotline, ABVI-Goodwill, 422 South Clinton Ave., Rochester, NY 14620; telephone number: (202) 554-1404; email address: TSCA-Hotline@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Executive Summary

A. Does this action apply to me?

This action provides information that is directed to the public in general.

B. What action is the Agency taking?

This document lists the statements of findings made by EPA after review of submissions under TSCA section 5(a) that certain new chemical substances or significant new uses are not likely to present an unreasonable risk of injury to health or the environment. This document presents statements of findings made by EPA during the reporting period.

C. What is the Agency's authority for taking this action?

TSCA section 5(a)(3) requires EPA to review a submission under TSCA section 5(a) and make one of several specific findings pertaining to whether the substance may present unreasonable risk of injury to health or the environment. Among those potential findings is that the chemical substance or significant new use is not likely to present an unreasonable risk of injury to health or the environment per TSCA section 5(a)(3)(C).

TSCA section 5(g) requires EPA to publish in the **Federal Register** a statement of its findings after its review of a submission under TSCA section 5(a) when EPA makes a finding that a new chemical substance or significant new use is not likely to present an unreasonable risk of injury to health or the environment. Such statements apply to PMNs, MCANs, and SNUNs submitted to EPA under TSCA section 5.

Anyone who plans to manufacture (which includes import) a new chemical substance for a non-exempt commercial purpose and any manufacturer or processor wishing to engage in a use of a chemical substance designated by EPA as a significant new use must submit a notice to EPA at least 90 days before commencing manufacture of the new chemical substance or before engaging in the significant new use.

The submitter of a notice to EPA for which EPA has made a finding of "not likely to present an unreasonable risk of injury to health or the environment"

may commence manufacture of the chemical substance or manufacture or processing for the significant new use notwithstanding any remaining portion of the applicable review period.

D. Does this action have any incremental economic impacts or paperwork burdens?

No.

II. Statements of Findings Under TSCA Section 5(a)(3)(C)

In this unit, EPA provides the following information (to the extent that such information is not claimed as Confidential Business Information (CBI)) on the PMNs, MCANs, and SNUNs for which, during this period, EPA has made findings under TSCA section 5(a)(3)(C) that the new chemical substances or significant new uses are not likely to present an unreasonable

risk of injury to health or the environment:

The following list provides the EPA case number assigned to the TSCA section 5(a) submission and the chemical identity (generic name if the specific name is claimed as CBI).

- P-22-0164, Fatty acids, C18-unsatd., dimers, polymers with 1,4:3,6-dianhydro-D-glucitol, 1,3- propanediol and succinic acid; CASRN: 2651284-66-9.

To access EPA’s decision document describing the basis of the “not likely to present an unreasonable risk” finding made by EPA under TSCA section 5(a)(3)(C), look up the specific case number at <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/chemicals-determined-not-likely>.

Authority: 15 U.S.C. 2601 *et seq.*

Dated: October 2, 2023.

Shari Z. Barash,

Acting Director, New Chemicals Division, Office of Pollution Prevention and Toxics.

[FR Doc. 2023-22312 Filed 10-5-23; 8:45 am]

BILLING CODE 6560-50-P

FEDERAL DEPOSIT INSURANCE CORPORATION

Notice of Termination of Receiverships

The Federal Deposit Insurance Corporation (FDIC or Receiver), as Receiver for each of the following insured depository institutions, was charged with the duty of winding up the affairs of the former institutions and liquidating all related assets. The Receiver has fulfilled its obligations and made all dividend distributions required by law.

NOTICE OF TERMINATION OF RECEIVERSHIPS

Fund	Receivership name	City	State	Termination date
10021	Franklin Bank, SSB	Houston	TX	10/01/2023
10025	First Georgia Community Bank	Jackson	GA	10/01/2023
10027	Haven Trust Bank	Duluth	GA	10/01/2023
10050	New Frontier Bank	Greeley	CO	10/01/2023
10102	Union Bank, NA	Gilbert	AZ	10/01/2023
10329	Enterprise Banking Company	McDonough	GA	10/01/2023
10378	One Georgia Bank	Atlanta	GA	10/01/2023
10427	Home Savings of America	Little Falls	MN	10/01/2023
10428	Global Commerce Bank	Doraville	GA	10/01/2023

The Receiver has further irrevocably authorized and appointed FDIC-Corporate as its attorney-in-fact to execute and file any and all documents that may be required to be executed by the Receiver which FDIC-Corporate, in its sole discretion, deems necessary, including but not limited to releases, discharges, satisfactions, endorsements, assignments, and deeds. Effective on the termination dates listed above, the Receiverships have been terminated, the Receiver has been discharged, and the Receiverships have ceased to exist as legal entities.

(Authority: 12 U.S.C. 1819)

Federal Deposit Insurance Corporation.

Dated at Washington, DC, on October 3, 2023.

Debra A. Decker,

Executive Secretary.

[FR Doc. 2023-22296 Filed 10-5-23; 8:45 am]

BILLING CODE 6714-01-P

FEDERAL ELECTION COMMISSION

Sunshine Act Meetings

FEDERAL REGISTER CITATION NOTICE OF PREVIOUS ANNOUNCEMENT: 88 FR 67289.
PREVIOUSLY ANNOUNCED TIME AND DATE OF THE MEETING: Thursday, October 5, 2023 at 10:30 a.m.

CHANGE IN THE MEETING: The October 5, 2023 Open Meeting has been canceled.

CONTACT PERSON FOR MORE INFORMATION: Judith Ingram, Press Officer, Telephone: (202) 694-1220

(Authority: Government in the Sunshine Act, 5 U.S.C. 552b)

Vicktorija J. Allen,

Deputy Secretary of the Commission.

[FR Doc. 2023-22405 Filed 10-4-23; 4:15 pm]

BILLING CODE 6715-01-P

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

Senior Executive Service; Performance Review Board

AGENCY: Federal Mine Safety and Health Review Commission.

ACTION: Notice.

SUMMARY: This notice announces the appointment of the members of the Performance Review Board (PRB) for the Federal Mine Safety and Health Review Commission. The PRB reviews the performance appraisals of career and non-career senior executives. The PRB makes recommendations regarding proposed performance appraisals, ratings, bonuses, pay adjustments, and other appropriate personnel actions.

DATES: Applicable on October 6, 2023.

FOR FURTHER INFORMATION CONTACT: Joshua Poole, Senior Management and Program Analyst, Federal Mine Safety and Health Review Commission, (202) 577-6831.

SUPPLEMENTARY INFORMATION: This Notice announces the appointment of the following primary and alternate members to the Federal Mine Safety and Health Review Commission PRB:

Primary Members:

- Craig Brown, Deputy Director, Selective Service System (acting)
- Charlotte Dye, Deputy General Counsel, Federal Labor Relations Authority

Peggy Gartner, Deputy Office Head, U.S. National Science Foundation
Alternate Members: None.
Authority: 5 U.S.C. 4313(c)(4).

Joshua Poole,

Senior Management and Program Analyst, Federal Mine Safety and Health Review Commission.

[FR Doc. 2023–22285 Filed 10–5–23; 8:45 am]

BILLING CODE 6735–01–P

FEDERAL RESERVE SYSTEM

Change in Bank Control Notices; Acquisitions of Shares of a Bank or Bank Holding Company

The notificants listed below have applied under the Change in Bank Control Act (Act) (12 U.S.C. 1817(j)) and § 225.41 of the Board's Regulation Y (12 CFR 225.41) to acquire shares of a bank or bank holding company. The factors that are considered in acting on the applications are set forth in paragraph 7 of the Act (12 U.S.C. 1817(j)(7)).

The public portions of the applications listed below, as well as other related filings required by the Board, if any, are available for immediate inspection at the Federal Reserve Bank(s) indicated below and at the offices of the Board of Governors. This information may also be obtained on an expedited basis, upon request, by contacting the appropriate Federal Reserve Bank and from the Board's Freedom of Information Office at <https://www.federalreserve.gov/foia/request.htm>. Interested persons may express their views in writing on the standards enumerated in paragraph 7 of the Act.

Comments regarding each of these applications must be received at the Reserve Bank indicated or the offices of the Board of Governors, Ann E. Misback, Secretary of the Board, 20th Street and Constitution Avenue NW, Washington, DC 20551–0001, not later than October 23, 2023.

A. Federal Reserve Bank of Dallas (Karen Smith, Director, Mergers & Acquisitions) 2200 North Pearl Street, Dallas, Texas 75201–2272. Comments can also be sent electronically to Comments.applications@dal.frb.org:

1. *Wade O. Easley, individually and as trustee of The La Plata Bancshares, Inc. Employee Stock Ownership Plan/401K Trust (the "ESOP") and Holly W. Easley, all of Hereford, Texas; James O. Easley and Gloria Easley both of Wise River, Montana; and Steve Easley, Dawson, Texas;* to become the Easley Family control group, a group acting in concert to retain voting shares of La

Plata Bancshares, Inc., and thereby indirectly retain voting shares of The First National Bank of Hereford both of Hereford, Texas. Additionally, Wade O. Easley, individually and as trustee of the ESOP, to retain control of the voting shares of La Plata Bancshares, Inc., and indirectly voting shares of The First National Bank of Hereford.

Board of Governors of the Federal Reserve System.

Michele Taylor Fennell,

Deputy Associate Secretary of the Board.

[FR Doc. 2023–22310 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Advisory Council for the Elimination of Tuberculosis (ACET)

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Notice of meeting.

SUMMARY: In accordance with regulatory provisions, the Centers for Disease Control and Prevention (CDC) announces the following meeting of the Advisory Council for the Elimination of Tuberculosis Meeting (ACET). This meeting is open to the public, limited only by the number of audio and web conference lines (1,000 audio and web conference lines are available). Time will be available for the public.

DATES: The meeting will be held on December 12, 2023, from 9:30 a.m. to 4:30 p.m., EST, and December 13, 2023, from 10 a.m. to 12 p.m., EST.

Written comments must be submitted by December 5, 2023. Registration to make oral comments must be submitted by December 5, 2023.

ADDRESSES: The telephone access number is 1–669–254–5252, Webinar ID: Webinar ID: 160 466 2283, and the Passcode is 07266459. The web conference access is <https://cdc.zoomgov.com/j/1604662283?pwd=cZhoNzVrb1BYTHV0bzc0R1hFSml0UT09> Passcode: Xu0wFVH*. The number of available audio and web conference lines is 1,000.

FOR FURTHER INFORMATION CONTACT: Marah Condit, MS, Committee Management Lead, Office of Policy, Planning, and Partnerships, National Center for HIV, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, 1600 Clifton Road NE, Mailstop H24–6, Atlanta, GA

30329–4027, Telephone: (404) 639–3423; Email: nchhstppolicy@cdc.gov.

SUPPLEMENTARY INFORMATION:

Purpose: The Advisory Council for the Elimination of Tuberculosis (ACET) advises and makes recommendations regarding the elimination of tuberculosis (TB) to the Secretary of Health and Human Services, the Assistant Secretary for Health, and the Director, Centers for Disease Control and Prevention (CDC). Specifically, the Council makes recommendations regarding policies, strategies, objectives, and priorities; addresses the development and application of new technologies; provides guidance and review of CDC's Tuberculosis Prevention Research portfolio and program priorities; and reviews the extent to which progress has been made toward eliminating TB.

Matters to be Considered: The agenda will include discussions on: (1) data modernization initiative: DTBE priorities and activities; (2) NCHHSTP dataset and standardized variables; (3) TB Elimination Alliance: Community Engagement; and (4) updates from the American Thoracic Society; CDC; the Infectious Disease Society of America, and the European Respiratory Society on treatment guidelines. Agenda items are subject to change as priorities dictate.

Public Participation

Written Public Comment: Members of the public are welcome to submit written comments in advance of the meeting. Written comments must be submitted by emailing nchhstppolicy@cdc.gov with the subject line "ACET December 2023 Public Comment Registration" by December 5, 2023.

Oral Public Comment: Individuals who would like to make an oral comment during the public comment period must register by emailing nchhstppolicy@cdc.gov with subject line "ACET December 2023 Public Comment Registration" by December 5, 2023. The public comment period is on December 13, 2023, at 10:15 a.m., EST.

The Director, Office of Strategic Business Initiatives, Office of the Chief Operating Officer, Centers for Disease Control and Prevention, has been delegated the authority to sign **Federal Register** notices pertaining to announcements of meetings and other committee management activities, for both the Centers for Disease Control and

Prevention and the Agency for Toxic Substances and Disease Registry.

Kalwant Smagh,

Director, Office of Strategic Business Initiatives, Office of the Chief Operating Officer, Centers for Disease Control and Prevention.

[FR Doc. 2023–22311 Filed 10–5–23; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[30Day–24–23DP]

Agency Forms Undergoing Paperwork Reduction Act Review

In accordance with the Paperwork Reduction Act of 1995, the Centers for Disease Control and Prevention (CDC) has submitted the information collection request titled “Public Health Law Fellowship (PHL Fellowship) Program: Assessment of Quality and Value” to the Office of Management and Budget (OMB) for review and approval. CDC previously published a “Proposed Data Collection Submitted for Public Comment and Recommendations” notice on March 23, 2023 to obtain comments from the public and affected agencies. CDC received one comment related to the previous notice. This notice serves to allow an additional 30 days for public and affected agency comments.

CDC will accept all comments for this proposed information collection project. The Office of Management and Budget is particularly interested in comments that:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(c) Enhance the quality, utility, and clarity of the information to be collected;

(d) Minimize the burden of the collection of information on those who

are to respond, including, through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses; and

(e) Assess information collection costs.

To request additional information on the proposed project or to obtain a copy of the information collection plan and instruments, call (404) 639–7570. Comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting “Currently under 30-day Review—Open for Public Comments” or by using the search function. Direct written comments and/or suggestions regarding the items contained in this notice to the Attention: CDC Desk Officer, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 or by fax to (202) 395–5806. Provide written comments within 30 days of notice publication.

Proposed Project

Public Health Law Fellowship (PHL Fellowship) Program: Assessment of Quality and Value—New—National Center for STLT Public Health Infrastructure and Workforce (NCSTLTPHIW), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

The mission of the Department of Health and Human Services (HHS) is to enhance the health and well-being of all Americans. As part of HHS, the Centers for Disease Control and Prevention (CDC) works to protect America from health, safety, and security threats, both foreign and in the U.S. CDC strives to fulfill this mission, in part, through a competent and capable public health workforce. One mechanism to developing the public health workforce is through training programs like the Public Health Law Fellowship Program (PHL Fellowship).

The mission of the PHL Fellowship is to train and provide experiential learning to current students and early career professionals in public health law and policy. The PHL Fellowship targets

current graduate students and law students, as well as recent graduates of graduate and law programs with a demonstrated interest in public health law. It is the goal of this fellowship that following participation in the program, alumni will seek employment within the public health law system (i.e., Federal, State, Tribal, local, or Territorial health agencies, or non-governmental organizations), focusing on health equity and/or emergency response.

This fellowship was created pursuant to American Rescue Plan funding to expand on the Public Health Law Program’s intern/extern program. There were no prior efforts to systematically evaluate the intern/extern program necessitating the creation of a systematic plan for administering, monitoring, and evaluating the PHL Fellowship. Evaluation priorities focus on continuously learning about program processes and activities to improve the program’s quality and documenting program outcomes to demonstrate impact and inform decision-making about future program direction. The purpose of this data collection is to inform these evaluation priorities through the collection of information from host site supervisors (n=40), fellowship participants (current cohort of fellows in a given year, n=70), and alumni (n=70). These data collections will be instrumental in helping CDC staff learn about these important stakeholder perspectives and will yield results that describe quality, impact, and value. Data will also inform program improvements such as refining the host site selection and matching process. Collection of this information moving forward will continue to meet these purposes and allow for longitudinal assessment of the PHL Fellowship, giving program leaders opportunities to see how this fellowship influences alumni career progression and contributions to public health over time.

OMB approval is requested for three years. Participation in the PHL Fellowship Program is voluntary but participation in data collection is required. There are no costs to respondents other than their time. The total estimated annualized burden is 149 hours.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Name	Number of respondents	Number of responses per respondent	Average burden per response (in hours)
PHL Fellowship Applicants	PHL Fellow Application	200	1	7/60
PHL Fellowship Participants	PHL Fellow Welcome Survey	70	1	6/60
PHL Fellowship Participants	PHL Fellow End-of-Program Survey	70	1	7/60
PHL Fellowship Participants	PHL Fellow Focus Group	30	1	60/60
PHL Fellowship Alumni	PHL Fellowship Alumni Survey	70	1	10/60
PHL Fellowship Host Site Applicants	PHL Fellowship Host Site Application	50	1	21/60
PHL Fellowship Host Site Supervisors	PHL Fellowship Host Site Welcome Survey ..	40	1	5/60
PHL Fellowship Host Site Supervisors	PHL Fellowship Host Site End-of-Program Survey.	40	1	12/60
PHL Fellowship Host Site Supervisors	PHL Fellowship Host Site Supervisor Inter-view.	40	1	60/60

Jeffrey M. Zirger,

Lead, Information Collection Review Office, Office of Public Health Ethics and Regulations, Office of Science, Centers for Disease Control and Prevention.

[FR Doc. 2023-22272 Filed 10-5-23; 8:45 am]

BILLING CODE 4163-18-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Solicitation of Nominations for Appointment to the World Trade Center Health Program Scientific/Technical Advisory Committee

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Notice.

SUMMARY: The Centers for Disease Control and Prevention (CDC), within the Department of Health and Human Services (HHS), is seeking nominations for membership on the World Trade Center (WTC) Health Program Scientific/Technical Advisory Committee (WTCHP-STAC), in accordance with provisions of the James Zadroga 9/11 Health and Compensation Act of 2010. The WTCHP-STAC consists of 17 members including experts in fields associated with occupational medicine, pulmonary medicine, environmental medicine, industrial hygiene, epidemiology, toxicology, and mental health, and representatives of WTC responders as well as representatives of certified-eligible WTC survivors.

DATES: Nominations for membership on the STAC must be received no later than November 20, 2023. Packages received after this time will not be considered for the current membership cycle.

ADDRESSES: All nominations should be mailed to NIOSH Docket 229-K, c/o Mia Wallace, Committee Management Specialist, National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention, 1600 Clifton Road NE, Mailstop V24-4, Atlanta, Georgia 30329-4027, or emailed to nioshdocket@cdc.gov.

FOR FURTHER INFORMATION CONTACT: Tania Carreón-Valencia, Ph.D., MS, Designated Federal Officer, World Trade Center Health Program Scientific/Technical Advisory Committee, Centers for Disease Control and Prevention, 1600 Clifton Road NE, Mailstop R-12, Atlanta, Georgia 30329-4027. Telephone: (513) 841-4515 (this is not a toll-free number); Email: TCarreonValencia@cdc.gov.

SUPPLEMENTARY INFORMATION: The World Trade Center (WTC) Health Program Scientific/Technical Advisory Committee (WTCHP-STAC) reviews scientific and medical evidence and makes recommendations to the Administrator of the WTC Health Program on additional Program eligibility criteria and additional WTC-related health conditions, reviews and evaluates policies and procedures used to determine whether sufficient evidence exists to support adding a health condition to the List of WTC-Related Health Conditions, makes recommendations regarding individuals to conduct independent peer reviews of the scientific and technical evidence underlying a final rule adding a condition to the List of WTC-Related Health Conditions, and provides consultation on research regarding certain health conditions related to the September 11, 2001, terrorist attacks.

Nominations are sought for individuals with the expertise and qualifications necessary to accomplish the Committee's objectives. The Administrator of the WTC Health

Program is seeking nominations for members fulfilling the following categories:

- Two representatives of certified-eligible survivors;
- Mental health professional;
- Industrial hygienist;
- Occupational physician with expertise in treating WTC rescue and recovery workers;
- Physician with expertise in pulmonary medicine; and
- Representative of WTC responders.

Members may be invited to serve for four-year terms. Selection of members is based on candidates' qualifications to contribute to accomplishing WTCHP-STAC objectives. More information on the Committee is available at <https://www.cdc.gov/wtc/stac.html>.

Department of Health and Human Services (HHS) policy stipulates that committee membership be balanced in terms of points of view represented and the committee's function. Appointments shall be made without discrimination on the basis of age, race, ethnicity, gender, sexual orientation, gender identity, HIV status, disability, and cultural, religious, or socioeconomic status. Nominees must be U.S. citizens and cannot be full-time employees of the U.S. Government. Current participation on Federal workgroups or prior experience serving on a Federal advisory committee does not disqualify a candidate; however, HHS policy is to avoid excessive individual service on advisory committees and multiple committee memberships. Committee members are Special Government Employees, requiring the filing of financial disclosure reports at the beginning of and annually during their terms. NIOSH identifies potential candidates and provides a slate of nominees for consideration to the Director of the Centers for Disease Control and Prevention (CDC) for STAC membership each year; CDC reviews the

proposed slate of candidates and provides a slate of nominees for consideration to the Secretary of HHS for final selection. HHS notifies selected candidates of their appointment near the start of the term in October, or as soon as the HHS selection process is completed. Note that the need for different expertise varies from year to year and a candidate who is not selected in one year may be reconsidered in a subsequent year.

Candidates should submit the following items:

- Current curriculum vitae, including complete contact information (telephone numbers, mailing address, email address);
- The category of membership (environmental medicine or environmental health specialist, occupational physician, pulmonary physician, representative of WTC responders, certified-eligible WTC survivor representative, industrial hygienist, toxicologist, epidemiologist, or mental health professional) that the candidate is qualified to represent;
- A summary of the background, experience, and qualifications that demonstrates the candidate's suitability for the nominated membership category; and
- At least one letter of recommendation from person(s) not employed by HHS. Candidates may submit letter(s) from current HHS employees if they wish, but at least one letter must be submitted by a person not employed by an HHS agency (e.g., CDC, National Institutes of Health, Food and Drug Administration).

Nominations may be submitted by the candidate or by the person/organization recommending the candidate.

The Director, Office of Strategic Business Initiatives, Office of the Chief Operating Officer, Centers for Disease Control and Prevention, has been delegated the authority to sign **Federal Register** notices pertaining to announcements of meetings and other committee management activities, for both the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.

Kalwant Smagh,

Director, Office of Strategic Business Initiatives, Office of the Chief Operating Officer, Centers for Disease Control and Prevention.

[FR Doc. 2023-22313 Filed 10-5-23; 8:45 am]

BILLING CODE 4163-18-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[30Day-24-1307]

Agency Forms Undergoing Paperwork Reduction Act Review

In accordance with the Paperwork Reduction Act of 1995, the Centers for Disease Control and Prevention (CDC) has submitted the information collection request titled "Shigella Hypothesis Generating Questionnaire (SHGQ)" to the Office of Management and Budget (OMB) for review and approval. CDC previously published a "Proposed Data Collection Submitted for Public Comment and Recommendations" notice on July 14, 2023 to obtain comments from the public and affected agencies. CDC received two comments related to the previous notice. This notice serves to allow an additional 30 days for public and affected agency comments.

CDC will accept all comments for this proposed information collection project. The Office of Management and Budget is particularly interested in comments that:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(c) Enhance the quality, utility, and clarity of the information to be collected;

(d) Minimize the burden of the collection of information on those who are to respond, including, through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses; and

(e) Assess information collection costs.

To request additional information on the proposed project or to obtain a copy of the information collection plan and instruments, call (404) 639-7570. Comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting "Currently under 30-day Review—Open

for Public Comments" or by using the search function. Direct written comments and/or suggestions regarding the items contained in this notice to the Attention: CDC Desk Officer, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 or by fax to (202) 395-5806. Provide written comments within 30 days of notice publication.

Proposed Project

Shigella Hypothesis Generating Questionnaire (SHGQ) (OMB Control No. 0920-1307, Exp. 11/30/2023)—Extension—National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

Shigella are a family of bacteria that cause the diarrheal disease shigellosis. It is estimated that Shigella causes about 450,000 cases of diarrhea in the United States annually, with increasing evidence of antimicrobial resistance. From 2009 through 2021, there have been 1,252 outbreaks of shigellosis in the United States, with most of these outbreaks attributed to person to person spread. Outbreaks of shigellosis have been reported in a range of settings such as community-wide, daycares, schools, restaurants, and retirement homes. Outbreaks of shigellosis have impacted a range of populations such as children, men who have sex with men, people experiencing homelessness, tight knit religious communities, international travelers, and refugees/displaced persons. Finally, outbreaks of shigellosis have been attributed to a range of transmission modes including person-to-person/no common source, sexual person-to person contact, contaminated food, and contaminated water.

As part of *Shigella* outbreak investigations, it is common for state and local health departments to conduct comprehensive interviews with cases and contacts to identify how individuals became sick with shigellosis, to identify individuals who could have come into contact with an individual sick with shigellosis, and to identify strategies to control the cluster or outbreak. As person-to-person contact is the most common mode of transmission for shigellosis, and shigellosis is highly contagious, it can be challenging to identify how individuals could have become ill. As a result, comprehensive hypothesis generating questionnaires focused on a range of settings, activities, and potential modes of transmission are needed to guide prevention and control activities.

The Shigella Hypothesis Generating Questionnaire (SHGQ) will be administered by state and local public health officials via telephone interviews or self-administered web-based surveys with cases of shigellosis or their proxy who are part of a shigellosis cluster or outbreak. The SHGQ will collect information on demographics characteristics, household information and family member event and activity attendance, clinical signs and

symptoms, medical care and treatment information, travel history, contact with international travelers or other ill individuals, event and activity attendance, limited food and water exposure, work, visit, and volunteer locations, childcare and school attendance, and recent sexual partner(s) and activity. This interview/survey activity is consistent with the state’s existing authority to investigate reports of notifiable diseases for routine

surveillance purposes; therefore, formal consent to participate in the activity is not required. However, cases may choose not to participate and may choose not to answer any question they do not wish to answer. It will take health department personnel approximately 45 minutes to administer the questionnaire to an estimated 1,500 patient respondents. This results in an estimated annual burden to the public of 1,125 hours.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondents	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hours)
Shigellosis case patients identified as part of outbreak or cluster investigations.	Shigella Hypothesis Generating Questionnaire.	1500	1	45/60

Jeffrey M. Zirger,

Lead, Information Collection Review Office, Office of Public Health Ethics and Regulations, Office of Science, Centers for Disease Control and Prevention.

[FR Doc. 2023–22273 Filed 10–5–23; 8:45 am]

BILLING CODE 4163–18–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[30Day–24–23AQ]

Agency Forms Undergoing Paperwork Reduction Act Review

In accordance with the Paperwork Reduction Act of 1995, the Centers for Disease Control and Prevention (CDC) has submitted the information collection request titled “Understanding HIV/STD Risk and Enhancing PrEP Implementation Messaging in a Diverse Community-Based Sample of Gay, Bisexual, and Other Men Who Have Sex with Men in a Transformational Era (MIC–DROP)” to the Office of Management and Budget (OMB) for review and approval. CDC previously published a “Proposed Data Collection Submitted for Public Comment and Recommendations” notice on November 16, 2022, to obtain comments from the public and affected agencies. CDC received two comments related to the previous notice. This notice serves to allow an additional 30 days for public and affected agency comments.

CDC will accept all comments for this proposed information collection project. The Office of Management and Budget is particularly interested in comments that:

(a) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agencies estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(c) Enhance the quality, utility, and clarity of the information to be collected;

(d) Minimize the burden of the collection of information on those who are to respond, including, through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses; and

(e) Assess information collection costs.

To request additional information on the proposed project or to obtain a copy of the information collection plan and instruments, call (404) 639–7570. Comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting “Currently under 30-day Review—Open for Public Comments” or by using the search function. Direct written comments and/or suggestions regarding the items contained in this notice to the Attention: CDC Desk Officer, Office of Management and Budget, 725 17th Street NW, Washington, DC 20503 or by fax to (202) 395–5806. Provide written

comments within 30 days of notice publication.

Proposed Project

“Understanding HIV/STD Risk and Enhancing PrEP Implementation Messaging in a Diverse Community-Based Sample of Gay, Bisexual, and Other Men Who Have Sex with Men in a Transformational Era (MIC–DROP)” — New—National Center for HIV, Viral Hepatitis, STD, TB Prevention (NCHHSTP), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

CDC is requesting approval for three years for a data collection titled “Understanding HIV/STD Risk and Enhancing PrEP Implementation Messaging in a Diverse Community-Based Sample of Gay, Bisexual, and Other Men Who Have Sex with Men in a Transformational Era (MIC–DROP).” The purpose of the information collection is to understand men’s strategies to prevent HIV and sexually transmitted infections (STIs), including preexposure prophylaxis (PrEP) use and adherence, condom use, sexual risk-taking behavior, and substance-using behaviors. This study will assess men’s use and preferences for prevention modalities and their awareness, knowledge, beliefs, and perceptions about products that prevent the transmission of HIV and other sexually transmitted diseases (STD). This study will also conduct structured assessments to identify HIV prevention gaps and test prevention messages for men who have sex with men (MSM).

The information collected in this study will be used to: (1) describe real-world HIV and STI prevention strategies including PrEP and condom use and

adherence; (2) better understand men’s use, preferences, knowledge, and perceptions about prevention modalities; (3) develop rapid reports that will allow for summary recommendations concerning gaps in prevention protection and message testing; and (4) provide timely new information to public health programs and decision makers. The study will be carried out in three cities: Atlanta, GA; Chicago, IL; and San Diego, CA. Participants will include 1,275 HIV-negative men ages 18 and older. Cohort participants will identify as cisgender male; report sex with a man in the last six months; and be fluent in written/spoken English or Spanish. We will use purposive sampling to ensure that 60% of participants will be PrEP users at baseline, and 40% will not be using PrEP at that point. We will also oversample Black/African American and Hispanic/Latino MSM to ensure that a minimum of 30% each are represented in the cohort sample. Participants will be recruited using a combination of approaches including social media, referral, and in-person outreach.

A computer-assisted quantitative assessment will collect information about participants’ use of prevention modalities, as well as their awareness, knowledge, beliefs, and perceptions about HIV/STI prevention products and prevention messages. The study will utilize the SMaRT (Study Management and Retention Toolkit) system, a study management platform for participant management that includes a HIPPA-compliant companion mobile app that study participants install on their smart phones. The app supports several key functions of study participation including notifications of surveys

available, administration of surveys, a messaging center, appointment scheduling, secure HIPPA-compliant document upload and return of laboratory results, and a HIPPA-compliant telehealth video conference platform. At six-month intervals starting at baseline, all participants will be mailed self-collection kits to provide samples for HIV and STI testing. Specimens for STI testing include urine, rectal, and pharyngeal swabs for gonorrhea and chlamydia and dried blood spot (DBS) for syphilis testing. HIV kits will collect DBS for 4th generation HIV testing. Tests will be shipped from, returned to, and processed by a CLIA-certified laboratory. Participants will also have the option to self-collect their specimens at a study site, where study staff will provide them with a self-collection kit and a private room in which to collect their specimens. A subset of the participant cohort will be invited to further participate in qualitative data collection activities including focus groups and in-depth interviews. The focus groups will assess the participants’ awareness of PrEP messages, preferences for PrEP messages, and perceived impact/efficacy of HIV prevention and PrEP messages. The in-depth interviews will assess men’s PrEP experiences, their preferences for PrEP and other HIV prevention products, and further explore their reactions to prevention messages. Participants will have the option to join virtual or in-person focus groups and interview sessions.

Total study enrollment is 1,275 over the three-year data collection period. Based on screening and enrollment numbers from similar studies, we estimate we will need to screen 2,550

individuals (850 annually) to reach total enrollment. The screening process will take approximately five minutes to complete. Participants will be rescreened at the time of the enrollment visit. Contact information will be collected from 1,275 participants (425 annually) and will take approximately five minutes to complete. The quantitative assessment will take 45 minutes to complete and will be delivered to 1,275 participants (850 annually) a total 8 times. The SMaRT app install will take 10 minutes to complete and will be completed by 1,275 participants (425 annually). The specimen kit for HIV testing will take approximately 20 minutes to complete and will be distributed to 1,275 participants (850 annually) a total of four times. The specimen kit for STI testing will take approximately 30 minutes to complete and will be distributed to 1,275 participants (850 annually) a total of four times. A subset of the cohort participants will be invited to participate in qualitative data collection activities. A total of 144 participants (48 annually) will engage in a focus group that is estimated to take 90 minutes to complete, and 45 participants will be invited to participate in a series of three in-depth interviews to be administered at six-month intervals. The interviews will take approximately 60 minutes to complete.

CDC is requesting 12,996 total burden hours across 3 years of data collection. The total estimated annualized burden hours are 4,332. Total burden for each activity has been rounded to the nearest whole hour. Participation of respondents is voluntary. There is no cost to participants other than their time.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hr)
General Public—Adults	Eligibility Screener	850	2	5/60
General Public—Adults	Locator Form	425	1	5/60
General Public—Adults	Quarterly Assessment	850	4	45/60
General Public—Adults	SMaRT App Installation	425	1	10/60
General Public—Adults	Sample Collection for HIV Test	850	2	20/60
General Public—Adults	Sample Collection for STI Test	850	2	30/60
General Public—Adults	Focus Group	48	1	90/60
General Public—Adults	In-Depth interview	45	1	60/60

Jeffrey M. Zirger,

Lead, Information Collection Review Office,
Office of Public Health Ethics and
Regulations, Office of Science, Centers for
Disease Control and Prevention.

[FR Doc. 2023-22271 Filed 10-5-23; 8:45 am]

BILLING CODE 4163-18-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[60Day-24-1402; Docket No. CDC-2023-
0081]

Proposed Data Collection Submitted for Public Comment and Recommendations

AGENCY: Centers for Disease Control and
Prevention (CDC), Department of Health
and Human Services (HHS).

ACTION: Notice with comment period.

SUMMARY: The Centers for Disease
Control and Prevention (CDC), as part of
its continuing effort to reduce public
burden and maximize the utility of
government information, invites the
general public and other Federal
agencies the opportunity to comment on
a proposed or continuing information
collection, as required by the Paperwork
Reduction Act of 1995. This notice
invites comments on a proposed
information collection titled
Surveillance of HIV-related service
barriers among Individuals with Early or
Late HIV Diagnoses (SHIELD), which
collects information from people who
were recently diagnosed with HIV at
early (Stage 0) or late diagnosis (Stage 3)
to understand barriers to HIV
prevention and testing services to
contributing to transmission.

DATES: CDC must receive written
comments on or before December 5,
2023.

ADDRESSES: You may submit comments,
identified by Docket No. CDC-2023-
0081 by either of the following methods:

- *Federal eRulemaking Portal:*
www.regulations.gov. Follow the
instructions for submitting comments.
- Mail: Jeffrey M. Zirger, Information
Collection Review Office, Centers for
Disease Control and Prevention, 1600
Clifton Road NE, MS H21-8, Atlanta,
Georgia 30329.

Instructions: All submissions received
must include the agency name and
Docket Number. CDC will post, without
change, all relevant comments to
www.regulations.gov.

Please note: Submit all comments
through the Federal eRulemaking portal

(*www.regulations.gov*) or by U.S. mail to
the address listed above.

FOR FURTHER INFORMATION CONTACT: To
request more information on the
proposed project or to obtain a copy of
the information collection plan and
instruments, contact Jeffrey M. Zirger,
Information Collection Review Office,
Centers for Disease Control and
Prevention, 1600 Clifton Road, NE, MS
H21-8, Atlanta, Georgia 30329;
Telephone: 404-639-7118; Email: *omb@
cdc.gov.*

SUPPLEMENTARY INFORMATION: Under the
Paperwork Reduction Act of 1995 (PRA)
(44 U.S.C. 3501-3520), Federal agencies
must obtain approval from the Office of
Management and Budget (OMB) for each
collection of information they conduct
or sponsor. In addition, the PRA also
requires Federal agencies to provide a
60-day notice in the **Federal Register**
concerning each proposed collection of
information, including each new
proposed collection, each proposed
extension of the existing collection of
information, and each reinstatement of
previously approved information
collection before submitting the
collection to the OMB for approval. To
comply with this requirement, we are
publishing this notice of a proposed
data collection as described below.

The OMB is particularly interested in
comments that will help:

1. Evaluate whether the proposed
collection of information is necessary
for the proper performance of the
functions of the agency, including
whether the information will have
practical utility;
2. Evaluate the accuracy of the
agency's estimate of the burden of the
proposed collection of information,
including the validity of the
methodology and assumptions used;
3. Enhance the quality, utility, and
clarity of the information to be
collected;
4. Minimize the burden of the
collection of information on those who
are to respond, including using
appropriate automated, electronic,
mechanical, or other technological
collection techniques or other forms of
information technology, *e.g.*, permitting
electronic submissions of responses; and
5. Assess information collection costs.

Proposed Project

Surveillance of HIV-related service
barriers among Individuals with Early or
Late HIV Diagnoses (SHIELD) (OMB
Control No. 0920-1402, Exp. 5/31/
2026)—Revision—National Center for
HIV, Viral Hepatitis, STD, and TB
Prevention (NCHHSTP), Centers for
Disease Control and Prevention (CDC).

Background and Brief Description

National HIV Surveillance System
(NHSS) data indicate that 37,968
adolescents and adults received an HIV
diagnosis in the United States and
dependent areas in 2018. During 2015-
2019, the overall rate of annual
diagnoses decreased only slightly, from
12.4 to 11.1 per 100,000. Although not
every jurisdiction reports complete
laboratory data needed to identify stage
of infection, data from most
jurisdictions show that many of these
cases were classified as Stage 0 (7.9%)
or Stage 3 (20.2%) infection (*i.e.*, cases
diagnosed in early infection or late
infection, respectively). Early and late
diagnoses represent recent failures in
prevention and testing systems,
respectively, and opportunities to
understand needed improvements in
these systems.

The NHSS classifies HIV infections as
Stage 0 if the first positive HIV test was
within six months of a negative HIV
test. Persons who received a diagnosis at
Stage 0 (*i.e.*, early diagnosis) were able
to access HIV testing shortly after
infection yet were unable to benefit
from biomedical and behavioral
interventions to prevent HIV infection.
The federal Ending the HIV Epidemic in
the U.S. (EHE) initiative prioritizes the
provision of HIV preexposure
prophylaxis (PrEP), syringe services
programs, treatment as prevention
efforts, and other proven
interventions—as part of the Prevent
pillar of the EHE initiative—to prevent
new HIV infections.

HIV infections are classified as Stage
3 (AIDS) by the presence of an AIDS-
defining opportunistic infection or by
the lowest CD4 lymphocyte test result.
Persons with Stage 3 infection at the
time of their initial HIV diagnosis (*i.e.*,
late diagnosis) did not benefit from
timely receipt of testing or HIV
prevention interventions and were
likely unaware of their infection for a
substantial time. Nationally, an
estimated 13.3% of persons with HIV
are unaware of their infection,
contributing to an estimated 40% of all
ongoing transmission. Increasing early
diagnosis is a crucial pillar of efforts to
end HIV in the United States. Given the
continued occurrence of HIV infections
in the United States, the barriers and
gaps associated with low uptake of HIV
testing and prevention services must be
addressed to reduce new infections and
facilitate timely diagnosis and
treatment. Therefore, CDC is sponsoring
this data collection to improve
understanding of barriers and gaps
associated with new infection and late
diagnosis in the era of multiple testing

modalities and prevention options such as PrEP. These enhanced surveillance activities will identify actionable missed opportunities for early diagnosis and prevention, thus informing the allocation of resources, development and prioritization of interventions, and evidence-based local and national

decisions to improve HIV testing and address prevention gaps.

The changes proposed in this Revision add a new qualitative data collection activity that encompasses a new consent form and a new data collection tool (in-depth interview guide) to conduct qualitative interviews to meet prevailing information needs and enhance the value of SHIELD data

and minor edits to the approved SHIELD survey while remaining within the scope of the currently approved project purpose. The annualized burden hours of the project increased by 158 hours with these additions, for a total of 3,074 annualized burden hours. There is no cost to respondents other than their time to participate.

ESTIMATED ANNUALIZED BURDEN HOURS

Type of respondent	Form name	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total burden hours
Potential Eligible Participant	Recruitment Script English	2,000	1	15/60	500
Potential Eligible Participant	Recruitment Script Spanish	500	1	15/60	125
Eligible Participant	Consent for quantitative survey—English.	2,000	1	5/60	167
Eligible Participant	Consent for quantitative survey—Spanish.	500	1	5/60	42
Eligible Participant	Survey—English	2,000	1	50/60	1,666
Eligible Participant	Survey—Spanish	500	1	50/60	416
Eligible Participant	Consent for in-depth interview—English.	50	1	5/60	4
Eligible Participant	Consent for in-depth interview—Spanish.	50	1	5/60	4
Eligible Participant	In-depth Interview—English	50	1	90/60	75
Eligible Participant	In-depth Interview—Spanish	50	1	90/60	75
Total .....	.....	.....	.....	.....	3,074

Jeffrey M. Zirger,

Lead, Information Collection Review Office, Office of Public Health Ethics and Regulations, Office of Science, Centers for Disease Control and Prevention.

[FR Doc. 2023-22274 Filed 10-5-23; 8:45 am]

BILLING CODE 4163-18-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Administration for Children and Families

Proposed Information Collection Activity; Testing Identified Elements for Success in Fatherhood Programs (New Collection)

AGENCY: Office of Planning, Research, and Evaluation, Administration for Children and Families, United States Department of Health and Human Services.

ACTION: Request for public comments.

SUMMARY: The Administration for Children and Families (ACF) Office of Planning, Research, and Evaluation (OPRE) launched the Testing Identified Elements for Success in Fatherhood Programs (Fatherhood TIES) project in 2022. Using a mix of research methods, this study will identify and test the “core components” of fatherhood

programs in any effort to identify which core components are most effective at improving the lives of fathers who participate in fatherhood programs and their children. The study will ultimately include an implementation and an impact study.

DATES: Comments due within 30 days of publication. In compliance with the requirements of the Paperwork Reduction Act of 1995, ACF is soliciting public comment on the specific aspects of the information collection described above.

ADDRESSES: You can obtain copies of the proposed collection of information and submit comments by emailing OPREinfocollection@acf.hhs.gov. Identify all requests by the title of the information collection.

SUPPLEMENTARY INFORMATION:

Description: The proposed information collection request is to obtain consent to participate in the study, collect baseline information from program participants, and collect initial implementation study data. A future request will cover the remaining data collection materials associated with the impact and implementation studies. Core components are the essential functions, principles, and elements that are judged as being necessary to produce positive outcomes. Fatherhood

programs usually offer workshops and case management services for fathers to provide, for example, parenting strategies to strengthen their relationships with their children, help finding a steady job, skills to enhance their relationships, and support dealing with other life or family challenges they might experience. Up to five Fatherhood Family—focused, Interconnected, Resilient, and Essential (Fatherhood FIRE) grant recipients will partner with the Fatherhood TIES study team to participate in an implementation and impact study. The implementation study will examine how the core components are implemented and what fathers think of them. The impact study will rigorously evaluate whether promising core components bring about positive outcomes for fathers and their families which may include understanding effects of program engagement, employment and earnings, father-child relationship quality and co-parenting relationship quality. This notice is specific to data collection activities needed to collect consent of participants to enter the study, collect baseline information, and collect some implementation study data. A future notice will provide information about additional data collection activities for the impact and implementation studies.

Respondents: Fathers enrolled in the Fatherhood TIES study, and program staff involved in supporting and

implementing the Fatherhood TIES study.

ANNUAL BURDEN ESTIMATES

Instrument	Number of respondents (total over request period)	Number of responses per respondent (total over request period)	Avg. burden per response (in hours)	Total burden (in hours)	Annual burden (in hours)
Consent for those over 18 years old (recordkeeping burden for staff to conduct)	20	188	.167	628	314
Baseline Survey	3,000	1	.367	1101	551
Program Information and Management Tool (TIES Table)	20	80	.083	133	67
Reflection (staff)	37	8	.250	74	37
Reflection (participant)	3,000	1	.250	750	375
Estimated Annual Burden Total					1,344

Comments: The Department specifically requests comments on (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency’s estimate of the burden of the proposed collection of information; (c) the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology. Consideration will be given to comments and suggestions submitted within 30 days of this publication.

Authority: Section 413 of the Social Security Act, as amended by the FY 2017 Consolidated Appropriations Act, 2017 (Pub. L. 115–31).

Mary B. Jones,

ACF/OPRE Certifying Officer.

[FR Doc. 2023–22269 Filed 10–5–23; 8:45 am]

BILLING CODE 4184–73–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Administration for Children and Families

Proposed Information Collection Activity; Sexual Risk Avoidance Education Program Performance Analysis Study—Extension (Office of Management and Budget (OMB) #0970–0536)

AGENCY: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

ACTION: Request for public comments.

SUMMARY: The Office of Planning, Research, and Evaluation (OPRE) and the Family and Youth Services Bureau in the Administration for Children and Families (ACF) request an extension without changes to a currently approved information collection activity as part of the Sexual Risk Avoidance Education (SRAE) Program Performance Analysis Study (PAS). The goal of the study is to collect, analyze, and report on performance measures data for the SRAE program (OMB Control No. 0970–0536; expiration date 12/31/2023). The purpose of the requested extension is to continue the ongoing data collection and submission of the performance measures by SRAE grantees. Materials under the submission will be updated to reflect only surveys currently in use.

DATES: *Comments due within 60 days of publication.* In compliance with the requirements of the Paperwork Reduction Act of 1995, ACF is soliciting public comment on the specific aspects of the information collection described above.

ADDRESSES: You can obtain copies of the proposed collection of information and submit comments by emailing OPREinfocollection@acf.hhs.gov. Identify all requests by the title of the information collection.

SUPPLEMENTARY INFORMATION:

Description: The purpose of the SRAE program is to educate youth on how to voluntarily refrain from nonmarital sexual activity and prevent other youth risk behaviors. Data will continue to be used to determine if the SRAE grantees are meeting performance benchmarks related to their program’s mission and priorities.

The SRAE PAS collects performance measures data from SRAE grantees, program providers, and participants. The data include information on program structure, cost, and support for implementation; program attendance, reach, and dosage; the characteristics of youth involved in programming; youth sexual and other risky behavior prior to program participation; and youth sexual and other risky behavior intentions at program exit. The performance measures help the ACF program office and grantees to monitor and report on progress in implementing SRAE programs and inform technical assistance.

Some of the performance measures data come from youth participants through surveys SRAE grantees administer at program entry and exit. There are separate versions of the entry and exit surveys for middle school youth, which exclude some of the more sensitive items that are included in the versions for high school and older youth. There is also a shorter version of the entry survey for programs conducting impact studies, to reduce the burden on participants in those programs who are likely responding to other surveys as part of their impact study. Although there was a version of the exit survey for programs conducting impact studies in the past, youth in these programs complete the same version of the exit survey as other youth. As the shorter exit surveys are no longer in use, they will be removed through this request.

Respondents: General Departmental (GDSRAE), State (SSRAE), and Competitive (CSRAE) grantees, their subrecipients, and program participants.

ANNUAL BURDEN ESTIMATES

Instrument	Number of respondents (total over request period)	Number of responses per respondent (total over request period)	Avg. burden per response (in hours)	Total burden (in hours)	Annual burden (in hours)
(1) Participant Entry Survey					
GDSRAE participants	378,390	1	0.1333	50,439	16,813
SSRAE participants	952,899	1	0.1333	127,021	42,340
CSRAE participants	60,408	1	0.1333	8,052	2,684
(2) Participant Exit Survey					
GDSRAE participants	302,712	1	0.1667	50,462	16,821
SSRAE participants	762,319	1	0.1667	127,079	42,360
CSRAE participants	48,326	1	0.1667	8,056	2,685
(3) Performance reporting data entry form: grantees					
GDSRAE grantees	119	6	16	11,424	3,808
SSRAE grantees	39	6	16	3,744	1,248
CSRAE grantees	34	6	16	3,264	1,088
(4) Performance reporting data entry form: subrecipients					
GDSRAE subrecipients	252	6	13	19,656	6,552
SSRAE subrecipients	426	6	13	33,228	11,076
CSRAE subrecipients	63	6	13	4,914	1,638

Estimated Total Annual Burden Hours: 149,113.

Comments: The Department specifically requests comments on (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) the quality, utility, and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology. Consideration will be given to comments and suggestions submitted within 60 days of this publication.

Authority: 42 U.S.C. 1310.

Mary B. Jones,
ACF/OPRE Certifying Officer.

[FR Doc. 2023-22302 Filed 10-5-23; 8:45 am]

BILLING CODE 4184-83-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Proposed Collection; 60-Day Comment Request; Bench to Bedside: Integrating Sex and Gender To Improve Human Health & Sex as a Biological Variable: A Primer (Office of the Director)

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: In compliance with the requirement of the Paperwork Reduction Act of 1995 to provide the opportunity for public comment on proposed data collection projects, the National Institutes of Health Office of Research on Women's Health (ORWH) will publish periodic summaries of proposed projects to be submitted to the Office of Management and Budget (OMB) for review and approval.

DATES: Comments regarding this information collection are best assured of having their full effect if received within 60 days of the date of this publication.

FOR FURTHER INFORMATION CONTACT: To obtain a copy of the data collection plans and instruments, submit comments in writing, or request more information on the proposed project, contact: Dr. Elizabeth Barr, 6707

Democracy Blvd., Suite 438, Bethesda, Maryland, 20817 or call non-toll-free number (301) 402-7895 or email your request to ORWHcourses@od.nih.gov. Formal requests for additional plans and instruments must be requested in writing.

SUPPLEMENTARY INFORMATION: Section 3506(c)(2)(A) of the Paperwork Reduction Act of 1995 requires: written comments and/or suggestions from the public and affected agencies are invited to address one or more of the following points: (1) Whether the proposed collection of information is necessary for the proper performance of the function of the agency, including whether the information will have practical utility; (2) The accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (3) Ways to enhance the quality, utility, and clarity of the information to be collected; and (4) Ways to minimize the burden of the collection of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Proposed Collection Title: Bench to Bedside: Integrating Sex and Gender to Improve Human Health & Sex as a Biological Variable: A Primer [Extension], 0925-0768, expiration date

11/30/2023, Office of Research on Women’s Health (ORWH), Office of the Director (OD), National Institutes of Health (NIH).

Need and Use of Information

Collection: Bench to Bedside: Integrating Sex and Gender to Improve Human Health” is an online course developed by ORWH, the Food and Drug Administration, Office of Women’s Health, and other non-Federal subject matter experts. “Sex as a Biological Variable: A Primer” is an online course developed by ORWH, the National Institute of General Medical Sciences, and other non-Federal subject matter

experts. Together, these two courses will provide learners a rationale for the study of biological differences between the sexes, the impact of sex and gender differences on illness, guidance on incorporating NIH policy on sex as a biological variable into studies, and an exploration of sex- and gender-related differences in key disease areas. The Bench to Bedside course offers free continuing medical education credits.

In conjunction with these two courses, ORWH will collect information through registration information and surveys (knowledge checks, attitude assessments, and course evaluations).

The information collected will be used in the following ways: 1. To assess uptake and learning of concepts in each lesson; 2. To identify demographic trends across learners in order to inform targeted outreach; 3. To assess the effectiveness of course materials; and 4. To identify areas of focus for future course improvement, modifications, and expansion.

OMB approval is requested for 3 years. There are no costs to respondents other than their time. The total estimated annualized burden hours are 970.

ESTIMATED ANNUALIZED BURDEN HOURS

Form name	Type of respondents	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total annual burden hours
Bench to Bedside: Immunology Module					
Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Bench to Bedside: Cardiovascular Module					
Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Bench to Bedside: Pulmonary Module					
Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2

ESTIMATED ANNUALIZED BURDEN HOURS—Continued

Form name	Type of respondents	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total annual burden hours
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1

Bench to Bedside: Neurology Module

Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1

Bench to Bedside: Endocrinology Module

Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1

Bench to Bedside: Mental Health Module

Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Knowledge check	Private sector	25	1	10/60	4
	Federal Government	60	1	10/60	10
	Individual	15	1	10/60	3
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Module evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1

Sex as a Biological Variable: A Primer

Attitude survey pre-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Course completion	Private sector	25	1	1	25
	Federal Government	60	1	1	60
	Individual	15	1	1	15
Attitude survey post-test	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5
	Individual	15	1	5/60	1
Course evaluation	Private sector	25	1	5/60	2
	Federal Government	60	1	5/60	5

ESTIMATED ANNUALIZED BURDEN HOURS—Continued

Form name	Type of respondents	Number of respondents	Number of responses per respondent	Average burden per response (in hours)	Total annual burden hours
	Individual	15	1	5/60	1
Total .....	.....	100	3,400	.....	970

Dated: October 2, 2023.
Tara A. Schwetz,
Acting Principal Deputy Director, National Institutes of Health.
 [FR Doc. 2023–22351 Filed 10–5–23; 8:45 am]
BILLING CODE 4140–01–P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

[Docket No. FR–7070–C–55]

30-Day Notice of Proposed Information Collection: CDBG–PRICE Competition Grant Program (Manufactured Housing Community Improvement Grant Program) Application Collection; OMB Control No.: 2506–New

AGENCY: Office of Policy Development and Research, Chief Data Officer, HUD.
ACTION: Notice.

SUMMARY: HUD is seeking approval from the Office of Management and Budget (OMB) for the information collection described below. In accordance with the Paperwork Reduction Act, HUD is requesting comment from all interested parties on the proposed collection of information. The purpose of this notice is to allow for an additional 30 days of public comment. This notice replaces the notice HUD published on September 15, 2023.

DATES: The comment period for the notice published at 88 FR 44815 on July 13, 2023, which was extended at 88 FR 63598 on September 15, 2023, is further extended. Comments are due by November 6, 2023.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting “Currently under 30-day Review—Open for Public Comments” or by using the search function. Interested persons are also invited to submit comments regarding this proposal and comments should refer to the proposal by name and/or OMB Control Number and

should be sent to: Colette Pollard, Clearance Officer, REE, Department of Housing and Urban Development, 451 7th Street SW, Room 8210, Washington, DC 20410–5000; email PaperworkReductionActOffice@hud.gov.

FOR FURTHER INFORMATION CONTACT: Colette Pollard, Reports Management Officer, REE, Department of Housing and Urban Development, 451 7th Street SW, Washington, DC 20410; email Colette.Pollard@hud.gov or telephone 202–402–3400. This is not a toll-free number. HUD welcomes and is prepared to receive calls from individuals who are deaf or hard of hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit: <https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs>.

Copies of available documents submitted to OMB may be obtained from Ms. Pollard.

SUPPLEMENTARY INFORMATION: This notice informs the public that HUD is seeking approval from OMB for the information collection described in Section A.

The **Federal Register** notice that solicited public comment on the information collection for a period of 60 days was published on July 13, 2023 at 88 FR 44815.

A. Overview of Information Collection

Title of Information Collection: CDBG–PRICE Competition Grant Program (Manufactured Housing Community Improvement Grant Program) Application Collection.

OMB Approval Number: 2506–PENDING.

Type of Request: New Collection.
Form Number: N/A.

Description of the need for the information and proposed use: HUD is issuing this NOFO under the authority of the Consolidated Appropriations Act, 2023 (Pub. L. 117–328, enacted December 29, 2022) to collect applications for the preservation and revitalization of manufactured housing and eligible manufactured housing

communities (including pre-1976 mobile homes).

Respondents: Local governments, state governments, tribal governments, community development financial institutions, cooperatives, manufactured housing communities, metropolitan planning organizations, multi-jurisdictional entities, non-entitlement units of general local government, and non-profits.

Estimated Number of Respondents: 100+.

Estimated Number of Responses: 100.

Frequency of Response: 1.

Average Hours per Response: 21.

Total Estimated Burden: 2,100.

The estimated burden for this NOFO application collection includes HUD’s Standardized Grant Application forms which have been reviewed and approved by OMB under control number: 2501–0017. HUD is collecting certifications from all applicants, and there is a specific certification form depending on each applicant type: local governments, state governments, tribal governments, community development financial institutions, cooperatives, manufactured housing communities, metropolitan planning organizations, multi-jurisdictional entities, non-entitlement units of general local government, and non-profits. Each applicant is only required to complete one certification form. The certification form collects information related to a variety of laws, including CDBG requirements and cross-cutting requirements. The applicant will be expected to review and sign the form.

If an applicant wishes to engage in a partnership, all partners must submit a letter of intent to participate as part of the Grantee’s application for PRICE funds. A letter of intent to participate and a binding cooperation, subrecipient, or developer agreement, or a contract, as applicable and contingent upon award, must be submitted with the Grantee’s application for PRICE funds. The burden hours include submission of documentation of partnership, if required. Optional letter templates are included in the application package, which applicants may choose to use to satisfy these requirements.

The burden hours associated with the above-mentioned forms have been included in the burden hours list below.

Information collection	Number of respondents	Frequency of response	Responses per annum	Burden hour per response	Annual burden hours	Hourly cost per response	Annual cost
NOFO Application	100	1	100	20	2,000	\$46.58	\$93,700
NOFO Certifications	100	1	100	1	100	46.58	4,658
Total	100	1	100	21	2,100	46.58	98,358

B. Solicitation of Public Comment

This notice is soliciting comments from members of the public and affected parties concerning the collection of information described in Section A on the following:

(1) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) The accuracy of the agency's estimate of the burden of the proposed collection of information;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) Ways to minimize the burden of the collection of information on those who are to respond; including through the use of appropriate automated collection techniques or other forms of information technology, *e.g.*, permitting electronic submission of responses.

(5) ways to minimize the burden of the collection of information on those who are to respond, including the use of automated collection techniques or other forms of information technology.

HUD encourages interested parties to submit comments in response to these questions.

C. Authority

Section 3507 of the Paperwork Reduction Act of 1995, 44 U.S.C. chapter 35.

Colette Pollard,

*Department Reports Management Officer,
Office of Policy Development and Research,
Chief Data Officer.*

[FR Doc. 2023-22305 Filed 10-5-23; 8:45 am]

BILLING CODE 4210-67-P

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

[Docket No. FR-7065-N-03]

60-Day Notice of Proposed Information Collection: Generic Solicitation for Pre-Award Activities for HUD Competitive Discretionary Awards; OMB Control No.: 2501-NEW

AGENCY: Office of the Chief Financial Officer, HUD.

ACTION: Notice.

SUMMARY: HUD is seeking approval from the Office of Management and Budget (OMB) for the information collection described below. In accordance with the Paperwork Reduction Act, HUD is requesting comment from all interested parties on the proposed collection of information. The purpose of this notice is to allow for 60 days of public comment.

DATES: *Comments Due Date:* December 5, 2023.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Written comments and recommendations for the proposed information collection can be submitted within 60 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting "Currently under 60-day Review—Open for Public Comments" or by using the search function. Interested persons are also invited to submit comments regarding this proposal by name and/or OMB Control Number and can be sent to: Colette Pollard, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street SW, Room 4176, Washington, DC 20410-5000 or email at paperworkreductionactoffice@hud.gov.

FOR FURTHER INFORMATION CONTACT: Colette Pollard, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street SW, Room 4176, Washington, DC 20410-5000; email at Colette.Pollard@hud.gov or telephone 202-402-3400 (this is not a toll-free number). HUD welcomes and is prepared to receive calls from

individuals who are deaf or hard of hearing, as well as individuals with speech or communication disabilities. To learn more about how to make an accessible telephone call, please visit <https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs>. Copies of available documents submitted to OMB may be obtained from Ms. Pollard.

SUPPLEMENTARY INFORMATION: This notice informs the public that the Department is soliciting comments prior to submitting the proposed information collection to OMB for review, as required by the Paperwork Reduction Act of 1995 (44 U.S.C. chapter 35, as amended). HUD is seeking approval from OMB for the information collection described in Section A.

A. Overview of Information Collection

Title of Proposal: Generic Solicitation for Pre-Award Activities for Applications for HUD Competitive Discretionary Awards.

Type of Request: New Information Collection Request.

OMB Control Number, if applicable: 2501-NEW.

Additional OMB control numbers applicable to government-wide standardized forms are also noted in this collection. As the burden is accounted for in those separate collections, it is not included in this calculation.

SF 424, OMB Control No. 4040-0004
SF 424-A, OMB Control No. 4040-0006
SF 424-B, OMB Control No. 4040-0007
SF 424-C, OMB Control No. 4040-0008
SF 424 D, OMB Control No. 4040-0009
SF LLL, OMB Control No. 4040-0013
Lobbying Form, OMB Control No. 4040-0013

Projects Abstract Summary, OMB Control No. 4040-0019

Description of the need for the information and proposed use: HUD is required by 2 CFR 200.204 to publicly announce the availability of discretionary awards that are competed. To ensure grants and cooperative agreements are awarded to applicants best suited to perform the functions of the awards, applicants are generally

required to perform two pre-award steps, the submission of the application and the negotiation of the individual award terms. The first part of HUD's funding applications consists of submitting the Standard Form 424 (SF-424), "Application for Federal Assistance" along with mandatory and optional standard government-wide and HUD forms. The burden associated with these government-wide forms are reflected in separate OMB-sponsored government-wide information collections and are not reflected in this collection.

After the applicants have been selected as part of an objective competition process, HUD usually requires negotiation between HUD and the selected applicant to determine the terms of the award. A technical proposal (or technical submission) is required during the negotiation process. The technical proposal demonstrates the selected applicant's capabilities in accordance with the application or statement of work submitted with the application and/or selection criteria and other related information as specified in the funding announcement.

The provisions of 2 CFR 200.207 instruct Federal agencies to comply

with the requirements of 5 CFR part 1320, "Controlling Paperwork Burdens on the Public," with regard to all forms or collection of additional information used by HUD in place of or as a supplement to the SF-424 series.

Respondents: Applicants for HUD's competitively funded financial assistance programs.

Information Collection/Form Number: SF 424 (4040-0004); SF-424B (4040-0007); SF-424D (4040-0009); SF 424A (4040-0006); SF-424C (4040-0008); SF LLL (4040-0013); Lobbying Form (4040-0013); Project Abstract Summary (4040-0019); HUD-424B; HUD-424CB; HUD-424CBW; HUD-424M; HUD-2880; HUD-50070; Rural Cert; HUD 50153; HUD 2991; HUD 2993; Program specific requirements and rating factors (narrative and other attachments)

Estimated Number of Respondents: HUD bases the following estimates on historical experience. HUD's average of 45 funding announcements per fiscal year will fall under this generic request, plus an expected average of 10 NOFOs derived from supplemental funding enacted outside of the regular appropriations process. Additionally, the Department projects that it will

receive approximately 30,000 applications annually.

Frequency of Response: Refer to Table 1.

Responses per Annum: Refer to Table 1.

Average Burden Hours per Response: HUD estimates it takes an average of 40 working hours to prepare and submit an application in *grants.gov* in response to a funding announcement. For applications submitted through *esnaps.gov*, HUD estimates it takes an average of 100 working hours, including completing the registration in *esnaps.hud.gov*, preparing and submitting an application and technical submission, and proper storage of records.

Total Estimated Burdens: For purposes of this information collection request, the HUD has used the average hourly earnings of a Project Management Specialist (\$48.85 per hour) to monetize the value of respondent time. Therefore, the burden for these reporting activities is as follows using average response times:
 30,000 applications * 140 hours * 1.2 frequency = 5,040,000 hours
 5,040,000 hours * \$48.85 = \$246,204,000

TABLE 1—ESTIMATED BURDEN FOR RESPONDENTS

Information collection (OMB control No.)	Number of respondents	Frequency of response	Responses per annum	Burden hour per response	Annual burden hours	Hourly cost per response	Annual cost
SF 424 (4040-0004)	0	0	0	0	0	\$0	\$0
SF-424B (4040-0007)	0	0	0	0	0	0	0
SF-424D (4040-0009)	0	0	0	0	0	0	0
SF 424A (4040-0006)	0	0	0	0	0	0	0
SF-424C (4040-0008)	0	0	0	0	0	0	0
SF LLL (4040-0013)	0	0	0	0	0	0	0
Lobbying Form (4040-0013)	0	0	0	0	0	0	0
Project Abstract Summary (4040-0019)	0	0	0	0	0	0	0
HUD-424B	30,000	1.2	36,000	0.5	18,000.00	48.85	879,300.00
HUD-424CB	1,375	1.2	1,650	3	4,950.00	48.85	241,807.50
HUD-424CBW	1,375	1.2	1,650	3	4,950.00	48.85	241,807.50
HUD-424M	250	1.2	300	0.5	150.00	48.85	7,327.50
HUD-2880	30,000	1.2	36,000	2	72,000.00	48.85	3,517,200.00
HUD-50070	30,000	1.2	36,000	0.25	9,000.00	48.85	439,650.00
Rural Certification	800	1.2	960	0.50	480.00	48.85	23,448.00
HUD 50153	800	1.2	960	0.25	240.00	48.85	11,724.00
HUD 2991	30,000	1.2	36,000	3	108,000.00	48.85	5,275,800.00
HUD 2993	30,000	1.2	36,000	0.25	9,000.00	48.85	439,650.00
Program specific requirements and rating factors (narrative and other attachments)	30,000	1.2	36,000	127	4,572,000.00	48.85	223,342,200.00

HUD bases the following estimates on historical experience. HUD estimates it takes an average of 30 working hours for HUD to complete its pre-award activities associated with competitive applications, including parts 1 and 2 of the pre-award process. This includes activities related to proper storage of related records. For purposes of this information collection request, HUD has used a GS 13 step 5 rate (\$51.25 per

hour) to monetize the value of HUD time. Therefore, the burden for pre-award activities is as follows using average response times:

30,000 applications * 30 hours * 1.2 frequency = 1,080,000 hours
 1,080,000 hours * \$51.25 = \$55,350,000

If the Department incurs any unique start-up or operational and maintenance costs with the collection of information

covered by this ICR, HUD will include them on the request to OMB.

B. Solicitation of Public Comment

This notice is soliciting comments from members of the public and affecting agencies concerning the proposed collection of information to:
 (1) Evaluate whether the proposed collection of information is necessary for the proper performance of the

functions of the agency, including whether the information will have practical utility; (2) Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information; (3) Enhance the quality, utility, and clarity of the information to be collected; and (4) Minimize the burden of the collection of information on those who are to respond; including through the use of appropriate automated collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

C. Authority

The Paperwork Reduction Act of 1995, 44 U.S.C. chapter 35, as amended.

Daniel Ballard,

Acting Deputy Chief Financial Officer, Office of the Chief Financial Officer.

[FR Doc. 2023-22290 Filed 10-5-23; 8:45 am]

BILLING CODE P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

[FWS-R8-ES-2023-N080;
FXES11130800000-234-FF08E00000]

Endangered and Threatened Species; Receipt of Recovery Permit Applications

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of receipt of permit applications; request for comments.

SUMMARY: We, the U.S. Fish and Wildlife Service, have received applications for permits to conduct activities intended to enhance the propagation or survival of endangered or threatened species under the Endangered Species Act. We invite the

public and local, State, Tribal, and Federal agencies to comment on these applications. Before issuing any of the requested permits, we will take into consideration any information that we receive during the public comment period.

DATES: We must receive your written comments on or before November 6, 2023.

ADDRESSES: Document availability and comment submission: Submit requests for copies of the applications and related documents and submit any comments by one of the following methods. All requests and comments should specify the applicant name(s) and application number(s) (e.g., XXXXXX or PER0001234).

- *Email:* permitsR8ES@fws.gov.
- *U.S. Mail:* Susie Tharratt, Regional Recovery Permit Coordinator, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2606, Sacramento, CA 95825.

FOR FURTHER INFORMATION CONTACT: Susie Tharratt, via phone at 916-414-6561, or via email at permitsR8ES@fws.gov. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION: We, the U.S. Fish and Wildlife Service, invite the public to comment on applications for permits under section 10(a)(1)(A) of the Endangered Species Act, as amended (ESA; 16 U.S.C. 1531 *et seq.*). The requested permits would allow the applicants to conduct activities intended to promote recovery of species that are listed as endangered or threatened under the ESA.

Background

With some exceptions, the ESA prohibits activities that constitute take of listed species unless a Federal permit is issued that allows such activity. The ESA's definition of "take" includes such activities as pursuing, harassing, trapping, capturing, or collecting, in addition to hunting, shooting, harming, wounding, or killing.

A recovery permit issued by us under section 10(a)(1)(A) of the ESA authorizes the permittee to conduct activities with endangered or threatened species for scientific purposes that promote recovery or for enhancement of propagation or survival of the species. These activities often include such prohibited actions as capture and collection. Our regulations implementing section 10(a)(1)(A) for these permits are found in the Code of Federal Regulations at 50 CFR 17.22 for endangered wildlife species, 50 CFR 17.32 for threatened wildlife species, 50 CFR 17.62 for endangered plant species, and 50 CFR 17.72 for threatened plant species.

Permit Applications Available for Review and Comment

Proposed activities in the following permit requests are for the recovery and enhancement of propagation or survival of the species in the wild. The ESA requires that we invite public comment before issuing these permits. Accordingly, we invite local, State, Tribal, and Federal agencies and the public to submit written data, views, or arguments with respect to these applications. The comments and recommendations that will be most useful and likely to influence agency decisions are those supported by quantitative information or studies.

Application No.	Applicant, city, state	Species	Location	Take activity	Permit action
799568	Dana Kamada, San Clemente, California.	Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) Least Bell's vireo (<i>Vireo bellii pusillus</i>).	CA	Survey, locate and monitor nests; remove brown-headed cowbird chicks and eggs from parasitized nests; capture, handle, measure, weigh, band, color-band, and release.	Renew.
08086D	Santa Clara Valley Water District, San Jose, California.	California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>).	CA	Survey using recorded vocalizations.	Renew.
200339	Sarah Foster, Sacramento, California.	California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>) California tiger salamander (<i>Ambystoma californiense</i>), Sonoma County and Santa Barbara County distinct population segments.	CA	Survey using recorded vocalizations; survey, capture, handle, and release.	Renew.

Application No.	Applicant, city, state	Species	Location	Take activity	Permit action
74785A	Barry Nerhus, Fullerton, California.	light-footed Ridgway's rail (<i>Rallus obsoletus levipes</i>).	CA	Survey using recorded vocalizations.	Renew.
77123D	Pim Lauikitnont-Lee, San Francisco, California.	California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>).	CA	Survey using recorded vocalizations.	Amend
PER4319410	Tito Abbo, Riverside, California.	Del Mar manzanita (<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>).	CA	Remove and reduce to possession.	New.
073205	Cristina Sandoval, Goleta, California.	California least tern (<i>Sternula antillarum browni</i>).	CA	Survey, locate and monitor nests; use decoys; and play recorded vocalizations.	Renew.
053598	Nicole Kimball, Twentynine Palms, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>) Quino checkerspot butterfly (<i>Euphydryas editha quino</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
039640	Kristopher Alberts, Carlsbad, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>) Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) Quino checkerspot butterfly (<i>Euphydryas editha quino</i>).	CA, NV	Survey, survey using recorded vocalizations, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
051248	Paul Lemons, San Diego, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>) Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) Quino checkerspot butterfly (<i>Euphydryas editha quino</i>).	CA	Survey, survey using recorded vocalizations, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
053379	Christine Tischer, Orange, California.	California least tern (<i>Sternula antillarum browni</i>) Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Least Bell's vireo (<i>Vireo bellii pusillus</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>) Quino checkerspot butterfly (<i>Euphydryas editha quino</i>).	CA	Survey, locate and monitor nests, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew and amend.
082237	California State Parks, San Luis Obispo Coast District, San Simeon, California.	Morro Bay kangaroo rat (<i>Dipodomys heermanni morroensis</i>).	CA	Survey, capture, handle, and release.	Renew.

Application No.	Applicant, city, state	Species	Location	Take activity	Permit action
PER4316473	Scott Lindemann, Oakland, California.	California tiger salamander (<i>Ambystoma californiense</i>) Sonoma County and Santa Barbara County distinct population segments.	CA	Survey, capture, handle, and release.	New.
PER0004121	Mulligan Biological Consulting, San Diego, California.	Quino checkerspot butterfly (<i>Euphydryas editha quino</i>) San Diego ambrosia (<i>Ambrosia pumila</i>).	CA	Pursue and remove and reduce to possession.	Renew and amend.
83958B	Jared Elia, Concord, California.	California tiger salamander (<i>Ambystoma californiense</i>) Sonoma County and Santa Barbara County distinct population segments Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, and collect adult vouchers.	Renew.
02474D	Gaylene Tupen, Lincoln, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>).	CA	Survey, capture, handle, release, and collect adult vouchers.	Renew.
PER4319678	Bret Robinson, San Luis Obispo, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, and collect adult vouchers.	New.
99114C	RES Environmental Operating Company, LLC, Sacramento, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA, OR	Survey, capture, handle, release, and collect adult vouchers.	Renew.
08087D	Jonathan Walker, San Diego, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, and collect adult vouchers.	Amend.
PER0121456	Tara Collins, Penryn, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Amend.

Application No.	Applicant, city, state	Species	Location	Take activity	Permit action
192702	California State University Sacramento, Gold River, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, collect branchiopod resting eggs, and propagate.	Renew and amend.
09375A	Laura Eliassen, Bradley, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
063427	Sarah Powell, Sacramento, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
PER4325342	Shaylea Stark, Clovis, California.	California tiger salamander (<i>Ambystoma californiense</i>), Sonoma County and Santa Barbara County distinct population segments.	CA	Survey, capture, handle, and release.	New.
34132C	USDA Forest Service—Pacific Southwest Region, Vallejo, California.	Foothill yellow-legged frog (<i>Rana boylei</i>) South Sierra and South Coast distinct population segments.	CA	Survey, capture, handle, measure, take skin swabs, clip toes, insert PIT tags, transport, translocate, and release.	Amend.
40087B	USDA Forest Service, Sonora, California.	Foothill yellow-legged frog (<i>Rana boylei</i>) South Sierra and South Coast distinct population segments.	CA	Survey, capture, handle, measure, take skin swabs, clip toes, insert PIT tags, transport, translocate, and release.	Amend.
48210A	Area West Environmental, Inc., Orangevale, California.	Foothill yellow-legged frog (<i>Rana boylei</i>) South Sierra and South Coast distinct population segments.	CA	Survey, capture, handle, and release.	Amend.
837574	EREMICO Biological Services, LLC, Weldon, California.	Inyo California towhee (<i>Melospiza crissalis eremophila</i>) Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>).	CA	Survey using recorded vocalizations.	Renew.
98536C	Stillwater Sciences, Berkeley, California.	Foothill yellow-legged frog (<i>Rana boylei</i>) South Sierra and South Coast distinct population segments.	CA	Survey, capture, handle, and release.	Amend.
778668	Bryan Mori, Watsonville, California.	Foothill yellow-legged frog (<i>Rana boylei</i>) South Sierra and South Coast distinct population segments.	CA	Survey, capture, handle, and release.	Amend.
60149A	California Department of Fish and Wildlife, Fortuna, California.	Tidewater goby (<i>Eucyclogobius newberryi</i>).	CA	Survey, capture, hold, handle, measure, collect photographic vouchers, and release.	Renew.

Application No.	Applicant, city, state	Species	Location	Take activity	Permit action
06873C	Environmental Science Associates, San Diego, California.	Least Bell's vireo (<i>Vireo bellii pusillus</i>) Pacific pocket mouse (<i>Perognathus longimembris pacificus</i>) San Bernardino Merriam's kangaroo rat (<i>Dipodomys merriami parvus</i>).	CA	Survey, locate and monitor nests, capture, handle, and release.	Amend.
166383	Bureau of Land Management, Hollister Field Office, Hollister, California.	California tiger salamander (<i>Ambystoma californiense</i>), Sonoma County distinct population segment Blunt-nosed leopard lizard (<i>Gambelia silus</i>).	CA	Survey, capture, handle, take tissue samples, radio-tag, conduct thermal ecology assays, collect blood samples, PIT tagging, and release.	Renew and amend.
095896	Phillip Richards, Laguna Hills, California.	Pacific pocket mouse (<i>Perognathus longimembris pacificus</i>) San Bernardino Merriam's kangaroo rat (<i>Dipodomys merriami parvus</i>).	CA	Survey, capture, handle, and release.	Renew.
185595	Kelly Bayne, Sacramento, California.	California tiger salamander (<i>Ambystoma californiense</i>) Sonoma County and Santa Barbara County distinct population segments Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
PER4207925	Matt Shaffer, Rocklin, California.	Conservancy fairy shrimp (<i>Branchinecta conservatio</i>) Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>) Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>) Riverside fairy shrimp (<i>Streptocephalus woottoni</i>) San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>).	CA	Survey, capture, handle, release, collect adult vouchers, and collect branchiopod resting eggs.	Renew.
108507	U.S. Fish and Wildlife Service, Sacramento, California.	All endangered species in the Pacific Southwest Region.	CA, NV, OR	All activities in furtherance of the U.S. Fish and Wildlife Service's mission to conserve endangered wildlife and plants and the ecosystems upon which they depend.	Amend.

Public Availability of Comments

Written comments we receive become part of the administrative record associated with this action. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can request in your comment that we withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions

from organizations or businesses, and from individuals identifying themselves as representatives or officials of be made available for public disclosure in their entirety.

Next Steps

If we decide to issue permits to any of the applicants listed in this notice, we will publish a notice in the **Federal Register**.

Authority

We publish this notice under section 10(c) of the Endangered Species Act of

1973, as amended (16 U.S.C. 1531 *et seq.*).

Rachel Henry,

Acting Regional Ecological Services Program Manager, Pacific Southwest Region, Sacramento, California.

[FR Doc. 2023-22278 Filed 10-5-23; 8:45 am]

BILLING CODE 4333-15-P

DEPARTMENT OF THE INTERIOR**Geological Survey**

[GX24BD009AV0100; OMB Control Number 1028–0126 (renewal)]

Agency Information Collection Activities; Cooperative Research Units (CRU)

AGENCY: U.S. Geological Survey, Department of the Interior.

ACTION: Notice of information collection; request for comment.

SUMMARY: In accordance with the Paperwork Reduction Act of 1995 (PRA), the U.S. Geological Survey (USGS) is renewing an existing information collection.

DATES: Interested persons are invited to submit comments on or before December 5, 2023.

ADDRESSES: Send your comments on the information collection request (ICR) by mail to the U.S. Geological Survey, Information Collections Clearance Officer, 12201 Sunrise Valley Drive, MS 159, Reston, VA 20192; or by email to gs-info_collections@usgs.gov. Please reference OMB Control Number 1028–0126 CRU (renewal) in the subject line of your comments.

FOR FURTHER INFORMATION CONTACT: To request additional information about this ICR, contact Melissa Thode, CRU Program Analyst, by email at mthode@usgs.gov, or by telephone at 703–648–4265. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION: In accordance with the PRA (44 U.S.C. 3501 *et seq.*) and 5 CFR 1320.8(d)(1), all information collections require approval. We may not conduct or sponsor, nor are you required to respond to, a collection of information unless it displays a currently valid OMB control number.

As part of our continuing effort to reduce paperwork and respondent burdens, we invite the public and other Federal agencies to comment on new, proposed, revised, and continuing collections of information. This helps us assess the impact of our information collection requirements and minimize the public's reporting burden. It also helps the public understand our information collection requirements and

provide the requested data in the desired format.

We are especially interested in public comment addressing the following:

(1) Whether or not the collection of information is necessary for the proper performance of the functions of the agency, including whether or not the information will have practical utility;

(2) The accuracy of our estimate of the burden for this collection of information, including the validity of the methodology and assumptions used;

(3) Ways to enhance the quality, utility, and clarity of the information to be collected; and

(4) How the agency might minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, *e.g.*, permitting electronic submission of response.

Comments that you submit in response to this notice are a matter of public record. Before including your address, phone number, email address, or other personally identifiable information (PII) in your comment, you should be aware that your entire comment—including your PII—may be made publicly available at any time. While you can ask us in your comment to withhold your PII from public review, we cannot guarantee that we will be able to do so.

Abstract: CRU cooperating universities submit applications for research work orders via [Grants.gov](https://www.usgs.gov/grants). The statutory authority used is the Cooperative Research Units Act (16 U.S.C. 753a–753b), Public Law 86–686, sec. 1, Sept. 2, 1960, 74 Stat. 733, as amended by the Fish and Wildlife Improvement Act of 1978, Public Law 95–616, sec. 2, Nov. 8, 1978, 92 Stat. 3110. Applications consist of project proposals, budgets, and SF–424 forms. Information submitted includes project titles, schedules, scope of work, contact information (names, emails, addresses, position titles, telephone numbers), and detailed budget breakdowns (salaries, names, positions, rates of compensation) per USGS Office of Acquisition and Grants requirements.

Title of Collection: Cooperative Research Units.

OMB Control Number: 1028–0126 (renewal).

Form Number: None.

Type of Review: New.

Respondents/Affected Public: CRU cooperating universities.

Total Estimated Number of Annual Respondents: 126.

Total Estimated Number of Annual Responses: 126.

Estimated Completion Time per Response: 41 hours.

Total Estimated Number of Annual Burden Hours: 2325 hours.

Respondent's Obligation: Reading application: 126 respondents × 10 minutes = 21 hours; Preparing and submitting application 126 × 2 hours = 252 hours; Annual progress reports 126 × 2 hours = 252 hours; and Final reports 50 × 36 hours = 1,800 hours. Final Report numbers vary per year based on length of project.

Frequency of Collection: Annually.

Total Estimated Annual Non-hour Burden Cost: None.

An agency may not conduct or sponsor, nor are you required to respond to, a collection of information unless it displays a currently valid OMB control number.

The authorities for this action are the PRA (44 U.S.C. 3501, *et seq.*).

Don Dennerline,

Acting Deputy Chief, USGS CRU.

[FR Doc. 2023–22326 Filed 10–5–23; 8:45 am]

BILLING CODE 4338–11–P

DEPARTMENT OF THE INTERIOR**Geological Survey**

[GX23DK00GUH0300; OMB Control Number 1028–0111]

Agency Information Collection Activities; USGS Water Use Data and Research Program Announcement; Water Use Data and Research Program Feasibility Study

AGENCY: U.S. Geological Survey, Department of the Interior.

ACTION: Notice of information collection; request for comment.

SUMMARY: In accordance with the Paperwork Reduction Act (PRA) of 1995, the U.S. Geological Survey (USGS) is proposing to revise an information collection.

DATES: Interested persons are invited to submit comments on or before November 6, 2023.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to www.reginfo.gov/public/do/PRAMain. Find this particular information collection by selecting “Currently under Review—Open for Public Comments” or by using the search function. Please provide a copy of your comments on this information collection request (ICR) by mail, to

USGS, Information Collections Clearance Officer, 12201 Sunrise Valley Drive, MS 159, Reston, VA 20192; or by email to gs-info_collections@usgs.gov. Please reference OMB Control Number 1028–0118 Water Use Data and Research Program Feasibility Study in the subject line of your comments.

FOR FURTHER INFORMATION CONTACT: To request additional information about this ICR, contact Erik A. Smith by email at easmith@usgs.gov, or by telephone at 512–927–3584. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States. You may also view the ICR at <http://www.reginfo.gov/public/do/PRAMain>.

SUPPLEMENTARY INFORMATION: In accordance with the PRA of 1995 and 5 CFR 1320.8(d)(1), we provide the general public and other federal agencies with an opportunity to comment on proposed, revised, and continuing collections of information. This helps us assess the impact of our information collection requirements and minimize the public's reporting burden. It also helps the public understand our information collection requirements and provide the requested data in the desired format.

A **Federal Register** notice (88 FR 20902) with a 60-day public comment period soliciting comments on this collection of information was published on April 7, 2023. No comments were received.

As part of our continuing effort to reduce paperwork and respondent burdens, we are again soliciting comments from the public and other federal agencies on the proposed ICR that is described below. We are especially interested in public comment addressing the following issues:

- (1) Is the collection necessary to the proper functions of the USGS;
- (2) Will this information be processed and used in a timely manner;
- (3) Is the estimate of burden accurate;
- (4) How might the USGS enhance the quality, utility, and clarity of the information to be collected; and
- (5) How might the USGS minimize the burden of this collection on the respondents, including through the use of information technology.

Comments that you submit in response to this notice are a matter of public record. We will include or

summarize each comment in our request to OMB to approve this ICR. Before including your address, phone number, email address, or other personally identifiable information (PII) in your comment, you should be aware that your entire comment—including your PII—may be made publicly available at any time. While you can ask us in your comment to withhold your PII from public review, we cannot guarantee that we will be able to do so.

Abstract: The USGS is authorized under SECURE Water Act section 9508 to assist State and Territory water-resource agencies with improving their water-use data collection activities. The USGS has implemented the Water Use Data and Research program (WUDR) to work with State and Territory water agencies to gather and analyze their data and to assist this effort via cooperative agreements. WUDR will work to improve the collection and reporting of water-use categories by State and Territory agencies, including categories of water use that were previously discontinued due to limited resources. This collection will be used in reports to Congress on water resources in the Nation. Program authorization is \$1,500,000 per year.

Cooperative agreements will be announced and awarded as part of an annual competitive process that will be guided by a technical committee of USGS employees and stakeholder-group representatives. WUDR funds will be coordinated through a single agency in each State or Territory.

As part of the ongoing efforts to improve the collection and sharing of water-use data, a nationwide data-sharing feasibility study of State and Territory agencies that provide water-use information to the USGS will also be conducted. This study will investigate the water-use data availability and identify barriers that may prevent State and Territory agencies from sharing water-use data, especially site-specific water-use data. Example feasibility-study questions include: (1) whether water use location data (latitude, longitude, etc.) is available to the public, and if so, the format of availability to the public (website, publication, accessible paper files, etc.); (2) ability/willingness to share the water-use data with other agencies, such as the USGS, and any restrictions on sharing data (such as location and/or water quantity); (3) if information on quantities of water used, such as withdrawals, wastewater return, and sales/deliveries between users, is available to the public, and if so, the restrictions on water-quantity data such as categories of use or time intervals.

Collaboration and coordination with USGS personnel will be required as part of the WUDR program. Data must be stored electronically and made available in machine-readable formats that can be incorporated into USGS databases. Additionally, methods used for data collection (estimated values, coefficients, etc.) and a description of data quality assurance and control must be provided to the USGS.

Title of Collection: USGS Water Use Data and Research Program.

OMB Control Number: 1028–0118.

Form Number: None.

Type of Review: Revision of a currently approved collection.

Respondents/Affected Public: State and Territory water-resource agencies that collect water-use data.

Total Estimated Number of Annual Respondents: WUDR estimates that 30 respondents (States and/or Territories) will read the program announcement, 12 respondents will prepare and submit applications, 10 respondents (States and/or Territories) will submit semi-annual (two reports per year) progress reports and a final technical report, and 90 respondents (States and/or Territories) will respond to the water use data sharing feasibility study.

Total Estimated Number of Annual Responses: 30 respondents reading the program announcement; 12 applications; 20 progress reports, 10 final technical reports, 90 respondents to water use data sharing feasibility study.

Estimated Completion Time per Response: Read Program announcement: 1 hour; prepare applications: 40 hours; progress reports: 4 hours; final technical report: 24 hours; water use data sharing feasibility study: 1.5 hours.

Total Estimated Number of Annual Burden Hours: 965 hours.

Respondent's Obligation: Required to be eligible to receive funding and voluntary to respond to water-use data-sharing feasibility study.

Frequency of Collection: Program Announcements are published annually. Proposals are submitted annually by State and Territory water-resource agencies wishing to compete for funding offered through the annual program announcement. State and Territory water-resource agencies that receive a cooperative agreement must submit semi-annual progress reports and a final technical report. State and Territory water-resource agencies that respond to the water-use data sharing feasibility study will only need to respond once to provide potential clarification to questions on their study responses.

Total Estimated Annual Nonhour Burden Cost: None.

An agency may not conduct or sponsor, nor is a person required to respond to, a collection of information unless it displays a currently valid OMB control number.

The authority for this action is the PRA of 1995.

Cory Angeroth,

Deputy Program Coordinator, USGS Groundwater and Streamflow Information Program.

[FR Doc. 2023–22293 Filed 10–5–23; 8:45 am]

BILLING CODE 4338–11–P

DEPARTMENT OF THE INTERIOR

National Park Service

[NPS–WASO–NRNHL–DTS#–36681; PPWOCRADIO, PCU00RP14.R50000]

National Register of Historic Places; Notification of Pending Nominations and Related Actions

AGENCY: National Park Service, Interior.

ACTION: Notice.

SUMMARY: The National Park Service is soliciting electronic comments on the significance of properties nominated before September 23, 2023, for listing or related actions in the National Register of Historic Places.

DATES: Comments should be submitted electronically by October 23, 2023.

ADDRESSES: Comments are encouraged to be submitted electronically to *National Register Submissions@nps.gov* with the subject line “Public Comment on <property or proposed district name, (County) State>.” If you have no access to email, you may send them via U.S. Postal Service and all other carriers to the National Register of Historic Places, National Park Service, 1849 C Street NW, MS 7228, Washington, DC 20240.

FOR FURTHER INFORMATION CONTACT: Sherry A. Frear, Chief, National Register of Historic Places/National Historic Landmarks Program, 1849 C Street NW, MS 7228, Washington, DC 20240, *sherry_frear@nps.gov*, 202–913–3763.

SUPPLEMENTARY INFORMATION: The properties listed in this notice are being considered for listing or related actions in the National Register of Historic Places. Nominations for their consideration were received by the National Park Service before September 23, 2023. Pursuant to Section 60.13 of 36 CFR part 60, comments are being accepted concerning the significance of the nominated properties under the National Register criteria for evaluation.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Nominations submitted by State or Tribal Historic Preservation Officers:

Key: State, County, Property Name, Multiple Name (if applicable), Address/Boundary, City, Vicinity, Reference Number.

CALIFORNIA

Los Angeles County

Watts Happening Cultural Center, 1827 E 103rd St., Los Angeles, SG100009466

Riverside County

Evergreen Cemetery, 4414 Fourteenth St., Riverside, SG100009467

San Bernardino County

City Transfer and Storage Company Warehouse, 440 Oriental Ave., Redlands, SG100009474

Tuolumne County

Sierra Railway Locomotive No. 3, 10501 Reservoir Rd., Jamestown, SG100009468

DELAWARE

Sussex County

Prospect A.M.E. Church, 220 South Railroad Ave., Georgetown, SG100009498

DISTRICT OF COLUMBIA

District of Columbia

Eastern High School, (Public School Buildings of Washington, DC MPS), 1730 East Capitol Street NE, Washington, MP100009489

IOWA

Dallas County

Redfield GAR Hall, 1213 Thomas St., Redfield, SG100009484

Henry County

West Main Street Residential Historic District, 301–407 and 302–402 W Main St., Wayland, SG100009485

Louisa County

Fairview Church and Cemetery, 11501 Co Rd H22, Wapello vicinity, SG100009486

Muscatine County

Nichols, Benjamin F. and Susan M. (Jenkins), House, 815 Ijem Avenue, Nichols, SG100009487

Fairport Biological Station Historic District, 3390 Highway 22, Fairport vicinity, SG100009488

MINNESOTA

Cass County

United States Forest Service, Remer District Ranger Station, (Federal Relief Construction in Minnesota, 1933–1943 MPS (AD)), 307 Main Street East, Remer, MP100009469

Hackensack Conservation Building, (Federal Relief Construction in Minnesota, 1933–1943 MPS (AD)), 101 Fleischer Ave., Hackensack, MP100009470

St. Louis County

Finnish Apostolic Lutheran Church of Embarrass, 5103 Highway 21, Embarass, SG100009477

NEW MEXICO

Bernalillo County

La Luz del Oeste, Loop One NW, Albuquerque, SG100009493
Medical Arts Historic District, (Central Albuquerque MPS), 711, 717, and 801 Encino Place NE and 1010 Las Lomas Boulevard NE, Albuquerque, MP100009505

OHIO

Clark County

Springfield Country Club, 2315 Signal Hill Rd., Springfield, SG100009480

Franklin County

Eastgate Apartments Historic District, 455–461 (odd) N Nelson Rd., 492–508 (even) Sunbury Rd., 1864–2112 (even) Maryland Ave, Columbus, SG100009503

OREGON

Lane County

Springfield High School, 525 Mill Street, Springfield, SG100009475

SOUTH DAKOTA

Jerauld County

Zion Emmanuel Lutheran Church, 320 Oak Ave., Lane, SG100009483

TENNESSEE

Williamson County

Harlinsdale Farm (Boundary Increase), (Historic Family Farms in Middle Tennessee MPS), 315 Franklin Rd., Franklin, BC100009500

TEXAS

Dallas County

Bryan Tower, 2001 Bryan St., Dallas, SG100009495

Hunt County

Greenville Masonic Lodge No. 335 A.F. & A.M., 2615 Stonewall St., Greenville, SG100009494

Travis County

Baker School, 3908 Ave. B, Austin, SG100009490

Wichita County

First Wichita National Bank, 719 Scott Ave., Wichita Falls, SG100009496

VIRGINIA**Charlottesville INDEPENDENT CITY**

Charlottesville Downtown Mall Historic District, Main Street from Water Street to East 7th Street and pedestrianized sections of 1st Street, East 2nd Street, East 3rd Street, and East 5th Street, Charlottesville, SG100009471

Northumberland County

Julius Rosenwald High School, (Rosenwald Schools in Virginia MPS), 19602 Northumberland Highway, Reedville, MP100009479

Richmond INDEPENDENT CITY

High-Rise for the Elderly, 1202 N 151 Street, Richmond, SG100009501

WISCONSIN**Door County**

Sunshine Shipwreck (Scow Schooner), (Great Lakes Shipwreck Sites of Wisconsin MPS), 1.1 miles southeast of the entrance of North Bay, Door County in Lake Michigan, Liberty Grove vicinity, MP100009481

La Crosse County

Christ Evangelical Lutheran Church of Burr Oak, 9113 State Highway 108, Farmington, SG100009482

Portage County

Sisters of St. Joseph Complex, 1300 Maria Drive, Stevens Point, SG100009476

A request for removal has been made for the following resource(s):

MINNESOTA**Wadena County**

Peterson-Biddick Seed and Feed Company, 102 SE Aldrich Ave., Wadena, OT88003227

TENNESSEE**Rutherford County**

Collier-Lane-Crichlow House, 500 N Spring St., Murfreesboro, OT78002629

Nomination(s) submitted by Federal Preservation Officers:

The State Historic Preservation Officer reviewed the following nomination(s) and responded to the Federal Preservation Officer within 45 days of receipt of the nomination(s) and supports listing the properties in the National Register of Historic Places.

CALIFORNIA**Humboldt County**

Falk Archaeological District, Address Restricted, Eureka, SG100009504

DISTRICT OF COLUMBIA**District of Columbia**

Benjamin Ogle Tayloe House, 723 Madison Place NW (formerly 21 Madison Place NW), Washington, SG100009491

MINNESOTA**Ramsey County**

Mni Owe Sni/Coldwater Spring, Address Restricted, St. Paul vicinity, SG100009497

MINNESOTA**Hennepin County**

Mni Owe Sni/Coldwater Spring, Address Restricted, St. Paul vicinity, SG100009497

Authority: Section 60.13 of 36 CFR part 60.

Sherry A. Frear,

Chief, National Register of Historic Places/ National Historic Landmarks Program.

[FR Doc. 2023-22229 Filed 10-5-23; 8:45 am]

BILLING CODE 4312-52-P

DEPARTMENT OF THE INTERIOR**National Park Service**

[NPS-WASO-NRNL-DTS#-36622; PPWOCRADIO, PCU00RP14.R50000]

National Register of Historic Places; Notification of Pending Nominations and Related Actions

AGENCY: National Park Service, Interior.
ACTION: Notice.

SUMMARY: The National Park Service is soliciting electronic comments on the significance of properties nominated before August 26, 2023, for listing or related actions in the National Register of Historic Places.

DATES: Comments should be submitted electronically by October 23, 2023.

ADDRESSES: Comments are encouraged to be submitted electronically to *National_Register_Submissions@nps.gov* with the subject line "Public Comment on <property or proposed district name, (County) State>." If you have no access to email, you may send them via U.S. Postal Service and all other carriers to the National Register of Historic Places, National Park Service, 1849 C Street NW, MS 7228, Washington, DC 20240.

FOR FURTHER INFORMATION CONTACT: Sherry A. Frear, Chief, National Register of Historic Places/National Historic Landmarks Program, 1849 C Street NW, MS 7228, Washington, DC 20240, *sherry_frear@nps.gov*, 202-913-3763.

SUPPLEMENTARY INFORMATION: The properties listed in this notice are being considered for listing or related actions in the National Register of Historic Places. Nominations for their consideration were received by the National Park Service before August 26, 2023. Pursuant to Section 60.13 of 36 CFR part 60, comments are being accepted concerning the significance of

the nominated properties under the National Register criteria for evaluation.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Nominations submitted by State or Tribal Historic Preservation Officers:

Key: State, County, Property Name, Multiple Name (if applicable), Address/Boundary, City, Vicinity, Reference Number.

CALIFORNIA**Los Angeles County**

Watts Happening Cultural Center, 1827 E 103rd St., Los Angeles, SG100009466

Riverside County

Evergreen Cemetery, 4414 Fourteenth St., Riverside, SG100009467

San Bernardino County

City Transfer and Storage Company Warehouse, 440 Oriental Ave., Redlands, SG100009474

Tuolumne County

Sierra Railway Locomotive No. 3, 10501 Reservoir Rd., Jamestown, SG100009468

DISTRICT OF COLUMBIA**District of Columbia**

Eastern High School (Public School Buildings of Washington, DC MPS), 1730 East Capitol Street NE, Washington, MP100009489

IOWA**Dallas County**

Redfield GAR Hall, 1213 Thomas St., Redfield, SG100009484

Henry County

West Main Street Residential Historic District, 301-407 and 302-402 W Main St., Wayland, SG100009485

Louisa County

Fairview Church and Cemetery, 11501 Co Rd H22, Wapello vicinity, SG100009486

Muscatine County

Nichols, Benjamin F. and Susan M. (Jenkins), House, 815 Ijem Avenue, Nichols, SG100009487
Fairport Biological Station Historic District, 3390 Highway 22, Fairport vicinity, SG100009488

MINNESOTA**Cass County**

United States Forest Service, Remer District Ranger Station, (Federal Relief Construction in Minnesota, 1933-1943

MPS (AD)), 307 Main Street East, Remer, MP100009469
 Hackensack Conservation Building, (Federal Relief Construction in Minnesota, 1933–1943 MPS (AD)), 101 Fleischer Ave., Hackensack, MP100009470

St. Louis County

Finnish Apostolic Lutheran Church of Embarrass, 5103 Highway 21, Embarrass, SG100009477

OHIO

Clark County

Springfield Country Club, 2315 Signal Hill Rd., Springfield, SG100009480

OREGON

Lane County

Springfield High School, 525 Mill Street, Springfield, SG100009475

SOUTH DAKOTA

Jerauld County

Zion Emmanuel Lutheran Church, 320 Oak Ave., Lane, SG100009483

VIRGINIA

Charlottesville INDEPENDENT CITY

Charlottesville Downtown Mall Historic District, Main Street from Water Street to East 7th Street and pedestrianized sections of 1st Street, East 2nd Street, East 3rd Street, and East 5th Street, Charlottesville, SG100009471

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Julius Rosenwald High School, (Rosenwald Schools in Virginia MPS), 19602 Northumberland Highway, Reedville, MP100009479

WISCONSIN

Door County

Sunshine Shipwreck (Scow Schooner), (Great Lakes Shipwreck Sites of Wisconsin MPS), 1.1 miles southeast of the entrance of North Bay, Door County in Lake Michigan, Liberty Grove vicinity, MP100009481

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Christ Evangelical Lutheran Church of Burr Oak, 9113 State Highway 108, Farmington, SG100009482

Portage County

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A request for removal has been made for the following resource(s):

MINNESOTA

Wadena County

Peterson-Biddick Seed and Feed Company, 102 SE Aldrich Ave., Wadena, OT88003227

Authority: Section 60.13 of 36 CFR part 60.

Sherry A. Frear,

Chief, National Register of Historic Places/ National Historic Landmarks Program.

[FR Doc. 2023–22226 Filed 10–5–23; 8:45 am]

BILLING CODE 4312–52–P

DEPARTMENT OF THE INTERIOR

Bureau of Ocean Energy Management

Notice on Outer Continental Shelf Oil and Gas Lease Sales

AGENCY: Bureau of Ocean Energy Management (BOEM), Interior.

ACTION: List of restricted joint bidders.

SUMMARY: Pursuant to the Energy Policy and Conservation Act of 1975 and BOEM's regulatory restrictions on joint bidding, BOEM is publishing this list of restricted joint bidders. Each entity within one of the following groups is restricted from bidding with any entity in any of the other groups listed below at Outer Continental Shelf oil and gas lease sales held during the bidding period of November 1, 2023, through April 30, 2024.

DATES: This list of restricted joint bidders covers the bidding period of November 1, 2023, through April 30, 2024, and succeeds all prior published lists.

SUPPLEMENTARY INFORMATION:

Group I

BP America Production Company
 BP Exploration & Production Inc.

Group II

Chevron Corporation
 Chevron U.S.A. Inc.
 Chevron Midcontinent, L.P.
 Unocal Corporation
 Union Oil Company of California
 Pure Partners, L.P.

Group III

Eni Petroleum Co. Inc.
 Eni Petroleum US LLC
 Eni Oil US LLC
 Eni Marketing Inc.
 Eni BB Petroleum Inc.
 Eni US Operating Co. Inc.
 Eni BB Pipeline LLC

Group IV

Equinor ASA
 Equinor Gulf of Mexico LLC
 Equinor USA E&P Inc.

Group V

Exxon Mobil Corporation
 ExxonMobil Exploration Company

Group VI

Petroliam Nasional Berhad

(PETRONAS)

Progress Resources USA Ltd.
 Progress Resources Gulf of Mexico LLC

Group VII

Shell Oil Company
 Shell Offshore Inc.
 SWEPI LP
 Shell Frontier Oil & Gas Inc.
 SOI Finance Inc.
 Shell Gulf of Mexico Inc.

Group VIII

Total E&P USA, Inc.

Even if an entity does not appear on the above list, BOEM may disqualify and reject certain joint or single bids submitted by an entity if that entity is chargeable for the prior production period with an average daily production in excess of 1.6 million barrels of crude oil, natural gas, and natural gas liquids. See 30 CFR 556.512.

Authority: 42 U.S.C. 6213 and 30 CFR 556.511–556.515.

Laura Daniel-Davis,

Principal Deputy Assistant Secretary, Land and Minerals Management, Department of the Interior.

The action taken herein is pursuant to an existing delegation of authority.

[FR Doc. 2023–22317 Filed 10–5–23; 8:45 am]

BILLING CODE 4340–98–P

DEPARTMENT OF THE INTERIOR

Bureau of Ocean Energy Management

[Docket No. BOEM–2023–0050]

Notice of Availability of a Draft Environmental Impact Statement for US Wind Inc's Proposed Wind Energy Facility Offshore Maryland

AGENCY: Bureau of Ocean Energy Management (BOEM), Interior.

ACTION: Notice of availability; request for comments.

SUMMARY: BOEM announces the availability of the draft environmental impact statement (DEIS) for the construction and operations plan (COP) submitted by US Wind Inc. (US Wind) for its proposed Maryland Offshore Wind Project (Project) offshore Maryland. The DEIS analyzes the potential environmental impacts of the Project as described in the COP (the proposed action) and the alternatives to the proposed action. This notice of availability (NOA) announces the start of the public review and comment period, as well as the dates and times for public hearings on the DEIS. After BOEM holds the public hearings and

addresses comments provided, BOEM will publish a final environmental impact statement (FEIS). The FEIS will inform BOEM's decision whether to approve, approve with modifications, or disapprove the COP.

DATES: Comments must be received no later than November 20, 2023. BOEM will conduct four virtual/in person public hearings. BOEM's public hearings will be held at the following times (eastern time).

- October 19, 2023, 1 p.m.–5 p.m., virtual meeting
- October 24, 2023, 5 p.m.–9 p.m., Ocean City Elementary School, 12828 Center Dr., Ocean City, MD 21842
- October 26, 2023, 5 p.m.–9 p.m., Indian River High School, 29772 Armory Rd., Dagsboro, DE 19939
- October 30, 2023, 5 p.m.–9 p.m., virtual meeting

Registration for the virtual public hearings may be completed here: <https://www.boem.gov/renewable-energy/state-activities/us-wind> or by calling (703) 787–1520. Registration for the virtual hearings is required. Meeting information will be sent to registrants via their email address provided during registration.

ADDRESSES: The DEIS and detailed information about the Project, including the COP, can be found on BOEM's website at: <https://www.boem.gov/renewable-energy/state-activities/us-wind>. Comments can be submitted in any of the following ways:

- Orally or in written form during any of the public hearings identified in this NOA.
- In written form by mail or any other delivery service, enclosed in an envelope labeled "US Wind COP DEIS" and addressed to Program Chief, Office of Renewable Energy, Bureau of Ocean Energy Management, 45600 Woodland Road, VAM–OREP, Sterling, VA 20166.
- Through the *regulations.gov* web portal: Navigate to <http://www.regulations.gov> and search for Docket No. BOEM–2023–0050. Click on the "Comment" button below the document link. Enter your information and comment, then click "Submit Comment."

For more information about submitting comments, please see "Information on Submitting Comments" under the **SUPPLEMENTARY INFORMATION** heading below.

FOR FURTHER INFORMATION CONTACT: Jessica Stromberg, BOEM Office of Renewable Energy Programs, 45600 Woodland Road, VAM–OREP, Sterling, Virginia 20166, (703) 787–1722 or jessica.stromberg@boem.gov.

SUPPLEMENTARY INFORMATION:

Proposed Action: US Wind seeks approval to construct, operate, and maintain the Project: a wind facility up to 2.2 gigawatts on the Outer Continental Shelf (OCS) off the coast of Maryland. The Project would be developed within the range of design parameters outlined in the Maryland Offshore Wind COP, subject to applicable mitigation measures. The Project includes MarWin, a wind farm of approximately 300 megawatts (MW) for which the State of Maryland awarded offshore renewable energy credits (ORECs) to US Wind in 2017; Momentum Wind, consisting of approximately 808 MW for which the State of Maryland awarded US Wind additional ORECs in 2021; and build-out of the remainder of the lease area to fulfill ongoing, government-sanctioned demands for offshore wind energy.

US Wind proposes to construct and operate up to 114 wind turbines and up to four offshore substations with one offshore export cable route under the terms of Renewable Energy Lease OCS–A 0490. The lease area is located ten miles off the coast of Maryland. The onshore components of the Project would include a cable landfall area at 3Rs beach in Delaware. From the landfall, onshore cables would continue along an inshore cable export route in Indian River Bay to connect to a single onshore substation adjacent to the point of interconnection in Dagsboro, Delaware.

Alternatives: BOEM considered 14 alternatives when preparing the DEIS and carried forward five alternatives for further analysis in the DEIS. These five alternatives include four action alternatives and a no action alternative. BOEM rejected nine alternatives because they did not meet the purpose and need for the proposed action or did not meet screening criteria, which are presented in DEIS section 2.2. The screening criteria included consistency with law and regulations; technical and economic feasibility; environmental impact; and geographic considerations.

Availability of the DEIS: The DEIS, Maryland Offshore COP, and associated information are available on BOEM's website at: <https://www.boem.gov/renewable-energy/state-activities/us-wind>. If you need a flash drive or paper copy, BOEM will provide one upon request, as long as copies are available. You may request a flash drive or paper copy of the DEIS by calling (703) 787–1520.

Cooperating Agencies: The following nine Federal and State agencies participated as cooperating agencies in the preparation of the DEIS: Bureau of Safety and Environmental Enforcement;

U.S. Environmental Protection Agency; National Marine Fisheries Service; U.S. Army Corps of Engineers; U.S. Coast Guard; U.S. Fish and Wildlife Service; National Park Service; Maryland Department of the Environment; and Delaware Department of Natural Resources and Environmental Control.

Information on Submitting Comments: BOEM discourages the submittal of anonymous comments. Please include your name and address as part of your comment. BOEM makes all comments, including the names and addresses of respondents, available for public review online and during regular business hours. Individual respondents may request that BOEM withhold their names, addresses, or any other personal identifiable information (PII) included in their comment from the public record; however, BOEM cannot guarantee that it will be able to do so. If you wish your name, address, or other PII to be withheld, you must state your request prominently in a cover letter and explain the harm that you fear from its disclosure, such as unwarranted privacy invasion, embarrassment, or injury. Even if BOEM withholds your information in the context of this notice, your submission is subject to the Freedom of Information Act (FOIA) and any relevant court orders. If your submission is requested under the FOIA or such court order, your information will only be withheld if a determination is made that one of the FOIA's exemptions to disclosure applies or if such court order is challenged. Such a determination will be made in accordance with the Department's FOIA regulations and applicable law.

Please label privileged or confidential information as "Contains Confidential Information," and consider submitting such information as a separate attachment. Information that is not labeled as privileged or confidential may be regarded by BOEM as suitable for public release.

All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be made available for public inspection in their entirety.

Authority: 42 U.S.C. 4231 *et seq.* (NEPA, as amended) and 40 CFR 1506.6.

Karen Baker,

Chief, Office of Renewable Energy Programs, Bureau of Ocean Energy Management.

[FR Doc. 2023–21749 Filed 10–5–23; 8:45 am]

BILLING CODE 4340–98–P

DEPARTMENT OF THE INTERIOR**Bureau of Ocean Energy Management****[Docket No. BOEM–2023–0013]****Gulf of Mexico Outer Continental Shelf Oil and Gas Lease Sale 261****AGENCY:** Bureau of Ocean Energy Management, Interior.**ACTION:** Revised final notice of sale.

SUMMARY: On Wednesday, November 8, 2023, the Bureau of Ocean Energy Management (BOEM) will open and publicly announce bids received for blocks offered in the Gulf of Mexico (GOM) Outer Continental Shelf (OCS) Oil and Gas Lease Sale 261 (GOM Lease Sale 261), in accordance with the Outer Continental Shelf Lands Act (OCSLA), as amended, and its implementing regulations. This revised GOM Lease Sale 261 Final Notice of Sale (Final NOS) package contains information essential to potential bidders and comprises this notice, Information to Lessees, and Lease Stipulations.

DATES: BOEM will hold GOM Lease Sale 261 at 9:00 a.m. on Wednesday, November 8, 2023. All times referred to in this document are Central time, unless otherwise specified.

Bid submission deadline: BOEM must receive all sealed bids prior to the Bid Submission Deadline of 10:00 a.m. on Tuesday, November 7, 2023, the day before the lease sale. For more information on bid submission, see Section VII of this document, “Bidding Instructions.”

ADDRESSES: Bids will be accepted by MAIL ONLY through any parcel delivery service (e.g., FedEx, UPS, U.S. Postal Service, DHL), prior to the bid submission deadline, at 1201 Elmwood Park Boulevard, New Orleans, Louisiana, 70123. Public bid reading for GOM Lease Sale 261 will be held at 1201 Elmwood Park Boulevard, New Orleans, Louisiana. The venue will not be open to the general public, media, or industry during bid opening or reading. Bid opening will be available for public viewing on BOEM’s website at <https://www.boem.gov/Sale-261/> via live-streaming video beginning at 9:00 a.m. on the date of the sale. The results will be posted on BOEM’s website upon completion of bid opening and reading. Interested parties may download the Final NOS package from BOEM’s website at <https://www.boem.gov/Sale-261/>. Copies of the sale maps can be

obtained by contacting the BOEM GOM Region: Gulf of Mexico Region Public Information Office, Bureau of Ocean Energy Management, 1201 Elmwood Park Boulevard, New Orleans, Louisiana 70123–2394, (504) 736–2519 or (800) 200–GULF.

FOR FURTHER INFORMATION CONTACT: The New Orleans Office Lease Sale Coordinator, Greg Purvis, at BOEMGOMRLeaseSales@boem.gov or 504–736–1729.

SUPPLEMENTARY INFORMATION: The Inflation Reduction Act of 2022 (IRA) directed BOEM to hold GOM Lease Sale 261 by September 30, 2023. On August 25, 2023, BOEM published in the **Federal Register** the Final NOS for Lease Sale 261, which originally scheduled GOM Lease Sale 261 for September 27, 2023, in compliance with the IRA. See 88 FR 58310.¹ Two lawsuits then challenged the Final NOS in the U.S. District Court for the Western District of Louisiana. To implement the Memorandum Order² issued by the U.S. District Court for the Western District of Louisiana on September 21, 2023 (Case No. 2:23–CV–01157), and a subsequent order³ issued by the U.S. Court of Appeals for the Fifth Circuit on September 26, 2023 (Case No. 23–30666), BOEM is rescheduling the sale, revising the sale area to include the blocks that were the subject of the courts’ orders, modifying the Lease Stipulations to remove the protected species language that was the subject of the courts’ orders, updating the Information to Lessees, publishing a revised List of Available Blocks, and publishing new maps related to the sale. The FNOS makes no further changes to the FNOS published on August 25, 2023. This revised Final NOS and associated documents provide notice to the public and potential bidders of the updated timing, process, and terms for Lease Sale 261.

BOEM is also advising bidders that Lease Sale 261 remains in active litigation in the U.S. District Court of the Western District of Louisiana and the U.S. Court of Appeals in the Fifth Circuit. It is possible that BOEM could be ordered to modify the schedule, sale

¹ <https://www.federalregister.gov/documents/2023/08/25/2023-18342/gulf-of-mexico-outer-continental-shelf-oil-and-gas-lease-sale-261>.

² <https://www.courtlistener.com/docket/67727401/82/state-of-louisiana-v-haaland/>.

³ https://www.boem.gov/sites/default/files/documents/oil-gas-energy/leasing/23-30666_order.pdf.

area and terms of the sale through additional orders from these or other courts. BOEM would announce any such orders and changes to the sale on its website at <https://www.boem.gov/Sale-261/>.

Authority: This revised notice of sale is published pursuant to 43 U.S.C. 1331 *et seq.* (Outer Continental Shelf Lands Act, as amended) and 30 CFR 556.308(a).

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- II. Statutes and Regulations
- III. Lease Terms and Economic Conditions
- IV. Lease Stipulations
- V. Information to Lessees
- VI. Maps
- VII. Bidding Instructions
- VIII. Bidding Rules and Restrictions
- IX. Forms
- X. The Lease Sale
- XI. Delay of Sale

I. Lease Sale Area

Blocks Offered for Leasing: BOEM will offer for bid in this lease sale all of the available unleased acreage in the GOM OCS as identified on the map, “Final Notice of Sale, Gulf of Mexico OCS Oil and Gas Lease Sale 261, November 2023, Final Sale Area” (<https://www.boem.gov/Sale-261/>), except those blocks listed below in “Blocks Not Offered for Leasing.” Please note that, in compliance with the court orders mentioned above, the expanded Rice’s whale area (whole and partial blocks between the 100 meter (m) and 400 m isobaths across the northern GOM OCS, eastward from the Mexican border with Texas and westward from the eastern edge of the Central Planning Area) that was previously excluded from the sale is now included in Lease Sale 261, unless such blocks are otherwise subject to a separate exclusion not addressed by the District Court and listed below.

Blocks Not Offered for Leasing: BOEM will exclude the following whole and partial blocks from this sale. The BOEM Official Protraction Diagrams (OPDs) and Supplemental OPDs are available online at <https://www.boem.gov/oil-gas-energy/mapping-and-data>.

- Whole and Partial Blocks withdrawn from leasing by Presidential Withdrawal in the September 8, 2020, *Memorandum on the Withdrawal of Certain Areas of the United States Outer Continental Shelf from Leasing Disposition:*

GOM protraction areas	Block
Pensacola (Leasing Map NH 16-05)	Whole Blocks: 751-754, 793-798, 837-842, 881-886, 925-930, 969-975.
Destin Dome (Leasing Map NH 16-08)	Whole Blocks: 1-7, 45-51, 89-96, 133-140, 177-184, 221-228, 265-273, 309-317, 353-361, 397-405, 441-450, 485-494, 529-538, 573-582, 617-627, 661-671, 705-715, 749-759, 793-804, 837-848, 881-892, 925-936, 969-981.
DeSoto Canyon (Leasing Map NH 16-11)	Whole Blocks: 1-15, 45-59, 92-102. Partial Blocks: 16, 60, 61, 89-91, 103-105, 135-147.
Henderson (Leasing Map NG 16-05)	Partial Blocks: 114, 158, 202, 246, 290, 334, 335, 378, 379, 422, 423.

• Whole and Partial Blocks within the boundary of the Flower Garden Banks National Marine Sanctuary (East and West Flower Garden Banks and the Stetson Bank) as of the July 14, 2008, Memorandum on Modification of the Withdrawal of Areas of United States Outer Continental Shelf from Leasing Disposition:

GOM protraction areas	Block
High Island, East Addition, South Extension (Leasing Map TX7C).	Whole Block: A-398. Partial Blocks: A-366, A-367, A-374, A-375, A-383, A-384, A-385, A-388, A-389, A-397, A-399, A-401.
High Island, South Addition (Leasing Map TX7B).	Partial Blocks: A-502, A-513.

• Whole and Partial Blocks that are adjacent to or beyond the U.S. Exclusive Economic Zone in the area known as the northern portion of the Eastern Gap:

GOM protraction areas	Block
Lund South (Leasing Map NG 16-07)	Whole Blocks: 128, 129, 169-173, 208-217, 248-261, 293-305, 349.
Henderson (Leasing Map NG 16-05)	Whole Blocks: 466, 508-510, 551-554, 594-599, 637-643, 679-687, 722-731, 764-775, 807-819, 849-862, 891-905, 933-949, 975-992. Partial Blocks: 335, 379, 423, 467, 511, 555, 556, 600, 644, 688, 732, 776, 777, 820, 821, 863, 864, 906, 907, 950, 993, 994.
Florida Plain (Leasing Map NG 16-08)	Whole Blocks: 5-24, 46-67, 89-110, 133-154, 177-197, 221-240, 265-283, 309-327, 363-370.

• Depth-restricted, segregated block portion(s). The current block meeting this criterion is: Block 299, Main Pass Area, South and East Addition (as shown on Louisiana Leasing Map LA10A), containing 1,125 acres from the surface of the earth down to a subsea depth of 1,900 feet with respect to the following described portions:

SW¹/₄NE¹/₄; NW¹/₄SE¹/₄NE¹/₄;
W¹/₂NE¹/₄SE¹/₄NE¹/₄; S¹/₂S¹/₂NW¹/₄NE¹/₄;

S¹/₂SW¹/₄NE¹/₄NE¹/₄;
S¹/₂SW¹/₄SE¹/₄NE¹/₄NE¹/₄; N¹/₂SW¹/₄SE¹/₄NE¹/₄;
NE¹/₄; SW¹/₄SW¹/₄SE¹/₄NE¹/₄; NW¹/₄SE¹/₄SE¹/₄ NE¹/₄; N¹/₂NW¹/₄SW¹/₄SE¹/₄SE¹/₄NE¹/₄;
N¹/₂SE¹/₄SW¹/₄SE¹/₄NE¹/₄;
N¹/₂S¹/₂SE¹/₄SW¹/₄SE¹/₄NE¹/₄;
S¹/₂NE¹/₄NW¹/₄; S¹/₂S¹/₂N¹/₂NE¹/₄NW¹/₄;
N¹/₂SE¹/₄NW¹/₄; S¹/₂SE¹/₄NW¹/₄NW¹/₄;
NE¹/₄SE¹/₄ NW¹/₄NW¹/₄;
E¹/₂NE¹/₄SW¹/₄NW¹/₄; N¹/₂SE¹/₄SE¹/₄NW¹/₄;
NE¹/₄SW¹/₄SE¹/₄NW¹/₄;
N¹/₂NW¹/₄SW¹/₄SE¹/₄NW¹/₄;

SE¹/₄SE¹/₄SE¹/₄NW¹/₄;
E¹/₂SW¹/₄SE¹/₄SE¹/₄NW¹/₄;
N¹/₂NW¹/₄NE¹/₄SW¹/₄NW¹/₄;
N¹/₂S¹/₂NW¹/₄NE¹/₄SW¹/₄NW¹/₄;
N¹/₂N¹/₂NE¹/₄NE¹/₄NE¹/₄SW¹/₄;
N¹/₂N¹/₂N¹/₂NW¹/₄NW¹/₄SE¹/₄;
N¹/₂N¹/₂NW¹/₄NE¹/₄NW¹/₄SE¹/₄

• Whole and Partial Blocks that were previously subject to the Blocks South of Baldwin County, Alabama, Stipulation:

GOM protraction areas	Blocks
Mobile (Leasing Map NH16-04)	826-830, 869-874, 913-918, 957-962, 1001-1006.
Viosca Knoll (Leasing Map NH 16-07)	33-35.

• Whole and Partial Blocks that were previously subject to the Topographic Features Stipulation:

GOM protraction area	Blocks
East Breaks (Leasing Map NG 15-01)	121-124, 165-168, 173, 217.
East Cameron Area (Leasing Map LA2)	361-363, 377-379.
Eugene Island Area (Leasing Map LA4)	335, 355-356, 381-383, 390-391, 397.
Ewing Bank (Leasing Map NH 15-12)	903, 932-933, 944-945, 947, 975-977
Garden Banks (Leasing Map NG 15-02)	26-31, 33, 61-63, 70-77, 81-85, 95-98, 102-110, 119-121, 126-128, 133-136, 138-146, 148-155, 177-180, 192-198, 237-239.
Green Canyon (Leasing Map NG 15-03)	4-7, 49-50, 90.
High Island Area, East Addition (Leasing Map TX7A).	A311-312, A 327-A 332, A 340, A 346-A403, A446-A448, A463-A465, A486-A488, A501-A503, A512-A514, A527-A529, A534-A535, A573, A578-A580, A589-A591, A596.

GOM protraction area	Blocks
Mississippi Canyon (Leasing Map NH 16-10)	316.
Mustang Island Area (Leasing Map TX3)	A3-4, A9, A16, A54, A61-A62, A86-A87, A95, A117-A118, A136-A137.
North Padre Island Area (Leasing Map TX2)	PN A30-A31, A40-A41, A72, A83-A84.
South Marsh Island Area, North Addition (Leasing Map LA3D).	161-163, 169-173, 176-180, 185-188, 193-197, 200-204.
Ship Shoal Area (Leasing Map LA5)	325-329, 334-339, 348-353, 356-359.
South Timbalier Area (Leasing Map LA6)	314-317.
Vermilion Area (Leasing Map LA3)	284-286, 297-300, 303-306, 317-320, 361-363, 369-372, 382-396, 403-412.
West Cameron Area (Leasing Map LA1)	569-570, 589-592, 611-614, 633-638, 645-646, 648-663.
West Delta Area (Leasing Map LA8)	147-148.

• Whole blocks that contain banks that are adjacent to blocks previously included in the Topographic Features Stipulation:

GOM protraction area	Blocks
Garden Banks (Leasing Map NG 15-02)	181.

• Whole and Partial Blocks that were previously subject to the Live Bottom (Pinnacle Trend) Stipulation:

GOM protraction area	Blocks
Main Pass Area, South and East Addition (Leasing Map LA10A).	190, 194, 198, 219-226, 244-266, 276-290.
Viosca Knoll (Leasing Map NH 16-07)	473-476, 521-522, 564-566, 610, 654, 692-698, 734, 778.

• Whole and partial blocks identified as either Wind Energy Area Options (Areas A, B, C, D, E, F, G, H, J, K, L, and N) or final Wind Energy Areas (Areas I and M):

GOM protraction area	Blocks
Brazos Area (Leasing Map TX5)	430, 457-459, 466-468, 572-575, 580-584, 609-614, A22, A28-A29, A3, A30-A35, A42-A43.
Brazos Area, South Addition (Leasing Map TX5B).	A102-A105, A46-A48, A55-A58, A60-A61, A73-A74.
East Cameron Area (Leasing Map LA2)	96-106, 113-124.
Galveston Area (Leasing Map TX6)	237, 258-259, 265-268, 286-291, 293-299, 317-327, 350-356, 386-387, 427-429, 460-462, 464-465, A1-A9, A10-A35, A40-A49, A62-A77, A84-A86, A91-A94, A97-A99, A103-A105, A110-A113.
Galveston Area, South Addition (Leasing Map TX6A).	A114-A119, A138-A139, A140-A148, A169-A174, A203.
High Island Area (Leasing Map TX7)	235-236, 260-261, 263-264, 292, A2-A4, A11-A15, A27-A31, A62-A64, A66-A68, A70-A90, A92-A99, A100-A111, A113-A116, A118-A142, A144-A152, A156-A163, A165-A166.
High Island Area, East Addition (Leasing Map TX7A).	A170-A174, A177-A182, A187-A193, A195-A199, A202-A209, A211-A213, A216-217, A220-A228, A233-A241, A250-A251.
High Island Area, South Addition (Leasing Map TX7B).	A404-A405, A408-A413, A420-A425, A428-A431, A434-A439, A454-A457, A480-A481.
Matagorda Island Area (Leasing Map TX4)	639-642, 646-649, 673-678, A1, A3, A4.
Mustang Island Area (Leasing Map TX3)	803-804, 810-812, 826-828, 832-834, 847-849, 853-854.
South Padre Island Area, East Addition (Leasing Map TX1A).	1078, 1097-1098, 1117-1119, A35-A36, A46-A52, A59-A64.
West Cameron Area (Leasing Map LA1)	188-190, 195-196, 205-213, 224-230, 241-245, 256.
West Cameron Area, West Addition (Leasing Map LA1A).	302-303, 314-318, 328-334, 343-352, 359-360, 362-364, 372-379, 393-396, 398-400.

• Whole and Partial BOEM-designated Significant Sediment Resource Area Blocks:

GOM protraction area	Blocks
Bay Marchand Area (Leasing Map LA6C)	2–5.
Breton Sound Area (Leasing Map LA10B)	24, 25, 39, 41–44, 53–56.
Chandeleur Area (Leasing Map LA11)	1, 4, 5, 8, 16, 28, 30–34.
Eugene Island Area (Leasing Map LA4)	10, 18–35, 37–96, 111, 112.
Galveston Area (Leasing Map TX6)	265, 290, 291, 293, 294, 295, 322.
Galveston Area, South Addition (Leasing Map TX6A).	1A, 2A, 3A, 4A, 5A.
Grand Isle Area (Leasing Map LA7)	15, 25.
High Island Area (Leasing Map TX7)	19–21, 35–39, 45–49, 60–65, 69–76, 83–91, 111–119, 131–137, 158–164, 171–175, 196–205, 230–234, 261–264, 292, A6–A10, A16–A22, A37–A42, A60–A65.
High Island Area, East Addition (Leasing Map TX7A).	6, 10, 38–42, 45, 46, 60–65, 74–76, 83, 84, 85.
Mobile (Leasing Map NH 16–04)	765–767, 778, 779, 809–824, 826–830, 853–874, 897–918, 942, 946, 947, 954–962, 991, 999–1006.
Main Pass Area (Leasing Map LA10)	6, 39–44, 58–60, 86–90, 92–120, 125–129, 139.
Main Pass, South and East Addition (Leasing Map LA10A).	161, 162, 180, 181.
South Pelto Area (Leasing Map LA6B)	1–20, 23–25.
Sabine Pass Area (LA) (Leasing Map LA12)	8–16.
South Marsh Island Area, North Addition (Leasing Map LA3D).	207–237, 241–249, 259–261, 267, 268.
Ship Shoal Area (Leasing Map LA5)	24–26, 37, 38, 63–75, 84–100, 107–114, 119, 120.
South Timbalier Area (Leasing Map LA6)	9–11, 16–18, 34, 51, 52, 54, 55, 66, 67, 72.
Sabine Pass Area (TX) (Leasing Map TX8)	9, 17, 18, 40, 44.
Viosca Knoll (Leasing Map NH 16–07)	23, 34–38, 67, 78–82, 111, 155.
Vermilion Area (Leasing Map LA3)	11, 30, 49, 51–54, 68–77, 86–96, 108–111.
West Cameron Area (Leasing Map LA1)	20–22, 41–45, 56–60, 78–83, 90–95, 113–118, 128–134, 146–150, 153–157, 160, 161, 162, 168–172, 181.
West Cameron Area, West Addition (Leasing Map LA1A).	154–157, 160–162, 287.
West Delta Area (Leasing Map LA8)	20–31, 32, 43–50, 56–61.

The final list of blocks available for bid is posted on BOEM’s website at <https://www.boem.gov/Sale-261/> under the Final NOS tab.

II. Statutes and Regulations

Each lease is issued pursuant to OCSLA, 43 U.S.C. 1331 *et seq.*, as amended, and is subject to OCSLA implementing regulations promulgated pursuant thereto in 30 CFR part 556, and other applicable statutes and regulations in existence upon the effective date of the lease, as well as those applicable statutes enacted and regulations promulgated thereafter, except to the extent that the after-enacted statutes and regulations explicitly conflict with an express

provision of the lease. Each lease is subject to amendments to statutes and regulations, including but not limited to OCSLA, that do not explicitly conflict with an express provision of the lease. The lessee expressly bears the risk that such new or amended statutes and regulations (*i.e.*, those that do not explicitly conflict with an express provision of the lease) may increase or decrease the lessee’s obligations under the lease.

BOEM reserves the right to reject any and all bids received, regardless of the amount offered (see 30 CFR 556.516).

III. Lease Terms and Economic Conditions

OCS Lease Form

BOEM will use Form BOEM–2005 (February 2017) to convey leases resulting from this sale. This lease form can be viewed on BOEM’s website at <https://www.boem.gov/BOEM-2005>. The lease form will be amended to include specific terms, conditions, and stipulations applicable to the individual lease. The final terms, conditions, and stipulations applicable to this sale are below.

Primary Terms

Primary terms are summarized in the following table:

Water depth (meters)	Primary term
0 to <400	The primary term is 5 years; the lessee may earn an additional 3 years (<i>i.e.</i> , for an 8-year extended primary term) if a well is spudded targeting hydrocarbons below 25,000 feet True Vertical Depth Subsea (TVDSS) during the first 5 years of the lease.
400 to <800	The primary term is 5 years; the lessee will earn an additional 3 years (<i>i.e.</i> , for an 8-year extended primary term) if a well is spudded during the first 5 years of the lease.
800+	10 years.

(1) The primary term for a lease in water depths less than 400 meters issued as a result of this sale is 5 years. If the lessee spuds a well targeting hydrocarbons below 25,000 feet TVDSS

within the first 5 years of the lease, then the lessee may earn an additional 3 years, resulting in an 8-year primary term. The lessee will earn the 8-year primary term when the well is drilled to

a target below 25,000 feet TVDSS; or the lessee may earn the 8-year primary term in cases where the well targets, but does not reach, a depth below 25,000 feet TVDSS due to mechanical or safety

reasons that are beyond the lessee’s control, and that are supported by sufficient evidence from the lessee. To earn the 8-year primary term, the lessee is required to submit a letter to the BOEM GOM Regional Supervisor, Office of Leasing and Plans, as soon as practicable, but no more than 30 days after completion of the drilling operation, providing the well number, spud date, information demonstrating a target below 25,000 feet TVDSS and whether that target was reached, and if applicable, any safety or mechanical reasons encountered that prevented the well from reaching a depth below 25,000 feet TVDSS. In the letter, the lessee must request confirmation from BOEM that the lessee earned the 8-year primary term. The BOEM GOM Regional Supervisor for Leasing and Plans will confirm in writing, within 30 days of receiving the lessee’s letter, whether the lessee has earned the extended primary term and accordingly update BOEM’s records. The extended primary term is not effective unless and until the lessee receives confirmation from BOEM. A

lessee that has earned the 8-year primary term by spudding a well with a hydrocarbon target below 25,000 feet TVDSS during the standard 5-year primary term of the lease will not be granted a suspension for that same period under the regulations at 30 CFR 250.175 because the lease is not at risk of expiring.

(2) The primary term for a lease in water depths ranging from 400 to less than 800 meters issued as a result of this sale is 5 years. If the lessee spuds a well within the 5-year primary term of the lease, the lessee may earn an additional 3 years, resulting in an 8-year primary term. To earn the 8-year primary term, the lessee is required to submit a letter to the BOEM GOM Regional Supervisor, Office of Leasing and Plans, as soon as practicable, but no more than 30 days after spudding a well, providing the well number and spud date, and requesting confirmation from BOEM that the lessee earned the 8-year extended primary term. Within 30 days of receipt of the request, the BOEM GOM Regional Supervisor for Leasing

and Plans will provide written confirmation of whether the lessee has earned the extended primary term and accordingly update BOEM’s records. The extended primary term is not effective unless and until the lessee receives confirmation from BOEM.

(3) The primary term for a lease in water depths 800 meters or deeper issued as a result of this sale is 10 years.

Minimum Bonus Bid Amounts

BOEM will not accept a bonus bid unless it provides for a cash bonus in an amount equal to or exceeding the specified minimum bid, as described below.

- \$25 per acre or fraction thereof for blocks in water depths less than 400 meters; and
- \$100 per acre or fraction thereof for blocks in water depths 400 meters or deeper.

Rental Rates

Annual rental rates, per acre or fraction thereof, are summarized in the following table:

Water Depth (meters)	Years 1–5	Year 6	Year 7	Year 8+
0 to <200	\$10	\$20	\$30	\$40
200 to <400	16	32	48	64
400+	16	22	22	22

Escalating Rental Rates for Leases With an 8-Year Primary Term in Water Depths Less Than 400 Meters

Any lessee with a lease in less than 400 meters water depth who earns an 8-year primary term will pay an escalating rental rate as shown above. The rental rates after the fifth year for blocks in less than 400 meters water depth will become fixed and no longer escalate if another well is spudded targeting hydrocarbons below 25,000 feet TVDSS after the fifth year of the lease, and BOEM concurs that such a well has been spudded. In this case, the rental rate will become fixed at the rental rate in effect during the lease year in which the additional well was spudded.

Royalty Rate

- 18¾ percent for all leases.

Minimum Royalty Rate

- \$10 per acre or fraction thereof per year for blocks in water depths less than 200 meters; and
- \$16 per acre or fraction thereof per year for blocks in water depths 200 meters or deeper.

Royalty Suspension Provisions

The Department may issue leases with Royalty Suspension Volumes (RSVs) and other forms of royalty relief under 30 CFR part 560, which BOEM administers. The specific details relating to eligibility and implementation of RSVs and other royalty relief programs are found at 30 CFR part 203, which the Bureau of Safety and Environmental Enforcement administers. In this sale, the only royalty relief program being offered involves RSVs for the drilling of ultra-deep wells in water depths of less than 400 meters, as described in the following section.

Royalty Suspension Volumes on Gas Production From Ultra-deep Wells

Pursuant to 30 CFR part 203, certain leases issued as a result of this sale may be eligible for RSV incentives on gas produced from ultra-deep wells. Under this program, wells on leases in less than 400 meters water depth and completed to a drilling depth of 20,000 feet TVDSS or deeper receive an RSV of 35 billion cubic feet on the production of natural gas. This RSV incentive is subject to applicable price thresholds set forth in the regulations at 30 CFR

part 203. These regulations implement the requirements of the Energy Policy Act of 2005 (Pub. L. 109–58, 119 Stat. 594 (2005)).

IV. Lease Stipulations

On September 21, 2023, the U.S. District Court for the Western District of Louisiana issued an order⁴ requiring BOEM to modify, for purposes of this sale, the version of Stipulation No. 4 originally published in the August 2023, Final NOS package. To comply with this order, Stipulation No. 4 no longer contains the enhanced protection measures for the Rice’s whale that previously appeared under paragraph (B)(4). BOEM has published a revised Lease Stipulations document for this sale on its website, available at <https://www.boem.gov/Sale-261/>.

One or more of the stipulations below may be applied to leases issued as a result of this sale. The applicable blocks for each stipulation are identified on the map “Final Notice of Sale, Gulf of Mexico OCS Oil and Gas Lease Sale 261, November 2023, Stipulations and Deferred Blocks” included in the Final

⁴ <https://www.courtlistener.com/docket/67727401/82/state-of-louisiana-v-haaland/>.

NOS package. The full text of the following stipulations is contained in the “Lease Stipulations” section of the Final NOS package. BOEM has posted the final list of blocks available for bid and the applicable stipulations that apply to those blocks on its website at <https://www.boem.gov/Sale-261/> under the Final NOS tab.

- (1) Military Areas
- (2) Evacuation
- (3) Coordination
- (4) Protected Species
- (5) United Nations Convention on the Law of the Sea Royalty Payment
- (6) Agreement Between the United States of America and the United Mexican States Concerning Transboundary Hydrocarbon Reservoirs in the Gulf of Mexico
- (7) Restrictions due to Rights-of-Use and Easement for Floating Production Facilities
- (8) Royalties on All Produced Gas

V. Information to Lessees

Information to Lessees (ITLs) provide detailed information on certain issues pertaining to specific oil and gas lease sales. The full text of the ITLs for this sale is contained in the “Information to Lessees” section of the Final NOS package and covers the following topics.

- (1) Navigation Safety
- (2) Ordnance Disposal Areas
- (3) Existing and Proposed Artificial Reefs/Rigs-to-Reefs
- (4) Lightering Zones
- (5) Indicated Hydrocarbons List
- (6) Military Areas
- (7) Bureau of Safety and Environmental Enforcement Inspection and Enforcement of Certain U.S. Coast Guard Regulations
- (8) Significant Outer Continental Shelf Sediment Resource Areas
- (9) Notice of Arrival on the Outer Continental Shelf
- (10) Bidder/Lessee Notice of Obligations Related to Criminal/Civil Charges and Offenses, Suspension, or Debarment; Disqualification Due to a Conviction Under the Clean Air Act or the Clean Water Act
- (11) Protected Species
- (12) Expansion of the Flower Garden Banks National Marine Sanctuary
- (13) Communication Towers
- (14) Deepwater Port Applications (DWP) for Offshore Oil and Liquefied Natural Gas Facilities
- (15) Ocean Dredged Material Disposal Sites
- (16) Rights-of-Use and Easement
- (17) Industrial Waste Disposal Areas
- (18) Gulf Islands National Seashore
- (19) Air Quality Permit/Plan Approvals
- (20) Provisions Pertaining to Certain Transactions by Foreign Persons

Involving Real Estate in the United States
(21) Inflation Reduction Act of 2022

VI. Maps

The maps pertaining to this lease sale can be viewed on BOEM’s website at <https://www.boem.gov/Sale-261/>. The following maps also are included in the Final NOS package:

Sale Area Map

The sale area is shown on the map entitled, “Final Notice of Sale, Gulf of Mexico OCS Oil and Gas Lease Sale 261, November 2023, Final Sale Area.”

Lease Terms and Economic Conditions Map

The lease terms and economic conditions associated with leases of certain blocks are shown on the map entitled, “Final Notice of Sale, Gulf of Mexico Oil and Gas Lease Sale 261, November 2023, Lease Terms and Economic Conditions.”

Stipulations and Deferred Blocks Map

The lease stipulations and the blocks to which they apply are shown on the map entitled, “Final Notice of Sale, Gulf of Mexico OCS Oil and Gas Lease Sale 261, November 2023, Stipulations and Deferred Blocks.”

VII. Bidding Instructions

BOEM is returning, unopened, all bids submitted by bidders under the previously issued Final NOS. Bidders wishing to participate in Lease Sale 261 must submit new bids or resubmit their returned bids in accordance with the terms and conditions contained in this revised Final NOS.

Bids may be submitted BY MAIL ONLY through any parcel delivery service (e.g., FedEx, UPS, USPS, DHL) at the address below in the “Mailed Bids” section. Bidders should be aware that BOEM has eliminated in-person bidding for GOM Lease Sale 261. Instructions on how to submit a bid, secure payment of the advance bonus bid deposit (if applicable), and the information to be included with the bid are as follows:

Bid Form

For each block bid upon, a separate sealed bid must be submitted in a sealed envelope (as described below) and include the following items:

- Total amount of the bid in whole dollars only;
- Sale number;
- Sale date;
- Each bidder’s exact name;
- Each bidder’s proportionate interest, stated as a percentage, using a maximum of five decimal places (e.g., 33.33333 percent);

• Typed name and title, and signature of each bidder’s authorized officer. Electronic signatures are acceptable. The typed name, title, and signature must agree exactly with the name and title on file in the BOEM Gulf of Mexico OCS Region Adjudication Section;

- Each bidder’s BOEM qualification number;
- Map name and number or OPD name and number;
- Block number; and
- Statement acknowledging that the bidder(s) understands that this bid legally binds the bidder(s) to comply with all applicable regulations, including the requirement to post a deposit in the amount of one-fifth of the bonus bid amount for any tract bid upon and make payment of the balance of the bonus bid and first year’s rental upon BOEM’s acceptance of high bids.

The information required for each bid is specified in the document “Bid Form” that is available in the Final NOS package, which can be found at <https://www.boem.gov/Sale-261/>. A blank bid form is provided in the Final NOS package for convenience and can be copied and completed with the necessary information described above.

Bid Envelope

Each bid must be submitted in a separate sealed envelope labeled as follows:

- “Sealed Bid for GOM Lease Sale 261, not to be opened until 9 a.m. Wednesday, November 8, 2023”;
 - Map name and number or OPD name and number;
 - Block number for block bid upon;
 - Acreage, if the bid is for a block that is split between the Central and Eastern Planning Areas; and
 - The exact name and qualification number of the submitting bidder only.
- The Final NOS package includes a sample bid envelope for reference.

Mailed Bids

Please address the envelope containing the sealed bid envelope(s) as follows: Attention: Leasing and Financial Responsibility Section, BOEM New Orleans Office, 1201 Elmwood Park Boulevard MS-266A, New Orleans, Louisiana 70123-2394, Contains Sealed Bids for GOM Lease Sale 261, Please Deliver to Mr. Greg Purvis, 2nd Floor, Immediately.

Please Note: Bidders are advised to inform BOEM by email at BOEMGOMRLeaseSales@boem.gov immediately after placing bid(s) in the mail. This provides advance notice to BOEM regarding pending bids prior to the bid submission deadline. In the email, please state the tracking number

of the bid package, the number of bids being submitted, and the email address of the person who should receive the bid receipt for signature. If BOEM receives bids later than the bid submission deadline, the BOEM GOM Regional Director (RD) will return those bids unopened to bidders. Please see Section XI, "Delay of Sale," regarding BOEM's discretion to extend the Bid Submission Deadline in the case of an unexpected event (e.g., flooding) and how bidders can obtain more information on such extensions.

Advance Bonus Bid Deposit Guarantee

Bidders that are not currently an OCS oil and gas lease record title holder or designated operator, or those that have ever defaulted on a one-fifth bonus bid deposit, must guarantee (secure) the payment of the one-fifth bonus bid deposit, by Electronic Funds Transfer (EFT) or otherwise, prior to bid submission using one of the following four methods:

- Provide a third-party guarantee;
- Amend a development stage area-wide bond via bond rider;
- Provide a letter of credit; or
- Provide a lump sum payment in advance via EFT.

Please provide, at the time of bid submittal, a confirmation or tracking number for the payment, the name of the company submitting the payment as it appears on the payment, and the date the payment was submitted so that BOEM can confirm payment with the Office of Natural Resources Revenue (ONRR). Bidders should submit payments to their financial institution at least 5 business days prior to bid submittal to ensure that the Office of Foreign Assets Control and the U.S. Department of the Treasury (U.S. Treasury) have time to screen and process payments and that payments are posted to ONRR prior to placing the bid. ONRR cannot confirm payment until the monies have been moved into settlement status by the U.S. Treasury. Bids will not be accepted if BOEM cannot confirm payment with ONRR before 10:00 a.m. on Tuesday, November 7, 2023.

If providing a third-party guarantee, amending a development stage area-wide bond via bond rider, or providing a letter of credit to secure your one-fifth bonus bid deposit, bidders are urged to file these documents with BOEM well in advance of submitting the bid. This allows processing time and ensures bidders have time to take any necessary curative actions prior to bid submission. For more information on EFT procedures, see Section X, "The Lease Sale."

Affirmative Action

Prior to bidding, each bidder should file the Equal Opportunity Affirmative Action Representation Form BOEM-2032 (February 2020, available on BOEM's website at <https://www.boem.gov/BOEM-2032/>) and Equal Opportunity Compliance Report Certification Form BOEM-2033 (February 2020, available on BOEM's website at <https://www.boem.gov/BOEM-2033/>) with the BOEM GOM Adjudication Section. This certification is required by 41 CFR part 60 and Executive Order (E.O.) 11246, issued September 24, 1965, as amended by E.O. 11375, issued October 13, 1967, and by E.O. 13672, issued July 21, 2014. Both forms must be on file for the bidder(s) in the GOM Adjudication Section prior to the execution of any lease contract.

Geophysical Data and Information Statement (GDIS)

The GDIS is composed of three parts:

- (1) A "Statement" page that includes the company representatives' information and separate lists of blocks bid on that used proprietary data and those blocks bid upon that did not use proprietary data;
- (2) A "Table" listing the required data about each proprietary survey used (see below); and
- (3) "Maps" that contain the live trace maps for each proprietary survey that is identified in the GDIS statement and table.

Every bidder submitting a bid on a block in GOM Lease Sale 261 or participating as a joint bidder in such a bid must submit at the time of bid submission all three parts of the GDIS. A bidder must submit the GDIS *even if a joint bidder or bidders on a specific block also have submitted a GDIS*. Please specify on the outside of the GDIS envelope if the information provided is for a joint bid, and if so, include the block number and primary bidder (company submitting the bid). Any speculative data that has been reprocessed externally or "in-house" is considered proprietary due to the proprietary processing and is no longer considered to be speculative.

The bidder and joint bidder must submit the GDIS in a separate and sealed envelope and must identify all proprietary data; reprocessed speculative data, and/or any Controlled Source Electromagnetic surveys, Amplitude Versus Offset (AVO) data, gravity data, and/or magnetic data; or other information used as part of the decision to bid or participate in a bid on the block. The bidder and joint bidder must also include a live trace map (e.g.,

pdf and ArcGIS shapefile) for each proprietary survey identified in the GDIS illustrating the actual areal extent of the proprietary geophysical data in the survey (see the "Example of Preferred Format" that is included in the Final NOS package for additional information). The shape file must not include cultural resources information; only the live trace map of the survey itself.

The GDIS statement must include the name, phone number, and full address for a contact person and an alternate who are both knowledgeable about the geophysical information and data listed and who are available for 30 days after the sale date. The GDIS statement must also include a list of all blocks bid upon, including those blocks where no proprietary or reprocessed geophysical data and/or proprietary information was used, as a basis for the bidder's decision to bid or to participate as a joint bidder in the bid. All GDIS statements must be included *with* any submitted bids in a separate envelope identified as GDIS. All bidders must submit the GDIS statement, even if no proprietary geophysical data or information was used in its bid preparation for the block.

An example of the preferred format of the table is included in the Final NOS package, and a blank digital version of the preferred table can be accessed on the GOM Lease Sale 261 website at <https://www.boem.gov/Sale-261/>. The GDIS table should have columns that clearly state the following:

- The sale number;
- The bidder company's name;
- The joint bidder's company's name (if applicable);
- The company that will provide the proprietary geophysical survey data to BOEM;
- The block area and block number bid upon;
- The owner of the original data set (e.g., TGS, PGS, WGC, CGG, etc.);
- The industry's original name of the survey (e.g., E Octopus);
- The BOEM permit number for the survey;
- Whether the data set is a fast-track version (intermediate product that is not final);
- Whether the data is speculative or proprietary;
- The data type (e.g., 2-D, 3-D, or 4-D; pre-stack or post-stack; time or depth);
- The migration algorithm (e.g., Kirchhoff migration, wave equation migration, reverse migration, reverse time migration) of the data and areal extent of bidder survey (i.e., number of line miles for 2-D or number of blocks for 3-D);

- The live proprietary survey coverage (2–D miles 3–D blocks);
- The computer storage size, to the nearest gigabyte, of each seismic data and velocity volume used to evaluate the lease block;
 - Who reprocessed the data;
 - The date on which the final reprocessing was completed (month and year);
 - If the data was previously sent to BOEM, list the sale number and date of the sale for which it was used;
 - Whether proprietary or speculative AVO/AVA (PROP/SPEC) was used;
 - The date on which AVO or AVA was sent to BOEM, if sent prior to the sale;
 - Whether AVO/AVA is time or depth (PSTM or PSDM);
 - Which angled stacks were used (e.g., NEAR, MID, FAR, ULTRAFAR);
 - Whether the company used Gathers to evaluate the block in question; and
 - Whether the company used Vector Offset Output (VOO) or Vector Image Partitions (VIP) to evaluate the block in question.

BOEM will use the computer storage size information to estimate the reproduction costs for each data set, if applicable. BOEM will determine the availability of reimbursement of production costs consistent with 30 CFR 551.13.

BOEM reserves the right to inquire about alternate data sets, to perform quality checks, and to compare the listed and alternative data sets to determine which data set most closely meets the needs of the fair market value determination process. See the “Example of Preferred Format” that is included in the Final NOS package.

The GDIS maps are live trace maps (e.g., pdf and ArcGIS shapefiles) that bidders should submit for each proprietary survey identified in the GDIS table. The maps should illustrate the actual areal extent of the proprietary geophysical data in the survey (see the “Example of Preferred Format” that is included in the Final NOS package for additional information). As previously stated, the shapefile must not include cultural resources information, only the live trace map of the survey itself.

Pursuant to 30 CFR 551.12 and 556.501, as a condition of the sale, the BOEM GOM Regional Director requests that all bidders and joint bidders submit the proprietary data identified on their GDIS within 30 days after the lease sale (unless notified after the lease sale that BOEM has withdrawn the request). This request only pertains to proprietary data that is not commercially available. Commercially available data should not be submitted to BOEM unless

specifically requested by BOEM. No reimbursement will be provided for unsolicited data sent to BOEM. The BOEM GOM RD will notify bidders and joint bidders of any withdrawal of the request, for all or some of the proprietary data identified on the GDIS, within 15 calendar days of the lease sale. Where the BOEM GOM RD has notified bidders and joint bidders that the request for such proprietary data has been withdrawn, reimbursement will not be provided. Pursuant to 30 CFR part 551 and 30 CFR 556.501, as a condition of this sale, all bidders that are required to submit data must ensure that the data are received by BOEM no later than the 30th day following the lease sale, or the next business day if the submission deadline falls on a weekend or Federal holiday. Please do not submit proprietary geophysical survey data in the GDIS envelope.

The proprietary geophysical survey data must be submitted to BOEM at the following address within 30 days of the sale as stated above: Bureau of Ocean Energy Management, Resource Studies, GM 881A, 1201 Elmwood Park Blvd., New Orleans, Louisiana 70123–2304.

The GDIS must be submitted along with your bid envelope to: Leasing and Financial Responsibility Section, BOEM New Orleans Office, 1201 Elmwood Park Boulevard MS–266A, New Orleans, Louisiana 70123–2394, Contains Sealed Bids for GOM Lease Sale 261, Please Deliver to Mr. Greg Purvis, 2nd Floor, Immediately.

BOEM recommends that bidders mark the GDIS submission’s external envelope as “Deliver Immediately to DASPU.” BOEM also recommends that bidders submit the GDIS in an internal envelope, or otherwise marked, with the following designation: “Geophysical Data and Information Statement for Oil and Gas Lease Sale 261”, Company Name, GOM Company Qualification Number, and “Proprietary Data.”

In the event a person supplies any type of data to BOEM, that person must meet the following requirements to qualify for reimbursement:

(1) Must be registered with the System for Award Management (SAM), formerly known as the Central Contractor Registration (CCR). CCR usernames will not work in SAM. A new SAM user account is needed to register or update an entity’s records. The website for registering is <https://usfcr.com/register-renew/>.

(2) Must be enrolled in the U.S. Treasury’s Invoice Processing Platform (IPP) for electronic invoicing; to enroll go to <https://www.ipp.gov/>. Access then will be granted to use the IPP for submitting requests for payment. When

submitting a request for payment, the assigned Purchase Order Number must be included.

(3) Must have a current On-line Representations and Certifications Application at <https://usfcr.com/>.

Please Note: Digital copies and duplicate hardcopies should be submitted for the GDIS Statement, Table and Maps. The GDIS Statement should be sent as a digital PDF. The GDIS Information Table must be submitted digitally as an Excel spreadsheet. The Proprietary Maps should be sent as PDF files and the live trace outline of each proprietary survey should also be submitted as a shapefile. Please flatten all layered PDF files, since layered PDFs can have many objects. Layered PDFs can cause problems opening or printing the file correctly. Bidders may submit the digital files on a CD, DVD, or any USB external drive (formatted for Windows). If bidders have any questions, please contact Ms. Dee Smith at (504) 736–2706 or Ms. Teree Campbell at (504) 736–3231.

Bidders should refer to the “Acceptance, Rejection, or Return of Bids” heading under Section X, “The Lease Sale,” regarding a bidder’s failure to comply with the requirements of the Final NOS, including any failure to submit information required in the Final NOS package.

Telephone Numbers/Addresses of Bidders

BOEM requests that bidders provide this information in the suggested format prior to or at the time of bid submission. The suggested format is included in the Final NOS package. The form must not be enclosed inside the sealed bid envelope.

Additional Documentation

BOEM may require bidders to submit other documents in accordance with 30 CFR 556.107, 556.401, 556.501, and 556.513.

VIII. Bidding Rules and Restrictions

Restricted Joint Bidders

On May 4, 2023, BOEM published the Spring 2023 List of Restricted Joint Bidders in the **Federal Register** at 88 FR 28610. Potential bidders are advised to refer to the List of Restricted Joint Bidders that is in place at the time of the lease sale. BOEM intends to publish the Fall 2023 List of Restricted Joint Bidders in the **Federal Register** in the coming weeks. Please refer to the joint bidding provisions at 30 CFR 556.511–556.515.

Authorized Signatures

All signatories executing documents on behalf of the bidder(s) must execute

the same in conformance with the BOEM qualification records. Bidders are advised that BOEM considers the signed bid to be a legally binding obligation on the part of the bidder(s) to comply with all applicable regulations, including that requiring payment of one-fifth of the bonus bid on all high bids. A statement to this effect is included on each bid form (see the document "Bid Form" that is included in the Final NOS package).

Unlawful Combination or Intimidation

BOEM warns bidders against violation of 18 U.S.C. 1860, which prohibits unlawful combination or intimidation of bidders.

Bid Withdrawal

Bids may be withdrawn only by written request delivered to BOEM prior to the bid submission deadline via any parcel delivery service. Withdrawals will not be accepted in person or via email. The withdrawal request must be on company letterhead and must contain the bidder's name, its BOEM qualification number, the map name/number, and the block number(s) of the bid(s) to be withdrawn. The withdrawal request must be executed by one or more of the representatives named in the BOEM qualification records. The name and title of the authorized signatory must be typed under the signature block on the withdrawal request. The BOEM GOM RD, or the RD's designee, will indicate approval by signing and dating the withdrawal request.

Bid Rounding

Minimum bonus bid calculations, including rounding, for all blocks are shown in the document "List of Blocks Available for Leasing" that is included in the Final NOS package. The bonus bid amount must be stated in whole dollars. If the acreage of a block contains a decimal figure, then prior to calculating the minimum bonus bid, BOEM will round up to the next whole acre. The appropriate minimum rate per acre will be applied to the whole (rounded up) acreage. The bonus bid amount must be greater than or equal to the minimum bonus bid, as calculated and stated in the Final NOS package.

IX. Forms

The Final NOS package includes instructions, samples, and/or the preferred format for the items listed below. BOEM strongly encourages bidders to use the recommended formats. If bidders use another format, they are responsible for including all the information specified for each item in the Final NOS package.

- (1) Bid Form
- (2) Sample Completed Bid
- (3) Sample Bid Envelope
- (4) Sample Bid Mailing Envelope
- (5) Telephone Numbers/Addresses of Bidders Form
- (6) GDIS Form
- (7) GDIS Envelope Form

X. The Lease Sale

Bid Opening and Reading

Sealed bids received in response to the Final NOS will be opened at the place, date, and hour specified under the **DATES** and **ADDRESSES** sections of the Final NOS. The venue will not be open to the public. Instead, the bid opening will be available for the public to view on BOEM's website at <https://www.boem.gov> via live streaming. The opening of the bids is for the sole purpose of publicly announcing and recording the bids received; no bids will be accepted or rejected at that time.

Bonus Bid Deposit for Apparent High Bids

Each bidder submitting an apparent high bid must submit a bonus bid deposit to ONRR equal to one-fifth of the bonus bid amount for each such bid. A copy of the notification of the high bidder's one-fifth bonus bid amount can be obtained on the BOEM website at <https://www.boem.gov/Sale-261/> under the heading "Notification of EFT 1/5 Bonus Liability" after 1:00 p.m. on the day of the sale. All payments must be electronically deposited into an interest-bearing account in the U.S. Treasury by 1:00 p.m. Eastern Time the day following the bid reading (no exceptions). Account information is provided in the "Instructions for Making Electronic Funds Transfer Bonus Payments" found on the BOEM website identified above.

Bidders must submit payment to their financial institution as soon as possible on the day of bid reading and no later than 7:00 p.m. Eastern Time on the day of bid reading. This will help ensure that deposits have time to process through the U.S. Treasury and post to ONRR. ONRR cannot confirm payment until the monies have been moved into settlement status by the U.S. Treasury.

BOEM requires bidders to use EFT procedures for payment of one-fifth bonus bid deposits for GOM Lease Sale 261, following the detailed instructions contained on the ONRR Payment Information web page at <https://www.onrr.gov/paying>. Acceptance of a deposit does not constitute, and will not be construed as, acceptance of any bid on behalf of the United States.

Withdrawal of Blocks

The United States reserves the right to withdraw any block from this lease sale prior to issuance of a written acceptance of a bid for the block.

Acceptance, Rejection, or Return of Bids

The United States reserves the right to reject any and all bids, regardless of the amount offered. Furthermore, no bid will be accepted, and no lease for any block will be awarded to any bidder, unless:

(1) The bidder has complied with all applicable regulations and requirements of the Final NOS, including those set forth in the documents contained in the Final NOS package;

(2) The bid is the highest valid bid; and

(3) The amount of the bid has been determined to be adequate by the authorized officer.

Any bid submitted that does not conform to the requirements of the Final NOS, OCSLA, or other applicable statutes or regulations will be rejected and returned to the bidder. The U.S. Department of Justice and the Federal Trade Commission will review the results of the lease sale for any antitrust issues prior to the acceptance of bids and issuance of leases.

Bid Adequacy Review Procedures for GOM Lease Sale 261

To ensure that the U.S. Government receives fair market value for the conveyance of leases from this sale, BOEM will evaluate high bids in accordance with the bid adequacy procedures that are effective on the date of the sale. The bid adequacy procedures are available on BOEM's website at <https://www.boem.gov/oil-gas-energy/leasing/bid-adequacy-procedures>.

Lease Award

Leases issued as a result of GOM Lease Sale 261 are expressly limited to oil and gas exploration and development. As noted in Section 19 of the lease form, all rights in the leased area not expressly granted to the Lessee by the Act, the regulations, or this lease are hereby reserved to the Lessor.

BOEM requires each bidder that is awarded a lease to complete the following:

(1) Execute all copies of the lease (Form BOEM-2005 [February 2017], as amended);

(2) Pay by EFT the balance of the bonus bid amount and the first year's rental for each lease issued in accordance with the requirements of 30 CFR 1218.155 and 556.520(a); and

(3) Satisfy the bonding requirements of 30 CFR part 556, subpart I, as amended.

ONRR requests that bidders use only one transaction for payment of the balance of the bonus bid amount and the first year's rental. Once ONRR receives such payment, the bidder awarded the lease may not request a refund of the balance of the bonus bid amount or first year's rental payment.

XI. Delay of Sale

The BOEM GOM RD has the discretion to change any date, time, and/or location specified in the Final NOS package if the RD deems that an emergent event could interfere with a fair and orderly lease sale. Such events could include, but are not limited to, natural disasters (e.g., earthquakes, hurricanes, floods), wars, riots, acts of terrorism, fires, strikes, civil disorder, or other events of a similar nature. Furthermore, the RD may change the date, time, and/or location of the lease sale to comply with court orders. In case of such events, bidders should call (504) 736-0557 or access the BOEM website at <https://www.boem.gov/> for information regarding any changes.

Laura Daniel-Davis,

Principal Deputy Assistant Secretary, Land and Minerals Management, Department of the Interior.

The action taken herein is pursuant to an existing delegation of authority.

[FR Doc. 2023-22316 Filed 10-5-23; 8:45 am]

BILLING CODE 4310-98-P

INTERNATIONAL TRADE COMMISSION

[Investigation No. 337-TA-1330]

Notice of Request for Submissions on the Public Interest; Certain Audio Players and Components Thereof (II)

AGENCY: International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that on September 15, 2023, the presiding administrative law judge (“ALJ”) issued an Initial Determination on Violation of section 337. The ALJ also issued a Recommended Determination on remedy and bonding should a violation be found in the above-captioned investigation. The Commission is soliciting submissions on public interest issues raised by the recommended relief should the Commission find a violation. This notice is soliciting comments from the public and interested government agencies only.

FOR FURTHER INFORMATION CONTACT:

Amanda P. Fisherow, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436, telephone (202) 205-2737. Copies of non-confidential documents filed in connection with this investigation may be viewed on the Commission's electronic docket (EDIS) at <https://edis.usitc.gov>. For help accessing EDIS, please email EDIS3Help@usitc.gov. General information concerning the Commission may also be obtained by accessing its internet server at <https://www.usitc.gov>. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: Section 337 of the Tariff Act of 1930 provides that, if the Commission finds a violation, it shall exclude the articles concerned from the United States unless, after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers, it finds that such articles should not be excluded from entry. (19 U.S.C. 1337(d)(1)). A similar provision applies to cease and desist orders. (19 U.S.C. 1337(f)(1)).

The Commission is soliciting submissions on public interest issues raised by the recommended relief should the Commission find a violation, specifically: a limited exclusion order directed to certain audio players and components thereof imported, sold for importation, and/or sold after importation by respondent Sonos, Inc.; and cease and desist orders directed to Sonos, Inc. Parties are to file public interest submissions pursuant to 19 CFR 210.50(a)(4).

The Commission is interested in further development of the record on the public interest in this investigation. Accordingly, members of the public and interested government agencies are invited to file submissions of no more than five (5) pages, inclusive of attachments, concerning the public interest in light of the ALJ's Recommended Determination on Remedy and Bonding issued in this investigation on September 15, 2023. Comments should address whether issuance of the recommended remedial orders in this investigation, should the Commission find a violation, would affect the public health and welfare in the United States, competitive

conditions in the United States economy, the production of like or directly competitive articles in the United States, or United States consumers.

In particular, the Commission is interested in comments that:

(i) explain how the articles potentially subject to the recommended remedial orders are used in the United States;

(ii) identify any public health, safety, or welfare concerns in the United States relating to the recommended orders;

(iii) identify like or directly competitive articles that complainant, its licensees, or third parties make in the United States which could replace the subject articles if they were to be excluded;

(iv) indicate whether complainant, complainant's licensees, and/or third-party suppliers have the capacity to replace the volume of articles potentially subject to the recommended orders within a commercially reasonable time; and

(v) explain how the recommended orders would impact consumers in the United States.

Written submissions must be filed no later than by close of business on November 1, 2023.

Persons filing written submissions must file the original document electronically on or before the deadlines stated above. The Commission's paper filing requirements in 19 CFR 210.4(f) are currently waived. 85 FR 15798 (Mar. 19, 2020). Submissions should refer to the investigation number (“Inv. No. 337-TA-1330”) in a prominent place on the cover page and/or the first page. (See Handbook for Electronic Filing Procedures, https://www.usitc.gov/secretary/fed_reg_notices/rules/handbook_on_electronic_filing.pdf). Persons with questions regarding filing should contact the Secretary (202-205-2000).

Any person desiring to submit a document to the Commission in confidence must request confidential treatment by marking each document with a header indicating that the document contains confidential information. This marking will be deemed to satisfy the request procedure set forth in Rules 201.6(b) and 210.5(e)(2) (19 CFR 201.6(b) & 210.5(e)(2)). Documents for which confidential treatment by the Commission is properly sought will be treated accordingly. Any non-party wishing to submit comments containing confidential information must serve those comments on the parties to the investigation pursuant to the applicable Administrative Protective Order. A redacted non-confidential version of the

document must also be filed simultaneously with any confidential filing and must be served in accordance with Commission Rule 210.4(f)(7)(ii)(A) (19 CFR 210.4(f)(7)(ii)(A)). All information, including confidential business information and documents for which confidential treatment is properly sought, submitted to the Commission for purposes of this investigation may be disclosed to and used: (i) by the Commission, its employees and Offices, and contract personnel (a) for developing or maintaining the records of this or a related proceeding, or (b) in internal investigations, audits, reviews, and evaluations relating to the programs, personnel, and operations of the Commission including under 5 U.S.C. Appendix 3; or (ii) by U.S. government employees and contract personnel, solely for cybersecurity purposes. All contract personnel will sign appropriate nondisclosure agreements. All nonconfidential written submissions will be available for public inspection on EDIS.

This action is taken under the authority of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), and in part 210 of the Commission's Rules of Practice and Procedure (19 CFR part 210).

By order of the Commission.

Issued: October 2, 2023.

Lisa Barton,

Secretary to the Commission.

[FR Doc. 2023–22265 Filed 10–5–23; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—Decentralized Storage Alliance Association

Notice is hereby given that, on August 1, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), Decentralized Storage Alliance Association (“DSAA”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing (1) the identities of the parties to the venture and (2) the nature and objectives of the venture. The notifications were filed for the purpose of invoking the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.

Pursuant to section 6(b) of the Act, the identities of the parties to the venture

are: Protocol Labs, Inc., Wilmington, DE; Filecoin Foundation, Middletown, DE; PiKNiK & Company, San Diego, CA; and International Computer Concepts, Inc., Northbrook, IL. The general area of DSAA's planned activity is to (a) develop and promote decentralized storage technologies and protocols and (b) undertake such other activities as may from time to time be appropriate to further the purposes and achieve the goals set forth above.

Membership in DSAA remains open and DSAA intends to file additional written notifications disclosing all changes in membership.

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22246 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—1EdTech Consortium, Inc.

Notice is hereby given that, on August 25, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), 1EdTech Consortium, Inc. (“1EdTech Consortium”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Authentica Solutions, San Antonio, TX; Elula, Inc., Astoria, NY; Siemens, Munich, GERMANY; and Follett Higher Education, Westchester, IL, have been added as parties to this venture.

Also, LearnPlatform, Raleigh, NC; Willo Labs, Whitestown, IN; Arizona State University, Tempe, AZ; Pioneer RESA, Cleveland, GA; California CC Tech Center, Oroville, CA; OESIS, Santa Monica, CA; Northwest Tri County, Edinboro, PA; and Hamilton County, Chattanooga, TN, have withdrawn as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and 1EdTech Consortium intends to file additional written notifications disclosing all changes in membership.

On April 7, 2000, 1EdTech Consortium filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on September 13, 2000 (65 FR 55283).

The last notification was filed with the Department on June 8, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on July 13, 2023 (88 FR 44843).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22254 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—OpenJS Foundation

Notice is hereby given that, on July 27, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), OpenJS Foundation has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Sovereign Tech Fund, SPRIND GmbH, German Ministry for Economic Affairs and Climate Action, Leipzig, GERMANY, has been added as a party to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and OpenJS Foundation intends to file additional written notifications disclosing all changes in membership.

On August 17, 2015, OpenJS Foundation filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on September 28, 2015 (80 FR 58297).

The last notification was filed with the Department on April 10, 2023. A notice was published in the **Federal**

Register pursuant to section 6(b) of the Act on June 13, 2023 (88 FR 38537).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22245 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—MLCommons Association

Notice is hereby given that, on August 17, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), MLCommons Association (“MLCommons”) filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Praveen Paritosh (individual member), Oakland, CA; Wei Zhao (individual member), San Diego, CA; Luis Oala (individual member), Berlin, GERMANY; Ailiverse Pte. Ltd., Singapore, SINGAPORE; Connect Tech Inc., Guelph, CANADA; Oracle Corp., Seattle, WA; Trainy Inc., Fremont, CA; and Giga Computing Technology Co., Ltd., New Taipei, TAIWAN have been added as parties to this venture.

Also, Gigabyte Technology Co., LTD., New Taipei, TAIWAN; and MosaicML, San Francisco, CA have withdrawn as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and MLCommons intends to file additional written notifications disclosing all changes in membership.

On September 15, 2020, MLCommons filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on September 29, 2020 (85 FR 61032).

The last notification was filed with the Department on May 25, 2023. A notice was published in the **Federal**

Register pursuant to section 6(b) of the Act on June 16, 2023 (88 FR 39478).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22252 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—ODVA, Inc.

Notice is hereby given that, on August 29, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), ODVA, Inc. (“ODVA”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Tocho Marking Systems America, Inc., Torrance, CA; and Guangzhou Zhiyuan Electronics Co., LTD, Guangzhou, PEOPLE’S REPUBLIC OF CHINA, have been added as parties to this venture.

Also, Rocon L.L.C., Hazel Park, MI; and InterTech Development Company, Skokie, IL, have withdrawn as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and ODVA intends to file additional written notifications disclosing all changes in membership.

On June 21, 1995, ODVA filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on February 15, 1996 (61 FR 6039).

The last notification was filed with the Department on June 2, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on June 13, 2023 (88 FR 38534).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22255 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—Cooperative Research Group Separation Technology Research (STAR) Program: Phase 3 (“STAR Phase 3”)

Notice is hereby given that, on August 15, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), Cooperative Research Group Separation Technology Research (STAR) Program: Phase 3 (“STAR Phase 3”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing (1) the identities of the parties to the venture and (2) the nature and objectives of the venture. The notifications were filed for the purpose of invoking the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.

Pursuant to section 6(b) of the Act, the identities of the parties to the venture are: AMISTCO Separation Products dba AMACS, Houston, TX; Saudi ARAMCO dba ARAMCO Services Company, Houston, TX; Chevron Technical Center, Houston, TX; ExxonMobil Technology and Engineering Company, Spring, TX; Koch-Glitsch, Wichita, KS; Linde, Pullach, GERMANY; and Sulzer Chemtech, Winterthur, SWITZERLAND.

The general area of Separation Technology Research (STAR) Program: Phase 3’s planned activities is to systematically research, test, and qualify separation equipment and increase fundamental knowledge in separation.

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22249 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—Integrated Photonics Institute for Manufacturing Innovation Operating Under the Name of the American Institute for Manufacturing Integrated Photonics

Notice is hereby given that, on August 1, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (“the Act”), the Integrated

Photonics Institute for Manufacturing Innovation operating under the name of the American Institute for Manufacturing Integrated Photonics (“AIM Photonics”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, The Johns Hopkins University Applied Physics Laboratory, Laurel, MD; Nonlinear Materials Corporation (dba NLM Photonics), Seattle, WA; and Trustees of Boston University, Boston, MA, have been added as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and AIM Photonics intends to file additional written notifications disclosing all changes in membership.

On June 16, 2016, AIM Photonics filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on July 25, 2016 (81 FR 48450).

The last notification was filed with the Department on May 10, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on June 13, 2023 (88 FR 38533).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22247 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—Z-Wave Alliance, Inc.

Notice is hereby given that, on August 4, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (the “Act”), Z-Wave Alliance, Inc. (the “Joint Venture”) filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.

Specifically, Bettina Roll (individual member), Greve, DENMARK has been added as a party to this venture.

Also, Robotix.be, Wezembeek-Oppem, BELGIUM; D2E Electrical, New South Wales, AUSTRALIA; Establishment Hulul al-Manazil For Real Estate Development, Jeddah City, SAUDI ARABIA; Black Watch Systems, LLC, Snyder, TX; MY CLIMA GREEN ENERGIE SRLS, Milano, ITALY; FireAvert, LLC, Springville, UT; NexMetro Development, LLC, Phoenix, AZ; Trinitas All Electric, LLC, Opelousas, LA; Sengled, Shanghai City, PEOPLE’S REPUBLIC OF CHINA; Logic Group A/S, Broendby, DENMARK; ABUS Security Center GmbH & Co. KG, Affing, GERMANY; ABUS KG, Wetter, GERMANY; Good Energy Solutions, Lawrence, KS; COMPUTIME Ltd., Pak Shek Kok, HONG KONG—CHINA; Security Specialists Ltd., Dunedin, NEW ZEALAND; and OBLO Living, Novi Sad, SERBIA have withdrawn as parties to this venture.

No other changes have been made in either the membership or the planned activity of the venture. Membership in this venture remains open, and the Joint Venture intends to file additional written notifications disclosing all changes in membership.

On November 19, 2020, the Joint Venture filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on December 1, 2020 (85 FR 77241).

The last notification was filed with the Department on May 12, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on June 13, 2023 (88 FR 38540).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22248 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—Utility Broadband Alliance, Inc.

Notice is hereby given that, on August 18, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (the “Act”), Utility Broadband Alliance, Inc. (“UBBA”) has filed written notifications simultaneously with the Attorney General and the

Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Copper Labs, Inc., Boulder, CO; Duke Energy, Charlotte, NC; KORE Wireless, Atlanta, GA; Teal Communications, Inc., Seattle, WA; Eseye Ltd., Guildford, UNITED KINGDOM; CenterPoint Energy, Evansville, IN; R23Solutions, Reston, VA; T-Mobile USA, Inc., Bellevue, WA; Enterprise Wireless Alliance, Herndon, VA; Lower Colorado River Authority, Austin, TX; Giesecke+Devrient Mobile Security America, Inc., Dulles, VA; American Tower, Woburn, MA; SAF North America, Aurora, CO; and Duquesne Light Company, Pittsburgh, PA, have been added as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and UBBA intends to file additional written notifications disclosing all changes in membership.

On May 4, 2021, UBBA filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on June 10, 2021 (86 FR 30981).

The last notification was filed with the Department on May 30, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on August 22, 2023 (88 FR 57130).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023–22251 Filed 10–5–23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—PXI Systems Alliance, Inc.

Notice is hereby given that, on September 5, 2023, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (the “Act”), PXI Systems Alliance, Inc. (“PXI Systems”) has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were

filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.

Specifically, Guangzhou VPS Technology Co. Ltd., Guangzhou, PEOPLE'S REPUBLIC OF CHINA, has been added as a party to this venture.

Also, Millimeter Wave Systems, LLC, Amherst, MA, has withdrawn as a party to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and PXI Systems intends to file additional written notifications disclosing all changes in membership.

On November 22, 2000, PXI Systems filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on March 8, 2001 (66 FR 13971).

The last notification was filed with the Department on January 6, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on March 17, 2023 (88 FR 16460).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023-22258 Filed 10-5-23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Antitrust Division

Notice Pursuant to the National Cooperative Research and Production Act of 1993—UHD Alliance, Inc.

Notice is hereby given that, on August 30, 2023 pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* ("the Act"), UHD Alliance, Inc. ("UHD Alliance") filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Realtek Semiconductor Corp., Hsinchu Hsein, TAIWAN; and Vu Technologies Pvt. Ltd., Mumbai, INDIA have withdrawn as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research

project remains open, and UHD Alliance intends to file additional written notifications disclosing all changes in membership.

On June 17, 2015, UHD Alliance filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on July 17, 2015 (80 FR 42537).

The last notification was filed with the Department on January 11, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on March 17, 2023 (88 FR 16461).

Suzanne Morris,

Deputy Director Civil Enforcement Operations, Antitrust Division.

[FR Doc. 2023-22256 Filed 10-5-23; 8:45 am]

BILLING CODE P

DEPARTMENT OF JUSTICE

Notice of Lodging of Proposed Consent Decree Under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA")

On September 29, 2023, the Department of Justice lodged a proposed consent decree with the United States District Court for the District of New Jersey in the lawsuit entitled *United States of America, New Jersey Department of Environmental Protection, the Commissioner of the New Jersey Department of Environmental Protection, and Administrator, New Jersey Spill Compensation Fund v. Stepan Company*, Civil Action No. 2:23-cv-20769-KM-JRA.

The United States seeks performance of a remedial action and reimbursement of response costs under sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") in connection with Operable Unit 1 of the Maywood Chemical Company Superfund Site ("Site"), located in Maywood, Lodi, and Rochelle Park, Bergen County, New Jersey. The New Jersey Department of Environmental Protection, the Commissioner of the New Jersey Department of Environmental Protection, and the Administrator of the New Jersey Spill Compensation Fund (collectively, "NJDEP") are co-plaintiffs.

Under the proposed consent decree, the Settling Defendant (*i.e.*, Stepan Company) agrees to perform response actions that are identified in the United States Environmental Protection Agency's ("EPA") Record of Decision

relating to Operable Unit 1 of the Site, dated September 23, 2014. The response actions address chemically contaminated soils at specified areas at the Site. The proposed consent decree also requires the Settling Defendant to pay the United States \$362,853.28 and NJDEP \$15,593.62 for past costs relating to Operable Unit 1. In addition, the proposed consent decree requires the Settling Defendant to pay the United States and NJDEP for future oversight costs relating to Operable Unit 1.

The publication of this notice opens a period for public comment on the proposed consent decree. Comments should be addressed to the Assistant Attorney General, Environment and Natural Resources Division, and should refer to *United States of America, New Jersey Department of Environmental Protection, the Commissioner of the New Jersey Department of Environmental Protection, and Administrator, New Jersey Spill Compensation Fund v. Stepan Company*, Civil Action No. 2:23-cv-20769-KM-JRA, D.J. Ref. No. 90-11-3-12439/1. All comments must be submitted no later than sixty (60) days after the publication date of this notice. Comments may be submitted either by email or by mail:

<i>To submit comments:</i>	<i>Send them to:</i>
By email	<i>pubcomment-ees.enrd@usdoj.gov.</i>
By mail	Assistant Attorney General, U.S. DOJ—ENRD, P.O. Box 7611, Washington, DC 20044-7611.

During the public comment period, the consent decree may be examined and downloaded at this Justice Department website: <https://www.justice.gov/enrd/consent-decrees>. We will provide a paper copy of the consent decree upon written request and payment of reproduction costs. Please mail your request and payment to: Consent Decree Library, U.S. DOJ—ENRD, P.O. Box 7611, Washington, DC 20044-7611.

Please enclose a check or money order for \$72.25 (25 cents per page reproduction cost), for the consent decree with appendices, or \$10.25 for the consent decree without the appendices, payable to the United States Treasury.

Henry S. Friedman,

Assistant Section Chief, Environmental Enforcement Section, Environment and Natural Resources Division.

[FR Doc. 2023-22261 Filed 10-5-23; 8:45 am]

BILLING CODE 4410-15-P

NUCLEAR REGULATORY COMMISSION

[NRC–2023–0066]

Information Collection: NRC CUI Program Challenge Request Process

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of submission to the Office of Management and Budget; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) has recently submitted a request for renewal of an existing collection of information to the Office of Management and Budget (OMB) for review. The information collection is entitled, “NRC CUI Program Challenge Request Process.”

DATES: Submit comments by November 6, 2023. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.

ADDRESSES: Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to <https://www.reginfo.gov/public/do/PRAMain>. Find this particular information collection by selecting “Currently under Review—Open for Public Comments” or by using the search function.

FOR FURTHER INFORMATION CONTACT: David Cullison, NRC Clearance Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; telephone: 301–415–2084; email: Infocollects.Resource@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC–2023–0066 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- *Federal Rulemaking website:* Go to <https://www.regulations.gov> and search for Docket ID NRC–2023–0066.

- *NRC’s Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR)

reference staff at 1–800–397–4209, at 301–415–4737, or by email to PDR.Resource@nrc.gov. A copy of the collection of information and related instructions may be obtained without charge by accessing ADAMS Accession No. ML23072A176. The supporting statement is available in ADAMS under Accession No. ML23164A043. The web form that will be listed on the NRC’s CUI public-facing website is available in ADAMS under Accession No. ML23254A068.

- *NRC’s PDR:* The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1–800–397–4209 or 301–415–4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

- *NRC’s Clearance Officer:* A copy of the collection of information and related instructions may be obtained without charge by contacting the NRC’s Clearance Officer, David C. Cullison, Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; telephone: 301–415–2084; email: Infocollects.Resource@nrc.gov.

B. Submitting Comments

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to <https://www.reginfo.gov/public/do/PRAMain>. Find this particular information collection by selecting “Currently under Review—Open for Public Comments” or by using the search function.

The NRC cautions you not to include identifying or contact information in comment submissions that you do not want to be publicly disclosed in your comment submission. All comment submissions are posted at <https://www.regulations.gov> and entered into ADAMS. Comment submissions are not routinely edited to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the OMB, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that comment submissions are not routinely edited to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Background

Under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35), the NRC recently submitted a request for renewal of an existing collection of information to OMB for review entitled, “NRC CUI Program Challenge Request Process.” The NRC hereby informs potential respondents that an agency may not conduct or sponsor, and that a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

The NRC published a **Federal Register** notice with a 60-day comment period on this information collection on April 20, 2023, 88 FR 24452.

1. *The title of the information collection:* NRC CUI Program Challenge Request Process.

2. *OMB approval number:* 3150–0246.

3. *Type of submission:* Extension.

4. *The form number, if applicable:* Not Applicable.

5. *How often the collection is required or requested:* On occasion.

6. *Who will be required or asked to respond:* Authorized holders, including any individual or organization who has been provided with Controlled Unclassified Information (CUI) and has a lawful government purpose to possess CUI.

7. *The estimated number of annual responses:* 12.

8. *The estimated number of annual respondents:* 12.

9. *The estimated number of hours needed annually to comply with the information collection requirement or request:* 18.

10. *Abstract:* The NRC CUI Program Challenge Request Process, also referred to as the “CUI Challenge Request Process” in this document, provides the process used for NRC CUI authorized holders to challenge the designation of information that has been marked as CUI as improperly or incorrectly designated as “Authorized holder,” includes any individual or organization who has been provided with CUI and has a lawful government purpose to possess the information. Any authorized holder who believes that the designation of specific information as CUI is improper or incorrect, or who believes they have received unmarked CUI, may use this process to formally notify the NRC CUI Senior Agency Official (SAO). The process also allows for the NRC CUI SAO and CUI Program Manager to process such requests and to issue a Final Decision from the CUI SAO. The CUI Challenge Request Process is not intended to be used to address all disagreements regarding the proper

designation of CUI. Authorized holders are encouraged to seek or utilize less formal means when resolving internal good faith disputes over the proper designation of information as CUI, such as discussion with the creator or designator of the information in dispute. Where resolution cannot be achieved through less formal means, the CUI Challenge Request Process is available. The CUI Challenge Request Process does not supersede any obligations under law or NRC policy to report information spills.

Dated: October 3, 2023.

For the Nuclear Regulatory Commission.

David C. Cullison,

NRC Clearance Officer, Office of the Chief Information Officer.

[FR Doc. 2023-22318 Filed 10-5-23; 8:45 am]

BILLING CODE 7590-01-P

NUCLEAR REGULATORY COMMISSION

[NRC-2023-0126]

Information Collection: NRC Form 354, Data Report on Spouse

AGENCY: Nuclear Regulatory Commission.

ACTION: Renewal of existing information collection; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) invites public comment on the renewal of Office of Management and Budget (OMB) approval for an existing collection of information. The information collection is entitled, NRC Form 354, "Data Report on Spouse."

DATES: Submit comments by December 5, 2023. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods; however, the NRC encourages electronic comment submission through the Federal rulemaking website:

- *Federal rulemaking website:* Go to <https://www.regulations.gov> and search for Docket ID NRC-2023-0126. Address questions about Docket IDs in *Regulations.gov* to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- *Mail comments to:* David C. Cullison, Office of the Chief Information Officer, Mail Stop: T-6 A10M, U.S.

Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on obtaining information and submitting comments, see "Obtaining Information and Submitting Comments" in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: David C. Cullison, Office of the Chief Information Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-2084; email: Infocollects.Resource@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC-2023-0126 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- *Federal Rulemaking website:* Go to <https://www.regulations.gov> and search for Docket ID NRC-2023-0126. A copy of the collection of information and related instructions may be obtained without charge by accessing Docket ID NRC-2023-0126 on this website.

- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. A copy of the collection of information and related instructions may be obtained without charge by accessing ADAMS Accession No. ML23227A174. The supporting statement is available in ADAMS under Accession No. ML23227A173.

- *NRC's PDR:* The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

- *NRC's Clearance Officer:* A copy of the collection of information and related instructions may be obtained without charge by contacting the NRC's Clearance Officer, David C. Cullison, Office of the Chief Information Officer,

U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-2084; email: Infocollects.Resource@nrc.gov.

B. Submitting Comments

The NRC encourages electronic comment submission through the Federal rulemaking website (<https://www.regulations.gov>). Please include Docket ID NRC-2023-0126, in your comment submission.

The NRC cautions you not to include identifying or contact information in comment submissions that you do not want to be publicly disclosed in your comment submission. All comment submissions are posted at <https://www.regulations.gov> and entered into ADAMS. Comment submissions are not routinely edited to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that comment submissions are not routinely edited to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Background

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35), the NRC is requesting public comment on its intention to request the OMB's approval for the information collection summarized below.

1. *The title of the information collection:* NRC Form 354, Data Report on Spouse.
2. *OMB approval number:* 3150-0026.
3. *Type of submission:* Extension.
4. *The form number, if applicable:* NRC Form 354.
5. *How often the collection is required or requested:* On Occasion.
6. *Who will be required or asked to respond:* NRC contractors, licensees, applicants, and others (e.g., intervener's) who marry or cohabitate after completing the Personnel Security Forms, or after having been granted an NRC access authorization or employment clearance.
7. *The estimated number of annual responses:* 50.
8. *The estimated number of annual respondents:* 50.
9. *The estimated number of hours needed annually to comply with the information collection requirement or request:* 12.5.

10. *Abstract*: NRC Form 354 must be completed by NRC contractors, licensees, applicants who marry or cohabit after completing the Personnel Security Forms, or after having been granted an NRC access authorization or employment clearance. Form 354 identifies the respondent, the marriage/cohabitation, and data on the spouse/cohabitant and spouse's/cohabitant's parents. This information permits the NRC to make initial security determinations and to assure there is no increased risk to the common defense and security.

III. Specific Requests for Comments

The NRC is seeking comments that address the following questions:

1. Is the proposed collection of information necessary for the NRC to properly perform its functions? Does the information have practical utility? Please explain your answer.
2. Is the estimate of the burden of the information collection accurate? Please explain your answer.
3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?
4. How can the burden of the information collection on respondents be minimized, including the use of automated collection techniques or other forms of information technology?

Dated: October 3, 2023.

For the Nuclear Regulatory Commission.

David C. Cullison,

NRC Clearance Officer, Office of the Chief Information Officer.

[FR Doc. 2023-22319 Filed 10-5-23; 8:45 am]

BILLING CODE 7590-01-P

POSTAL REGULATORY COMMISSION

[Docket Nos. MC2024-1 and CP2024-1]

New Postal Products

AGENCY: Postal Regulatory Commission.

ACTION: Notice.

SUMMARY: The Commission is noticing a recent Postal Service filing for the Commission's consideration concerning a negotiated service agreement. This notice informs the public of the filing, invites public comment, and takes other administrative steps.

DATES: *Comments are due:* October 11, 2023.

ADDRESSES: Submit comments electronically via the Commission's Filing Online system at <http://www.prc.gov>. Those who cannot submit comments electronically should contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section by

telephone for advice on filing alternatives.

FOR FURTHER INFORMATION CONTACT: David A. Trissell, General Counsel, at 202-789-6820.

SUPPLEMENTARY INFORMATION:

Table of Contents

- I. Introduction
- II. Docketed Proceeding(s)

I. Introduction

The Commission gives notice that the Postal Service filed request(s) for the Commission to consider matters related to negotiated service agreement(s). The request(s) may propose the addition or removal of a negotiated service agreement from the Market Dominant or the Competitive product list, or the modification of an existing product currently appearing on the Market Dominant or the Competitive product list.

Section II identifies the docket number(s) associated with each Postal Service request, the title of each Postal Service request, the request's acceptance date, and the authority cited by the Postal Service for each request. For each request, the Commission appoints an officer of the Commission to represent the interests of the general public in the proceeding, pursuant to 39 U.S.C. 505 (Public Representative). Section II also establishes comment deadline(s) pertaining to each request.

The public portions of the Postal Service's request(s) can be accessed via the Commission's website (<http://www.prc.gov>). Non-public portions of the Postal Service's request(s), if any, can be accessed through compliance with the requirements of 39 CFR 3011.301.¹

The Commission invites comments on whether the Postal Service's request(s) in the captioned docket(s) are consistent with the policies of title 39. For request(s) that the Postal Service states concern Market Dominant product(s), applicable statutory and regulatory requirements include 39 U.S.C. 3622, 39 U.S.C. 3642, 39 CFR part 3030, and 39 CFR part 3040, subpart B. For request(s) that the Postal Service states concern Competitive product(s), applicable statutory and regulatory requirements include 39 U.S.C. 3632, 39 U.S.C. 3633, 39 U.S.C. 3642, 39 CFR part 3035, and 39 CFR part 3040, subpart B. Comment deadline(s) for each request appear in section II.

¹ See Docket No. RM2018-3, Order Adopting Final Rules Relating to Non-Public Information, June 27, 2018, Attachment A at 19-22 (Order No. 4679).

II. Docketed Proceeding(s)

1. *Docket No(s).*: MC2024-1 and CP2024-1; *Filing Title*: USPS Request to Add Priority Mail & USPS Ground Advantage Contract 69 to Competitive Product List and Notice of Filing Materials Under Seal; *Filing Acceptance Date*: October 2, 2023; *Filing Authority*: 39 U.S.C. 3642, 39 CFR 3040.130 through 3040.135, and 39 CFR 3035.105; *Public Representative*: Kenneth R. Moeller; *Comments Due*: October 11, 2023.

This Notice will be published in the **Federal Register**.

Erica A. Barker,
Secretary.

[FR Doc. 2023-22298 Filed 10-5-23; 8:45 am]

BILLING CODE 7710-FW-P

DEPARTMENT OF STATE

[Public Notice: 12206]

Notice of Determinations; Culturally Significant Object Being Imported for Exhibition—Determinations: “La Magia di Giotto” Exhibition

SUMMARY: Notice is hereby given of the following determinations: I hereby determine that a certain object being imported from abroad pursuant to an agreement with its foreign owner or custodian for temporary display in the exhibition “La Magia di Giotto” at the Italian Cultural Institute, New York, New York, is of cultural significance, and, further, that its temporary exhibition or display within the United States as aforementioned is in the national interest. I have ordered that Public Notice of these determinations be published in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: Reed Liriano, Program Coordinator, Office of the Legal Adviser, U.S. Department of State (telephone: 202-632-6471; email: section2459@state.gov). The mailing address is U.S. Department of State, L/PD, 2200 C Street NW (SA-5), Suite 5H03, Washington, DC 20522-0505.

SUPPLEMENTARY INFORMATION: The foregoing determinations were made pursuant to the authority vested in me by the Act of October 19, 1965 (79 Stat. 985; 22 U.S.C. 2459), Executive Order 12047 of March 27, 1978, the Foreign Affairs Reform and Restructuring Act of 1998 (112 Stat. 2681, *et seq.*; 22 U.S.C. 6501 note, *et seq.*), Delegation of Authority No. 234 of October 1, 1999, Delegation of Authority No. 236-3 of August 28, 2000, and Delegation of

Authority No. 523 of December 22, 2021.

Nicole L. Elkon,

Deputy Assistant Secretary for Professional and Cultural Exchanges, Bureau of Educational and Cultural Affairs, Department of State.

[FR Doc. 2023–22308 Filed 10–5–23; 8:45 am]

BILLING CODE 4710–05–P

DEPARTMENT OF STATE

[Public Notice: 12198]

Notice of Determinations; Culturally Significant Object Being Imported for Exhibition—Determinations: Exhibition of “Moses and His Ethiopian Wife” Object

SUMMARY: Notice is hereby given of the following determinations: I hereby determine that a certain object being imported from abroad pursuant to an agreement with its foreign owner or custodian for temporary exhibition or display at The Walters Art Museum, Baltimore, Maryland, and at possible additional exhibitions or venues yet to be determined, is of cultural significance, and, further, that its temporary exhibition or display within the United States as aforementioned is in the national interest. I have ordered that Public Notice of these determinations be published in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: Reed Liriano, Program Coordinator, Office of the Legal Adviser, U.S. Department of State (telephone: 202–632–6471; email: section2459@state.gov). The mailing address is U.S. Department of State, L/DPD, 2200 C Street NW (SA–5), Suite 5H03, Washington, DC 20522–0505.

SUPPLEMENTARY INFORMATION: The foregoing determinations were made pursuant to the authority vested in me by the Act of October 19, 1965 (79 Stat. 985; 22 U.S.C. 2459), Executive Order 12047 of March 27, 1978, the Foreign Affairs Reform and Restructuring Act of 1998 (112 Stat. 2681, *et seq.*; 22 U.S.C. 6501 note, *et seq.*), Delegation of Authority No. 234 of October 1, 1999, Delegation of Authority No. 236–3 of August 28, 2000, and Delegation of Authority No. 523 of December 22, 2021.

Nicole L. Elkon,

Deputy Assistant Secretary for Professional and Cultural Exchanges, Bureau of Educational and Cultural Affairs, Department of State.

[FR Doc. 2023–22253 Filed 10–5–23; 8:45 am]

BILLING CODE 4710–05–P

SURFACE TRANSPORTATION BOARD

[Docket No. FD 35754 (Sub-No. 1)]

RSL Railroad, LLC—Amended Lease and Operation Exemption Containing Interchange Commitment—Line of Norfolk Southern Railway Company

RSL Railroad, LLC (RSL), a Class III rail carrier, has filed a verified notice of exemption pursuant to 49 CFR 1150.41 to continue to lease and operate 1.4 miles of rail line, known as the South Massillon IT, between milepost MT 0.0 and milepost MT 1.4 at Massillon, Ohio (the Line).

According to the verified notice, RSL was authorized to operate the Line in 2013 pursuant to a lease agreement with Norfolk Southern Railway Company (NSR) (Lease Agreement), which provided for a fixed lease rental payment. *See RSL R.R.—Lease & Operation Exemption—Line of Norfolk S. Ry.*, FD 35754 (STB served Aug. 23, 2013). RSL and NSR amended the lease in 2015 (First Amendment), which modified the lease rental provisions of the Lease Agreement to permit RSL to receive a lease credit against its fixed rental payment for each revenue carload it interchanges with NSR on the Line. *See RSL R.R.—Lease Exemption Containing Interchange Commitment—Norfolk S. Ry.*, FD 35990 (STB served Jan. 28, 2016). At NSR’s request, the parties have agreed to a second amendment (Second Amendment) that extends the lease and increases the lease rental provisions of the Lease Agreement.¹ According to the verified notice, RSL will continue to provide all common carrier rail operations over the Line. All other terms and conditions of the Lease Agreement remain in full force and effect.

RSL certifies that its projected annual revenues as a result of the transaction will not result in the creation of a Class II or Class I rail carrier and will not exceed \$5 million.

The transaction may be consummated on or after October 20, 2023, the effective date of the exemption (30 days after the verified notice was filed).

If the verified notice contains false or misleading information, the exemption is void ab initio. Petitions to revoke the exemption under 49 U.S.C. 10502(d) may be filed at any time. The filing of a petition to revoke will not

¹ RSL has filed the Second Amendment under seal pursuant to 49 CFR 1150.43(h)(1)(ii). By motion filed on September 20, 2023, RSL requests that the Board enter a protective order to protect the commercially sensitive information contained in the Second Amendment. However, under 1150.43(h)(1), this information will be kept confidential without the need for a protective order.

automatically stay the effectiveness of the exemption. Petitions for stay must be filed no later than October 13, 2023 (at least seven days before the exemption becomes effective).

All pleadings, referring to Docket No. FD 35754 (Sub-No. 1), must be filed with the Surface Transportation Board either via e-filing on the Board’s website or in writing addressed to 395 E Street SW, Washington, DC 20423–0001. In addition, a copy of each pleading must be served on RSL’s representative, Terry A. Moore, Esq., Krugliak, Wilkins, Griffiths & Dougherty Co., L.P.A., 4775 Munson Street NW, Canton, Ohio 44718.

According to RSL, this action is categorically excluded from environmental review under 49 CFR 1105.6(c) and from historic preservation reporting requirements under 49 CFR 1105.8(b).

Board decisions and notices are available at www.stb.gov.

Decided: October 2, 2023.

By the Board, Scott M. Zimmerman, Acting Director, Office of Proceedings.

Eden Besera,

Clearance Clerk.

[FR Doc. 2023–22284 Filed 10–5–23; 8:45 am]

BILLING CODE 4915–01–P

DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[FMCSA–2014–0387; FMCSA–2018–0138; FMCSA–2018–0139; FMCSA–2019–0109; FMCSA–2021–0014; FMCSA–2021–0015]

Qualification of Drivers; Exemption Applications; Hearing

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), Department of Transportation (DOT).

ACTION: Notice of renewal of exemptions; request for comments.

SUMMARY: FMCSA announces its decision to renew exemptions for 16 individuals from the hearing requirement in the Federal Motor Carrier Safety Regulations (FMCSRs) for interstate commercial motor vehicle (CMV) drivers. The exemptions enable these hard of hearing and deaf individuals to continue to operate CMVs in interstate commerce.

DATES: Each group of renewed exemptions were applicable on the dates stated in the discussions below and will expire on the dates provided below. Comments must be received on or before November 6, 2023.

ADDRESSES: You may submit comments identified by the Federal Docket Management System Docket No. FMCSA–2014–0387, Docket No. FMCSA–2018–0138, Docket No. FMCSA–2018–0139, Docket No. FMCSA–2019–0109, Docket No. FMCSA–2021–0014, or Docket No. FMCSA–2021–0015 using any of the following methods:

- *Federal eRulemaking Portal:* Go to www.regulations.gov/, insert the docket number (FMCSA–2014–0387, FMCSA–2018–0138, FMCSA–2018–0139, FMCSA–2019–0109, FMCSA–2021–0014, or FMCSA–2021–0015) in the keyword box and click “Search.” Next, sort the results by “Posted (Newer-Older),” choose the first notice listed, and click on the “Comment” button. Follow the online instructions for submitting comments.

- *Mail:* Dockets Operations; U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building Ground Floor, Washington, DC 20590–0001.

- *Hand Delivery:* West Building Ground Floor, 1200 New Jersey Avenue SE, Washington, DC 20590–0001, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal Holidays.

- *Fax:* (202) 493–2251.

To avoid duplication, please use only one of these four methods. See the “Public Participation” portion of the **SUPPLEMENTARY INFORMATION** section for instructions on submitting comments.

FOR FURTHER INFORMATION CONTACT: Ms. Christine A. Hydock, Chief, Medical Programs Division, FMCSA, DOT, 1200 New Jersey Avenue SE, Room W64–224, Washington, DC 20590–0001, (202) 366–4001, fmcsamedical@dot.gov. Office hours are 8:30 a.m. to 5 p.m. ET, Monday through Friday, except Federal holidays. If you have questions regarding viewing or submitting material to the docket, contact Dockets Operations, (202) 366–9826.

SUPPLEMENTARY INFORMATION:

I. Public Participation

A. Submitting Comments

If you submit a comment, please include the docket number for this notice (Docket No. FMCSA–2014–0387, Docket No. FMCSA–2018–0138, Docket No. FMCSA–2018–0139, Docket No. FMCSA–2019–0109, Docket No. FMCSA–2021–0014, or Docket No. FMCSA–2021–0015), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax,

mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an email address, or a phone number in the body of your document so that FMCSA can contact you if there are questions regarding your submission.

To submit your comment online, go to www.regulations.gov/, insert the docket number (FMCSA–2014–0387, FMCSA–2018–0138, FMCSA–2018–0139, FMCSA–2019–0109, FMCSA–2021–0014, or FMCSA–2021–0015) in the keyword box and click “Search.” Next, sort the results by “Posted (Newer-Older),” choose the first notice listed, click the “Comment” button, and type your comment into the text box on the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit.

If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. FMCSA will consider all comments and material received during the comment period.

B. Viewing Comments

To view comments go to www.regulations.gov. Insert the docket number (FMCSA–2014–0387, FMCSA–2018–0138, FMCSA–2018–0139, FMCSA–2019–0109, FMCSA–2021–0014, or FMCSA–2021–0015) in the keyword box and click “Search.” Next, sort the results by “Posted (Newer-Older),” choose the first notice listed, and click “Browse Comments.” If you do not have access to the internet, you may view the docket online by visiting Dockets Operations on the ground floor of the DOT West Building, 1200 New Jersey Avenue SE, Washington, DC 20590–0001, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call (202) 366–9317 or (202) 366–9826 before visiting Dockets Operations.

C. Privacy Act

In accordance with 49 U.S.C. 31315(b)(6), DOT solicits comments from the public on the exemption requests. DOT posts these comments, without edit, including any personal information the commenter provides, to www.regulations.gov. As described in the system of records notice DOT/ALL 14 (Federal Docket Management System), which can be reviewed at <https://www.transportation.gov/individuals/privacy/privacy-act-system-records-notices>, the comments are searchable by the name of the submitter.

II. Background

Under 49 U.S.C. 31136(e) and 31315(b), FMCSA may grant an exemption from the FMCSRs for no longer than a 5-year period if it finds such exemption would likely achieve a level of safety that is equivalent to, or greater than, the level that would be achieved absent such exemption. The statutes also allow the Agency to renew exemptions at the end of the 5-year period. FMCSA grants medical exemptions from the FMCSRs for a 2-year period to align with the maximum duration of a driver’s medical certification.

The physical qualification standard for drivers regarding hearing found in 49 CFR 391.41(b)(11) states that a person is physically qualified to drive a CMV if that person first perceives a forced whispered voice in the better ear at not less than 5 feet with or without the use of a hearing aid or, if tested by use of an audiometric device, does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1,000 Hz, and 2,000 Hz with or without a hearing aid when the audiometric device is calibrated to American National Standard (formerly ASA Standard) Z24.5–1951.

This standard was adopted in 1970 and was revised in 1971 to allow drivers to be qualified under this standard while wearing a hearing aid, (35 FR 6458, 6463 (Apr. 22, 1970) and 36 FR 12857 (July 8, 1971), respectively).

The 16 individuals listed in this notice have requested renewal of their exemptions from the hearing standard in § 391.41(b)(11), in accordance with FMCSA procedures. Accordingly, FMCSA has evaluated these applications for renewal on their merits and decided to extend each exemption for a renewable 2-year period.

III. Request for Comments

Interested parties or organizations possessing information that would otherwise show that any, or all, of these drivers are not currently achieving the statutory level of safety should immediately notify FMCSA. The Agency will evaluate any adverse evidence submitted and, if safety is being compromised or if continuation of the exemption would not be consistent with the goals and objectives of 49 U.S.C. 31136(e) and 31315(b), FMCSA will take immediate steps to revoke the exemption of a driver.

IV. Basis for Renewing Exemptions

In accordance with 49 U.S.C. 31136(e) and 31315(b), each of the 16 applicants has satisfied the renewal conditions for

obtaining an exemption from the hearing requirement. The 16 drivers in this notice remain in good standing with the Agency. In addition, for commercial driver's license (CDL) holders, the Commercial Driver's License Information System and the Motor Carrier Management Information System are searched for crash and violation data. For non-CDL holders, the Agency reviews the driving records from the State Driver's Licensing Agency. These factors provide an adequate basis for predicting each driver's ability to continue to safely operate a CMV in interstate commerce. Therefore, FMCSA concludes that extending the exemption for each of these drivers for a period of 2 years is likely to achieve a level of safety equal to that existing without the exemption.

In accordance with 49 U.S.C. 31136(e) and 31315(b), the following groups of drivers received renewed exemptions in the month of October and are discussed below. As of October 1, 2023, and in accordance with 49 U.S.C. 31136(e) and 31315(b), the following five individuals have satisfied the renewal conditions for obtaining an exemption from the hearing requirement in the FMCSRs for interstate CMV drivers:

Azulita-Jane Camacho (CA)
Robert Culp (FL)
Charles Davis (AL)
Christopher Fisher (WA)
John Price (TX)

The drivers were included in docket number FMCSA–2018–0139. Their exemptions are applicable as of October 1, 2023 and will expire on October 1, 2025.

As of October 8, 2023, and in accordance with 49 U.S.C. 31136(e) and 31315(b), the following five individuals have satisfied the renewal conditions for obtaining an exemption from the hearing requirement in the FMCSRs for interstate CMV drivers:

Judith Badore (VT)
Dareous Glover (IL)
Delroy Hunt (FL)
John Norman (IL)
Kyle Voss (WI)

The drivers were included in docket number FMCSA–2021–0015. Their exemptions are applicable as of October 8, 2023 and will expire on October 8, 2025.

As of October 10, 2023, and in accordance with 49 U.S.C. 31136(e) and 31315(b), the following two individuals have satisfied the renewal conditions for obtaining an exemption from the hearing requirement in the FMCSRs for interstate CMV drivers:

Kurt Bernabei (IL); and Steven Robelia (TN).

The drivers were included in docket number FMCSA–2019–0109. Their exemptions are applicable as of October 10, 2023 and will expire on October 10, 2025.

As of October 22, 2023, and in accordance with 49 U.S.C. 31136(e) and 31315(b), the following four individuals have satisfied the renewal conditions for obtaining an exemption from the hearing requirement in the FMCSRs for interstate CMV drivers:

Richard Carter (MD)
Clinton Homon (IL)
Pete Kujawa (WI)
Jonathan Muhm (KY)

The drivers were included in docket numbers FMCSA–2014–0387, FMCSA–2018–0138, and FMCSA–2021–0014. Their exemptions are applicable as of October 22, 2023 and will expire on October 22, 2025.

V. Conditions and Requirements

The exemptions are extended subject to the following conditions: (1) each driver must report any crashes or accidents as defined in § 390.5T; and (2) report all citations and convictions for disqualifying offenses under 49 CFR parts 383 and 391 to FMCSA; and (3) each driver prohibited from operating a motorcoach or bus with passengers in interstate commerce. The driver must also have a copy of the exemption when driving, for presentation to a duly authorized Federal, State, or local enforcement official. In addition, the exemption does not exempt the individual from meeting the applicable CDL testing requirements. Each exemption will be valid for 2 years unless rescinded earlier by FMCSA. The exemption will be rescinded if: (1) the person fails to comply with the terms and conditions of the exemption; (2) the exemption has resulted in a lower level of safety than was maintained before it was granted; or (3) continuation of the exemption would not be consistent with the goals and objectives of 49 U.S.C. 31136(e) and 31315(b).

VI. Preemption

During the period the exemption is in effect, no State shall enforce any law or regulation that conflicts with this exemption with respect to a person operating under the exemption.

VII. Conclusion

Based upon its evaluation of the 16 exemption applications, FMCSA renews the exemptions of the aforementioned drivers from the hearing requirement in § 391.41(b)(11). In accordance with 49 U.S.C. 31136(e) and 31315(b), each

exemption will be valid for 2 years unless revoked earlier by FMCSA.

Larry W. Minor,

Associate Administrator for Policy.

[FR Doc. 2023–22321 Filed 10–5–23; 8:45 am]

BILLING CODE 4910–EX–P

DEPARTMENT OF TRANSPORTATION

Agency Information Collection: Activity Under OMB Review; Electric Vehicle Inventory and Use Survey (eVIUS)

AGENCY: Bureau of Transportation Statistics (BTS), Office of the Assistant Secretary for Research and Technology (OST–R), DOT.

ACTION: Notice and request for comments.

SUMMARY: In accordance with the requirements of the Paperwork Reduction Act of 1995, this notice announces the intention of the Bureau of Transportation Statistics (BTS) to request the Office of Management and Budget's (OMB) approval of a new information collection related to the nation's battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs)—collectively referred to electric vehicles (EVs). The information collected will be used to produce national statistics on the characteristics and uses of EVs as well as the charging patterns and preferences related to EVs. A summary report of survey findings will also be published by BTS on the BTS web page: www.bts.gov.

DATES: Comments must be submitted on or before November 2, 2023.

FOR FURTHER INFORMATION CONTACT: Jina Mahmoudi, VIUS/eVIUS Program Manager, (800) 853–1351, eVIUS@dot.gov, BTS, OST–R, Department of Transportation, 1200 New Jersey Ave. SE, Room E34–471, Washington, DC 20590. Office hours are from 8:00 a.m. to 5:30 p.m., E.T., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Title: Electric Vehicle Inventory and Use Survey (eVIUS)

Type of Request: Approval for a new information collection

Affected Public: Registered owners of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs)

Background

As the pace of electric vehicles' adoption and use increases on the nation's roadways, the US Department of Transportation (US DOT)'s Bureau of Transportation Statistics (BTS) is planning to conduct the first national-

level Electric Vehicle Inventory and Use Survey (eVIUS). The eVIUS will be conducted to gain an in-depth understanding of the characteristics, usage, and charging patterns of electric vehicles (EVs) as well as the demographics and charging preferences of EV owners. The data collected through eVIUS will inform policy and planning decisions on future transportation systems and infrastructure investments.

The survey will be administered to owners of a nationally representative sample of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). The survey scope will be inclusive of passenger cars and light-duty vehicles (up to 10,000 pounds).

As there is no existing national-level data source for EV use and charging patterns, the eVIUS will provide valuable data and information that can assist transportation professionals and other stakeholders at the federal, state, and local levels to decipher the characteristics and usage of the EVs being driven on US roadways, as well as the charging preferences and needs of EV owners. The national-level data will inform policy and planning decisions related to EV charging infrastructure in the US, thereby leading to increased mobility, safety, air quality, and equity on the nation's roadways.

Data Confidentiality Provisions

This will be a voluntary data collection. A summary report of aggregate findings will be published on the BTS web page at www.bts.gov, and no individual and company's information or names will be included in the published reports. The Bureau of Transportation Statistics, its employees and agents, will use the information provided by respondents for statistical purposes only and will hold individuals' information in confidence to the full extent permitted by law. In accordance with the Confidential Information Protection and Statistical Efficiency Act of 2002 (Title 5 of Pub. L. 107–347) and the Foundations for Evidence-Based Policymaking Act of 2018 (Title 3 of Pub. L. 115–435) along with other applicable Federal laws, no responses will not be disclosed in an identifiable form without the respondent's informed consent. Per the Federal Cybersecurity Enhancement Act of 2016, Federal information systems are protected from malicious activities through cybersecurity screening of transmitted data.

Frequency: One time

Estimated Average Burden per

Response: The burden per respondent is estimated to be an average of 16 minutes

(0.27 hours). This estimation is based on pre-test surveys conducted (with an average respondent burden of 15 minutes) plus an additional minute to account for log in time.

Estimated Total Annual Burden:

Based on an estimated average burden of 0.27 hours per respondent and a 30% response rate, the total annual burden is estimated to be in the range of 4,050 hours (for a minimum number of 50,000 respondents) and 12,150 hours (for a maximum number of 150,000 respondents).

Response to Comments: A 60-day notice requesting public comment was issued in the **Federal Register** on March 9, 2023 (88 FR 14667, page 14667–14668, published 03/09/2023). Three comments were received by BTS in response to the 60-day public notice. The BTS' responses to those comments are provided below:

BTS' Response to Comment 1 (from The Association for the Work Truck Industry (NTEA):

For this initial round of eVIUS, BTS would like to focus on light-duty electric vehicles (EVs). The reasons for this decision are:

- According to the International Energy Agency, the light-duty EV is becoming a fast-growing mode of transportation as EV sales are increasing substantially, and the electric vehicle (BEVs and PHEVs) sales in the United States increased 55% in 2022 reaching a sales share of 8%. Since the light-duty EVs (e.g., passenger cars) comprise the majority of EV population, to aid determination of charging infrastructure gaps and inform policy decisions, it is essential to collect timely data on use and charging patterns of EVs as currently there is no existing source of such data and national statistics;

- Vehicles using the other suggested alternative fuels (i.e., hydrogen fuel cell, propane, natural gas and other possible future methods of propulsion) are operated differently from EVs. Consequently, expansion of the scope of the eVIUS to include these vehicles would require adding many questions to the survey questionnaire to measure the characteristics and use of such vehicles. This will greatly increase the complexity and length of the survey questionnaire and add to the respondent burden;

- Further, adding other alternatively fueled vehicles in the eVIUS survey would require inclusion of an adequate number of such vehicles in the sample frame, which will increase the sample size and potentially reduce the overall survey estimation precision, and add to the time and budget required for data collection. As alternatively fueled

vehicles comprise a small proportion of the entire vehicle population in the U.S., producing robust statistics will be a challenge due to a small population size, which leads to an inadequate sample size.

The eVIUS sample frame is the states' vehicle registration data; therefore, any EVs registered in the states have a chance to be sampled and included in the sample frame—i.e., government-owned fleets (federal, state, local) will not be actively excluded. The eVIUS survey questionnaire includes multiple-choice questions that ask respondents about the ownership type and usage purpose of the vehicle—allowing them to select options that indicate if the vehicle is a government-owned vehicle (state or local) and if the vehicle is used for a government business purpose.

Since increasing the eVIUS scope to include alternatively fueled vehicles would result in the data collection operation schedule and the respondent burden considerations becoming less flexible, it is not a feasible option for this first round of eVIUS as BTS intends to produce timely data (within one year).

BTS is considering a future data collection specific to the other alternatively fueled vehicles, depending on availability of funds.

BTS' Response to Comment 2 (from Alliance for Automotive Innovation):

A multiple-choice format has been used for the eVIUS as suggested.

The survey includes questions related to vehicle background and type of use, home base, miles traveled, long-distance travel, general charging behavior and needs, as well as demographics—capturing information for most of the proposed targeted questions.

BTS' Response to Comment 3 (from The National Automobile Dealers Association (NADA)):

The eVIUS sample frame has been expanded to include owners of plug-in hybrid electric vehicles (PHEVs) as suggested. For this initial round of eVIUS, BTS will focus on light-duty EVs due to reasons previously outlined (please see "BTS' Response to Comment 1" above). BTS is considering future data collections focusing on vehicles above 10,000 pounds, depending on availability of funds.

A multiple-choice format has been used for the eVIUS as suggested.

A draft survey was not provided in the sixty-day notice (88 FR 14667). The survey questionnaire was developed and finalized in collaboration with subject matter experts and stakeholders. In addition, subject matter experts from various agencies/organizations, including academia, have provided BTS

with suggestions for survey questions. These suggestions were carefully considered, and where appropriate, incorporated into the survey questionnaire.

To test question understanding and clarity of instructions, a pre-test of the draft survey was also conducted with participation of five EV owners. Following completion of the survey, one hour long cognitive interviews were conducted with each of the pre-testers to collect information on their survey experience and other feedback for improving the survey. Overall, the pre-testers reported that the survey was clear, and they did not have any major issues with understanding the survey questions/instructions.

Public Comments Invited: Interested parties are invited to send comments regarding any aspect of this information collection, including, but not limited to: (1) the necessity and utility of the information collection for the proper performance of the functions of the DOT; (2) the accuracy of the estimated burden; (3) ways to enhance the quality, utility, clarity and content of the collected information; and (4) ways to minimize the collection burden without reducing the quality of the collected information.

Send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725–17th Street NW, Washington, DC 20503, Attention: BTS Desk Officer.

Issued in Washington, DC, on 3rd of October, 2023.

Cha-Chi Fan,

Director, Office of Data Development and Standards, Bureau of Transportation Statistics, Office of the Assistant Secretary for Research and Technology.

[FR Doc. 2023–22268 Filed 10–5–23; 8:45 am]

BILLING CODE 4910–9X–P

DEPARTMENT OF THE TREASURY

Office of Foreign Assets Control

Notice of OFAC Sanctions Actions

AGENCY: Office of Foreign Assets Control, Treasury.

ACTION: Notice.

SUMMARY: The U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) is publishing the name of one or more persons that have been placed on OFAC's Specially Designated Nationals and Blocked Persons List (SDN List) based on OFAC's determination that one or more applicable legal criteria were satisfied.

All property and interests in property subject to U.S. jurisdiction of this person are blocked, and U.S. persons are generally prohibited from engaging in transactions with them.

DATES: See **SUPPLEMENTARY INFORMATION** section for applicable date(s).

FOR FURTHER INFORMATION CONTACT:

OFAC: Bradley Smith, Director, tel.: 202–622–2490; Associate Director for Global Targeting, tel.: 202–622–2420; Assistant Director for Licensing, tel.: 202–622–2480; Assistant Director for Regulatory Affairs, tel.: 202–622–4855; or the Assistant Director for Compliance, tel.: 202–622–2490.

SUPPLEMENTARY INFORMATION:

Electronic Availability

The SDN List and additional information concerning OFAC sanctions programs are available on OFAC's website (<https://ofac.treasury.gov>).

Notice of OFAC Actions

On September 28, 2023, OFAC determined that the property and interests in property subject to U.S. jurisdiction of the following individuals and entities are blocked under the relevant sanctions authority listed below.

BILLING CODE 4810–AL–P

Individual:

KARTI MOHAMED, Ali Ahmed, Burry B 6, House 402, Khartoum, Sudan; DOB 11 Mar 1953; POB Hagar Elassal, Sudan; nationality Sudan; Gender Male; National ID No. 11822483949 (Sudan) (individual) [SUDAN-EO14098].

Designated pursuant to section 1(a)(i)(A) of Executive Order 14098 of May 4, 2023, "Imposing Sanctions on Certain Persons Destabilizing Sudan and Undermining the Goal of a Democratic Transition," for being a foreign person who is responsible for, or complicit in, or to have directly or indirectly engaged or attempted to engage in actions or policies that threaten the peace, security, or stability of Sudan.

Entities:

AVIATRADE LLC (a.k.a. AVIATREID, OOO; a.k.a. LIMITED LIABILITY COMPANY AVIATRADE (Cyrillic: ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ АВИАТРЭЙД)), d. 59 kv. 228, ul., Kholmogorova, Izhevsk, Udmurtia Republic 426065, Russia; Organization Established Date 31 Mar 2017 [SUDAN-EO14098].

Designated pursuant to section 1(a)(i)(A) of Executive Order 14098 of May 4, 2023, "Imposing Sanctions on Certain Persons Destabilizing Sudan and Undermining the Goal of a Democratic Transition," for being a foreign person who is responsible for, or complicit in, or to have directly or indirectly engaged or attempted to engage in actions or policies that threaten the peace, security, or stability of Sudan.

GSK ADVANCE COMPANY LTD (a.k.a. GSK FOR ADVANCED BUSINESS CO. LTD; a.k.a. "GSK ADVANCE"), Ahmed Khair Street, Khartoum 11111, Sudan; Website <http://www.gsk-sd.com>; Organization Type: Other information technology and computer service activities [SUDAN-EO14098].

Designated pursuant to section 1(a)(i)(A) of Executive Order 14098 of May 4, 2023, "Imposing Sanctions on Certain Persons Destabilizing Sudan and Undermining the Goal of a Democratic Transition," for being a foreign person who is responsible for, or complicit in, or to have directly or indirectly engaged or attempted to engage in actions or policies that threaten the peace, security, or stability of Sudan.

Dated: September 28, 2023.

Bradley T. Smith,

*Director, Office of Foreign Assets Control,
U.S. Department of the Treasury.*

[FR Doc. 2023-22291 Filed 10-5-23; 8:45 am]

BILLING CODE 4810-AL-C

DEPARTMENT OF THE TREASURY**Internal Revenue Service****Electronic Tax Administration
Advisory Committee; Notice of Meeting**

AGENCY: Internal Revenue Service (IRS),
Treasury.

ACTION: Notice of meeting.

SUMMARY: The Electronic Tax Administration Advisory Committee (ETAAC) will hold a public meeting via telephone conference line on Wednesday, Nov. 15, 2023.

FOR FURTHER INFORMATION CONTACT: Mr. Alec Johnston, Office of National Public Liaison, at (202) 317-4299, or send an email to publicliaison@irs.gov.

SUPPLEMENTARY INFORMATION: Notice is hereby given pursuant to 5 U.S.C. 10(a)(2) of the Federal Advisory Committee Act, that a public meeting via conference call of the ETAAC will be held on Wednesday, Nov. 15, 2023,

at 12:30 p.m. EDT. The purpose of the ETAAC is to provide continuing advice regarding the development and implementation of the IRS organizational strategy for electronic tax administration. ETAAC is an organized public forum for discussion of electronic tax administration issues such as prevention of identity theft and refund fraud. It supports the overriding goal that paperless filing should be the preferred and most convenient method of filing tax and information returns. ETAAC members convey the public's perceptions of IRS electronic tax administration activities, offer constructive observations about current

or proposed policies, programs, and procedures, and suggest improvements. Please call or email Alec Johnston to confirm your attendance. Mr. Johnston can be reached at 202-317-4299 or PublicLiaison@irs.gov. Should you wish the ETAAC to consider a written statement, please call 202-317-4299 or email: PublicLiaison@irs.gov.

Dated: October. 3, 2023.

John A. Lipold,

Designated Federal Official, Office of National Public Liaison, Internal Revenue Service.

[FR Doc. 2023-22281 Filed 10-5-23; 8:45 am]

BILLING CODE 4830-01-P

DEPARTMENT OF THE TREASURY

Interest Rate Paid on Cash Deposited To Secure U.S. Immigration and Customs Enforcement Immigration Bonds

AGENCY: Departmental Offices, Treasury.

ACTION: Notice.

SUMMARY: For the period beginning October 1, 2023, and ending on December 31, 2023, the U.S. Immigration and Customs Enforcement Immigration Bond interest rate is 3 per centum per annum.

DATES: Rates are applicable October 1, 2023 to December 31, 2023.

ADDRESSES: Comments or inquiries may be mailed to Will Walcutt, Supervisor, Funds Management Branch, Funds Management Division, Fiscal Accounting, Bureau of the Fiscal Services, Parkersburg, West Virginia 26106-1328.

You can download this notice at the following internet addresses: <http://www.treasury.gov> or <http://www.federalregister.gov>.

FOR FURTHER INFORMATION CONTACT:

Ryan Hanna, Manager, Funds Management Branch, Funds Management Division, Fiscal Accounting, Bureau of the Fiscal Service, Parkersburg, West Virginia 261006-1328 (304) 480-5120; Will Walcutt, Supervisor, Funds Management Branch, Funds Management Division, Fiscal Accounting, Bureau of the Fiscal Services, Parkersburg, West Virginia 26106-1328, (304) 480-5117.

SUPPLEMENTARY INFORMATION: Federal law requires that interest payments on cash deposited to secure immigration bonds shall be “at a rate determined by the Secretary of the Treasury, except that in no case shall the interest rate exceed 3 per centum per annum.” 8 U.S.C. 1363(a). Related Federal

regulations state that “Interest on cash deposited to secure immigration bonds will be at the rate as determined by the Secretary of the Treasury, but in no case will exceed 3 per centum per annum or be less than zero.” 8 CFR 293.2. Treasury has determined that interest on the bonds will vary quarterly and will accrue during each calendar quarter at a rate equal to the lesser of the average of the bond equivalent rates on 91-day Treasury bills auctioned during the preceding calendar quarter, or 3 per centum per annum, but in no case less than zero. [FR Doc. 2015-18545]. In addition to this Notice, Treasury posts the current quarterly rate in Table 2b—Interest Rates for Specific Legislation on the TreasuryDirect website.

The Deputy Assistant Secretary for Public Finance, Gary Grippo, having reviewed and approved this document, is delegating the authority to electronically sign this document to Heidi Cohen, **Federal Register Liaison** for the Department, for purposes of publication in the **Federal Register**.

Heidi Cohen,

Federal Register Liaison.

[FR Doc. 2023-22276 Filed 10-5-23; 8:45 am]

BILLING CODE 4810-AS-P

DEPARTMENT OF VETERANS AFFAIRS

[OMB Control No. 2900-0500]

Agency Information Collection Activity: Mandatory Verification of Dependents

AGENCY: Veterans Benefits Administration, Department of Veterans Affairs.

ACTION: Notice.

SUMMARY: Veterans Benefits Administration, Department of Veterans Affairs (VA), is announcing an opportunity for public comment on the proposed collection of certain information by the agency. Under the Paperwork Reduction Act (PRA) of 1995, Federal agencies are required to publish notice in the **Federal Register** concerning each proposed collection of information, including each proposed revision of a currently approved collection, and allow 60 days for public comment in response to the notice.

DATES: Written comments and recommendations on the proposed collection of information should be received on or before December 5, 2023.

ADDRESSES: Submit written comments on the collection of information through Federal Docket Management System

(FDMS) at www.Regulations.gov or to Nancy J. Kessinger, Veterans Benefits Administration (20M33), Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420 or email to nancy.kessinger@va.gov. Please refer to “OMB Control No. 2900-0500” in any correspondence. During the comment period, comments may be viewed online through FDMS.

FOR FURTHER INFORMATION CONTACT:

Maribel Aponte, Office of Enterprise and Integration, Data Governance Analytics (008), 810 Vermont Ave. NW, Washington, DC 20006, (202) 266-4688 or email maribel.aponte@va.gov. Please refer to “OMB Control No. 2900-0500” in any correspondence.

SUPPLEMENTARY INFORMATION: Under the PRA of 1995, Federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. This request for comment is being made pursuant to section 3506(c)(2)(A) of the PRA.

With respect to the following collection of information, VBA invites comments on: (1) whether the proposed collection of information is necessary for the proper performance of VBA’s functions, including whether the information will have practical utility; (2) the accuracy of VBA’s estimate of the burden of the proposed collection of information; (3) ways to enhance the quality, utility, and clarity of the information to be collected; and (4) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or the use of other forms of information technology.

Authority: 38 U.S.C. 501, 38 CFR 3.652.

Title: Mandatory Verification of Dependents (VA Form 21-0538).

OMB Control Number: 2900-0500.

Type of Review: Revision of a currently approved collection.

Abstract: VA Form 21-0538 is primarily used to request verification of the status of dependents for whom additional compensation is being paid to veterans.

No substantive changes have been made to this form. The respondent burden has decreased due to the estimated number of receivables averaged over the past year.

Affected Public: Individuals or Households.

Estimated Annual Burden: 20,541.

Estimated Average Burden per Respondent: 10 minutes.

Frequency of Response: One time.

Estimated Number of Respondents: 123,246.

By direction of the Secretary.

Dorothy Glasgow,

VA PRA Clearance Officer, (Alt), Office of Enterprise and Integration/Data Governance Analytics, Department of Veterans Affairs.

[FR Doc. 2023-22267 Filed 10-5-23; 8:45 am]

BILLING CODE 8320-01-P

DEPARTMENT OF VETERANS AFFAIRS

Veterans' Family, Caregiver and Survivor Advisory Committee; Notice of Meeting—Cancellation

The Department of Veterans Affairs (VA) gives notice under the Federal Advisory Committee Act, 5 U.S.C. ch. 10, that the Veterans' Family, Caregiver and Survivor Advisory Committee previously scheduled to be held on October 25-26, 2023, at The American

Legion, 1608 K Street NW, 7th floor, Washington, DC 20006 has *been cancelled*. For more information, please contact Dr. Betty Moseley Brown, Designated Federal Officer at (210) 392-2505 or VHA12CSPFAC@va.gov.

Dated: October 3, 2023.

Jelessa M. Burney,

Federal Advisory Committee Management Officer.

[FR Doc. 2023-22303 Filed 10-5-23; 8:45 am]

BILLING CODE P



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Part II

Department of Energy

10 CFR Part 431

Energy Conservation Program: Energy Conservation Standards for
Commercial Water Heating Equipment; Final Rule

DEPARTMENT OF ENERGY**10 CFR Part 431****[EERE–2021–BT–STD–0027]****RIN 1904–AD34****Energy Conservation Program: Energy Conservation Standards for Commercial Water Heating Equipment****AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.**ACTION:** Final rule.

SUMMARY: The Energy Policy and Conservation Act, as amended (“EPCA”), prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including Commercial Water Heating (“CWH”) equipment. EPCA also requires the U.S. Department of Energy (“DOE”) to periodically review standards. In this final rule, DOE is adopting amended energy conservation standards for CWH equipment.

DATES: The effective date of this rule is December 5, 2023. Compliance with the amended standards established for CWH equipment in this final rule is required on and after October 6, 2026.

ADDRESSES: The docket for this rulemaking, which includes **Federal Register** notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at www.regulations.gov. All documents in the docket are listed in the www.regulations.gov index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

The docket web page can be found at www.regulations.gov/docket/EERE-2021-BT-STD-0027. The docket web page contains instructions on how to access all documents, including public comments, in the docket.

For further information on how to review the docket, contact the Appliance and Equipment Standards Program staff at (202) 287–1445 or by email: ApplianceStandardsQuestions@ee.doe.gov.

FOR FURTHER INFORMATION CONTACT:

Ms. Julia Hegarty, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (240) 597–6737. Email: ApplianceStandardsQuestions@ee.doe.gov.

Mr. Matthew Ring, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 586–2555. Email: Matthew.Ring@hq.doe.gov.

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I. Synopsis of the Final Rule

The Energy Policy and Conservation Act, Public Law 94–163, as amended (“EPCA”),¹ authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part C of EPCA,² established the Energy Conservation Program for Certain Industrial Equipment. (42 U.S.C. 6311–6317) Such equipment includes CWH equipment, the subject of this rulemaking.

Pursuant to EPCA, DOE is to consider amending the energy efficiency standards for certain types of commercial and industrial equipment, including the equipment at issue in this document, whenever the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (“ASHRAE”) amends the standard levels or design requirements prescribed in ASHRAE Standard 90.1, “Energy

Standard for Buildings Except Low-Rise Residential Buildings,” (“ASHRAE Standard 90.1”), and at a minimum, every 6 years. (42 U.S.C. 6313(a)(6)(A)–(C))

In accordance with these and other statutory provisions discussed in this document, DOE analyzed the benefits and burdens of trial standard levels (TSLs) for CWH equipment. The TSLs and their associated benefits and burdens are discussed in detail in sections V.A–C of this section. As discussed in section V.C of this section, DOE has determined that TSL 3 represents the maximum improvement in energy efficiency that is technologically feasible and economically justified. DOE is adopting amended energy conservation standards for certain classes of CWH equipment. The adopted standards, which are expressed in terms of thermal efficiency, standby loss, and uniform energy factor (“UEF”), are shown in Table I.1 and Table I.2. These adopted standards apply to all CWH equipment listed in Table I.1 and Table I.2, manufactured in, or imported into the United States starting on the date 3 years after the publication of the final rule for this rulemaking. DOE is also codifying standards for electric instantaneous CWH equipment from EPCA into the Code of Federal Regulations (“CFR”). Finally, DOE is amending the footnotes to tables of energy conservation standards at 10 CFR 431.110 to clarify existing regulations for CWH equipment. The adopted standards for electric instantaneous CWH equipment and changes to the footnotes are also shown in Table I.1.

TABLE I.1—ADOPTED ENERGY CONSERVATION STANDARDS FOR COMMERCIAL WATER HEATING EQUIPMENT EXCEPT FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment	Size	Energy conservation standards (%) ^a	
		Minimum thermal efficiency ^b (%)	Maximum standby loss ^{**}
Gas-fired storage water heaters and storage-type instantaneous water heaters.	All	95	$0.86 \times [Q/800 + 110(V_r)^{1/2}]$ (Btu/h).
Electric instantaneous water heaters ^c	<10 gal	80	N/A.
	≥10 gal	77	$2.30 + 67/V_m$ (%/h).
Gas-fired instantaneous water heaters and hot water supply boilers except storage-type instantaneous water heaters.	<10 gal	96	N/A.
	≥10 gal	96	$Q/800 + 110(V_r)^{1/2}$ (Btu/h).

^a V_m is the measured storage volume, and V_r is the rated volume, both in gallons. Q is the rated input in Btu/h, as determined pursuant to 10 CFR 429.44.

^b Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if: (1) the tank surface area is thermally insulated to R–12.5 or more, (2) a standing pilot light is not used, and (3) for gas or oil-fired storage water heaters, they have a flue damper or fan-assisted combustion.

^c The compliance date for these energy conservation standards is January 1, 1994.

¹ All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Public Law 116–260 (Dec. 27, 2020), which

reflect the last statutory amendments that impact Parts A and A–1 of EPCA.

² For editorial reasons, upon codification in the U.S. Code, Part C was re-designated Part A–1.

TABLE I.2—ADOPTED ENERGY CONSERVATION STANDARDS FOR GAS-FIRED RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment	Specification *	Draw pattern **	Uniform energy factor †
Gas-fired Residential-Duty Storage	>75 kBtu/h and ≤105 kBtu/h and ≤120 gal and ≤180 °F.	Very Small	0.5374 – (0.0009 × V _r).
		Low	0.8062 – (0.0012 × V _r).
		Medium	0.8702 – (0.0011 × V _r).
		High	0.9297 – (0.0009 × V _r).

* Additionally, to be classified as a residential-duty water heater, a commercial water heater must meet the following conditions: (1) if requiring electricity, use single-phase external power supply; and (2) the water heater must not be designed to heat water at temperatures greater than 180 °F.

** Draw pattern is a classification of hot water use of a consumer water heater or residential-duty commercial water heater, based upon the first-hour rating. The draw pattern is determined using the *Uniform Test Method for Measuring the Energy Consumption of Water Heaters* in appendix E to subpart B of 10 CFR part 430.

† V_r is the rated storage volume (in gallons), as determined pursuant to 10 CFR 429.44.

A. Benefits and Costs to Consumers

Table I.3 summarizes DOE’s evaluation of the economic impacts of the adopted standards on consumers of CWH equipment, as measured by the average life-cycle cost (“LCC”) savings

and the simple payback period (“PBP”).³ The analysis inputs are described in section IV of this document. The average LCC savings are positive for all equipment classes, and the PBP is less than the average lifetime

of CWH equipment, which is estimated to range from 10 years for commercial gas-fired storage water heaters to 25 years for instantaneous water heaters and hot water supply boilers (see section IV.F.6 of this document).

TABLE I.3—IMPACTS OF ADOPTED ENERGY CONSERVATION STANDARDS ON CONSUMERS OF CWH EQUIPMENT

Equipment	Average LCC savings (2022\$)	Simple payback period (years)
Commercial Gas-Fired Storage and Storage-Type Instantaneous	367	5.8
Residential-Duty Gas-Fired Storage	119	7.2
Gas-Fired Instantaneous Water Heaters and Hot Water Supply Boilers	898	9.3
—Instantaneous, Gas-Fired Tankless	120	8.9
—Instantaneous Water Heaters and Hot Water Supply Boilers	1,570	9.4

DOE’s analysis of the impacts of the adopted standards on consumers is described in section IV.F of this document.

B. Impact on Manufacturers

The industry net present value (“INPV”) is the sum of the discounted cash flows to the industry from the base year through the end of the analysis period (2023–2055). Using a real discount rate of 9.1 percent, DOE estimates that the INPV for manufacturers of CWH equipment in the case without amended standards is \$212.8 million in 2022\$. Under the adopted standards, the change in INPV is estimated to range from –17.7 percent to –8.3 percent, which is approximately equivalent to a decrease of \$37.6 million to a decrease of \$17.7 million, respectively. In order to bring products into compliance with amended

standards, it is estimated that the industry would incur total conversion costs of \$42.7 million.

DOE’s analysis of the impacts of the adopted standards on manufacturers is described in section IV.J of this document. The analytic results of the manufacturer impact analysis (“MIA”) are presented in section V.B.2 of this document.

C. National Benefits and Costs⁴

DOE’s analyses indicate that the adopted energy conservation standards for CWH equipment would save a significant amount of energy. Relative to the case without amended standards, the lifetime energy savings for CWH equipment purchased in the 30-year period that begins in the anticipated year of compliance with the amended standards (2026–2055) amount to 0.70 quadrillion British thermal units

(“Btu”), or quads.⁵ This represents a savings of 5.6 percent relative to the energy use of these products in the case without amended standards (referred to as the “no-new-standards case”).

The cumulative net present value (“NPV”) of total consumer benefits of the standards for CWH equipment ranges from \$0.43 billion (at a 7-percent discount rate) to \$1.43 billion (at a 3-percent discount rate). This NPV expresses the estimated total value of future operating cost savings minus the estimated increased product and installation costs for CWH equipment purchased in 2026–2055.

In addition, the adopted standards for CWH equipment are projected to yield significant environmental benefits. DOE estimates that the standards would result in cumulative emission reductions (over the same period as for energy savings) of 38 million metric

³ The average LCC savings refer to consumers that are affected by a standard and are measured relative to the efficiency distribution in the no-new-standards case, which depicts the market in the compliance year in the absence of new or amended standards (see section IV.F.8 of this document). The simple PBP, which is designed to compare specific efficiency levels, is measured relative to the

baseline product (see section IV.F.9 of this document).

⁴ All monetary values in this document are expressed in 2022 dollars, and, where appropriate, are discounted to 2023 unless explicitly stated otherwise.

⁵ The quantity refers to full-fuel-cycle (“FFC”) energy savings. FFC energy savings include the energy consumed in extracting, processing, and transporting primary fuels (i.e., coal, natural gas, petroleum fuels), and, thus, presents a more complete picture of the impacts of energy efficiency standards. For more information on the FFC metric, see section IV.H.2 of this document.

tons (“Mt”)⁶ of carbon dioxide (“CO₂”), 0.10 thousand tons of sulfur dioxide (“SO₂”), 103 thousand tons of nitrogen oxides (“NO_x”), 479 thousand tons of methane (“CH₄”), 0.08 thousand tons of nitrous oxide (“N₂O”), and –0.001 tons of mercury (“Hg”).⁷ The estimated cumulative reduction in CO₂ emissions through 2030 amounts to 1.5 million metric tons, which is equivalent to the emissions resulting from the annual electricity use of more than 295,000 homes.

DOE estimates the value of climate benefits from a reduction in greenhouse gases using four different estimates of the “social cost of carbon” (“SC–CO₂”), the social cost of methane (“SC–CH₄”), and the social cost of nitrous oxide (“SC–N₂O”). Together these represent the social cost of greenhouse gases (“SC–GHG”).⁸ DOE used interim SC–GHG values developed by an Interagency Working Group on the Social Cost of Greenhouse Gases (“IWG”).⁹ The derivation of these values

is discussed in section IV.L.1 of this document. For presentational purposes, the climate benefits associated with the average SC–GHG at a 3-percent discount rate over the 30-year analysis period is \$2.30 billion. DOE does not have a single central SC–GHG point estimate, and it emphasizes the importance and value of considering the benefits calculated using all four SC–GHG estimates.

DOE estimated the monetary health benefits from SO₂ and NO_x emissions reduction, using benefit per ton estimates from EPA’s Benefits Mapping and Analysis Program, as discussed in section IV.L of this document.¹⁰ DOE estimates the present value of the health benefits would be \$1.36 billion using a 7-percent discount rate, and \$3.29 billion using a 3-percent discount. DOE is currently only monetizing health benefits from changes in fine particulate matter (“PM_{2.5}”) and (for NO_x) ozone precursors, but will continue to assess the ability to monetize other effects such

as health benefits from reductions in direct PM_{2.5} emissions.

Table I.4 summarizes the monetized benefits and costs expected to result from the standards for CWH equipment. There are other important unquantified effects, including certain unquantified climate benefits, unquantified public health benefits from the reduction of toxic air pollutants and other emissions, unquantified energy security benefits, and distributional effects, among others. In the table, total benefits for both the 3-percent and 7-percent cases are presented using the average GHG social costs with 3-percent discount rate. DOE does not have a single central SC–GHG point estimate and it emphasizes the importance and value of considering the benefits calculated using all four SC–GHG estimates. The estimated total net benefits using each of the four SC–GHG estimates are presented in section V.B.6 of this document.

TABLE I.4—PRESENT VALUE OF MONETIZED BENEFITS AND COSTS OF ADOPTED ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT [TSL 3]

Benefits	Billion 2022\$
3% Discount rate	
Consumer Operating Cost Savings	2.76
Climate Benefits*	2.30
Health Benefits**	3.29
Total Monetized Benefits †	8.35
Consumer Incremental Product Costs ‡	1.33
Net Monetized Benefits	7.02
Change in Producer Cashflow (INPV ‡‡)	(0.04)–(0.02)
7% Discount rate	
Consumer Operating Cost Savings	1.28
Climate Benefits* (3% discount rate)	2.30
Health Benefits**	1.36
Total Monetized Benefits †	4.94
Consumer Incremental Product Costs ‡	0.85
Net Monetized Benefits	4.09
Change in Producer Cashflow (INPV ‡‡)	(0.04)–(0.02)

Note: This table presents the present value of costs and benefits associated with commercial water heaters shipped in 2026–2055. These results include benefits (including climate and health benefits) to consumers which accrue after 2055 from the products shipped in 2026–2055. Numbers may not add due to rounding.

* Climate benefits are calculated using four different estimates of the SC–CO₂, SC–CH₄, and SC–N₂O (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate) (see section IV.L of this final rule). Together these represent the global SC–GHG. For presentational purposes of this table, the climate benefits associated with the average SC–GHG at a 3 percent discount rate are shown; however, DOE emphasizes the importance and value of considering the benefits calculated using all four sets of SC–GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

⁶ A metric ton is equivalent to 1.1 short tons. Results for emissions other than CO₂ are presented in short tons.

⁷ DOE calculated emissions reductions relative to the no-new-standards case, which reflects key assumptions in the *Annual Energy Outlook 2023* (“*AEO2023*”). *AEO2023* represents current Federal and State legislation and final implementation of regulations as of the time of its preparation. See section IV.K for further discussion of *AEO2023* assumptions that effect air pollutant emissions.

⁸ To monetize the benefits of reducing GHG emissions this analysis uses the interim estimates presented in the Technical Support Document: *Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG).

⁹ See Interagency Working Group on Social Cost of Greenhouse Gases, Technical Support Document: *Social Cost of Carbon, Methane, and Nitrous Oxide*.

Interim Estimates Under Executive Order 13990, Washington, DC February 2021. www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

¹⁰ Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 21 Sectors. www.epa.gov/benmap/estimating-benefit-ton-reducing-pm25-precursors-21-sectors.

** Health benefits are calculated using benefit-per-ton values for NO_x and SO₂. DOE is currently only monetizing PM_{2.5} and (for NO_x) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct PM_{2.5} emissions. The health benefits are presented at real discount rates of 3 and 7 percent. See section IV.L of this document for more details.

† Total and net benefits include consumer, climate, and health benefits. For presentation purposes, total and net benefits for both the 3-percent and 7-percent cases are presented using the average SC–GHG with 3-percent discount rate.

‡ Costs include incremental equipment costs as well as installation costs.

‡‡ Operating Cost Savings are calculated based on the life cycle costs analysis and national impact analysis as discussed in detail below. See sections IV.F and IV.H of this document. DOE’s NIA includes all impacts (both costs and benefits) along the distribution chain beginning with the increased costs to the manufacturer to manufacture the equipment and ending with the increase in price experienced by the consumer. DOE also separately conducts a detailed analysis on the impacts on manufacturers (the MIA). See section IV.J of this document. In the detailed MIA, DOE models manufacturers’ pricing decisions based on assumptions regarding investments, conversion costs, cashflow, and margins. The MIA produces a range of impacts, which is the rule’s expected impact on the INPV. The change in INPV is the present value of all changes in industry cash flow, including changes in production costs, capital expenditures, and manufacturer profit margins. Change in INPV is calculated using the industry weighted average cost of capital value of 9.1% that is estimated in the manufacturer impact analysis (see chapter 12 of the final rule TSD for a complete description of the industry weighted average cost of capital). For commercial water heaters, those values are –\$38 million and –\$18 million. DOE accounts for that range of likely impacts in analyzing whether a TSL is economically justified. See section V.C of this document. DOE is presenting the range of impacts to the INPV under two markup scenarios: the Preservation of Gross Margin scenario, which is the manufacturer markup scenario used in the calculation of Consumer Operating Cost Savings in this table, and the Preservation of Operating Profit Markup scenario, where DOE assumed manufacturers would not be able to increase per-unit operating profit in proportion to increases in manufacturer production costs. DOE includes the range of estimated INPV in the above table, drawing on the MIA explained further in section IV.J, of this document to provide additional context for assessing the estimated impacts of this rule to society, including potential changes in production and consumption, which is consistent with OMB’s Circular A–4 and E.O. 12866. If DOE were to include the INPV into the net benefit calculation for this final rule, the net benefits would range from \$6.98 billion to \$7.0 billion at 3-percent discount rate and would range from \$4.05 billion to \$4.07 billion at 7-percent discount rate. Parentheses () indicate negative values.

The benefits and costs of the adopted standards can also be expressed in terms of annualized values. The monetary values for the total annualized net benefits are (1) the reduced consumer operating costs, minus (2) the increase in product purchase prices and installation costs, plus (3) the monetized value of the benefits of GHG, NO_x, and SO₂ emission reductions, all annualized.¹¹

The national operating savings are domestic private U.S. consumer monetary savings that occur as a result of purchasing the covered products and are measured for the lifetime of CWH equipment shipped in 2026–2055. The climate benefits associated with reduced GHG emissions achieved as a result of the adopted standards are also calculated based on the lifetime of CWH equipment shipped in 2026–2055. Total benefits for both the 3-percent and 7-percent cases are presented using the average GHG social costs with 3-percent discount rate. Estimates of SC–GHG values are presented for all four discount rates in section V.B.6. DOE considered any lessening of competition

that would be likely to result from new or amended standards. As discussed in section III.F.1.e of this document, EPCA directs the Attorney General of the United States (“Attorney General”) to determine the impact, if any, of any lessening of competition likely to result from a proposed standard and to transmit such determination in writing to the Secretary within 60 days of the publication of a proposed rule, together with an analysis of the nature and extent of the impact. To assist the Attorney General in making this determination, DOE provided the Department of Justice (“DOJ”) with copies of the proposed rule and the TSD for review. In its assessment letter responding to DOE, DOJ concluded that the proposed energy conservation standards for CWH equipment are unlikely to have a significant adverse impact on competition. DOE is publishing the Attorney General’s assessment at the end of this final rule.

Table I.5 presents the total estimated monetized benefits and costs associated with the adopted standard, expressed in terms of annualized values.

Using a 7-percent discount rate for consumer benefits and costs and health benefits from reduced SO₂ and NO_x emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated monetized cost of the standards adopted in this rule is \$78 million per year in increased equipment costs, while the estimated annual benefits are \$118 million in reduced equipment operating costs, \$125 million in monetized climate benefits, and \$125 million in monetized health benefits. In this case, the net monetized benefit would amount to \$289 million per year.

Using a 3-percent discount rate for all benefits and costs, the estimated monetized cost of the standards is \$72 million per year in increased equipment costs, while the estimated annual monetized benefits are \$149 million in reduced operating costs, \$125 million in monetized climate benefits, and \$178 million in monetized air pollutant health benefits. In this case, the net benefit would amount to \$380 million per year.

TABLE I.5—ANNUALIZED MONETIZED BENEFITS AND COSTS OF ADOPTED ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT [TSL 3]

Category	Million 2022\$/year		
	Primary estimate	Low-net-benefits estimate	High-net-benefits estimate
3% Discount rate			
Consumer Operating Cost Savings	149	144	154

¹¹ To convert the time-series of costs and benefits into annualized values, DOE calculated a present value in 2023, the year used for discounting the NPV of total consumer costs and savings. For the benefits, DOE calculated a present value associated

with each year’s shipments in the year in which the shipments occur (e.g., 2030), and then discounted the present value from each year to 2023. The calculation uses discount rates of 3 and 7 percent for all costs and benefits except for the value of CO₂

reductions, for which DOE used case-specific discount rates, as shown in Table I.3. Using the present value, DOE then calculated the fixed annual payment over a 30-year period, starting in the compliance year, that yields the same present value.

TABLE I.5—ANNUALIZED MONETIZED BENEFITS AND COSTS OF ADOPTED ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT—Continued
[TSL 3]

Category	Million 2022\$/year		
	Primary estimate	Low-net-benefits estimate	High-net-benefits estimate
Climate Benefits *	125	124	128
Health Benefits **	178	177	197
Total Monetized Benefits †	452	445	479
Consumer Incremental Product Costs ‡	72	72	74
Net Monetized Benefits	380	373	405
Change in Producer Cashflow (INPV ‡‡)	(4)–(2)	(4)–(2)	(4)–(2)
7% Discount rate			
Consumer Operating Cost Savings	118	115	122
Climate Benefits * (3% discount rate)	125	124	128
Health Benefits **	125	124.4	138.1
Total Monetized Benefits †	368	364	388
Consumer Incremental Product Costs ‡	78	78.2	80.0
Net Monetized Benefits	289	285	308
Change in Producer Cashflow (INPV ‡‡)	(4)–(2)	(4)–(2)	(4)–(2)

Note: This table presents the annualized costs and benefits associated with CWH equipment shipped in 2026–2055. These results include benefits to consumers which accrue after 2055 from the products purchased in 2026–2055. The primary, low net benefits, and high net benefits estimates utilize projections of energy prices from the AEO2023 Reference case, low economic growth case, and high economic growth case, respectively. Note that the benefits and costs may not sum to the net benefits due to rounding.

* Climate benefits are calculated using four different estimates of the global SC–GHG (see section IV.L of this final rule). For presentational purposes of this table, the climate benefits associated with the average SC–GHG at a 3 percent discount rate are shown; however, DOE emphasizes the importance and value of considering the benefits calculated using all four sets of SC–GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

** Health benefits are calculated using benefit-per-ton values for NO_x and SO₂. DOE is currently only monetizing PM_{2.5} and (for NO_x) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct PM_{2.5} emissions. The health benefits are presented at real discount rates of 3 and 7 percent. See section IV.L of this document for more details.

† Total benefits for both the 3-percent and 7-percent cases are presented using the average SC–GHG with 3-percent discount rate.

‡ Costs include incremental equipment costs as well as installation costs.

‡‡ Operating Cost Savings are calculated based on the life cycle costs analysis and national impact analysis as discussed in detail below. See sections IV.F and IV.H of this document. DOE’s NIA includes all impacts (both costs and benefits) along the distribution chain beginning with the increased costs to the manufacturer to manufacture the equipment and ending with the increase in price experienced by the consumer. DOE also separately conducts a detailed analysis on the impacts on manufacturers (the MIA). See section IV.J of this document. In the detailed MIA, DOE models manufacturers’ pricing decisions based on assumptions regarding investments, conversion costs, cashflow, and margins. The MIA produces a range of impacts, which is the rule’s expected impact on the INPV. The change in INPV is the present value of all changes in industry cash flow, including changes in production costs, capital expenditures, and manufacturer profit margins. The annualized change in INPV is calculated using the industry weighted average cost of capital value of 9.1% that is estimated in the manufacturer impact analysis (see chapter 12 of the final rule TSD for a complete description of the industry weighted average cost of capital). For commercial water heaters, those values are –\$4 million and –\$2 million. DOE accounts for that range of likely impacts in analyzing whether a TSL is economically justified. See section V.C of this document. DOE is presenting the range of impacts to the INPV under two markup scenarios: the Preservation of Gross Margin scenario, which is the manufacturer markup scenario used in the calculation of Consumer Operating Cost Savings in this table, and the Preservation of Operating Profit Markup scenario, where DOE assumed manufacturers would not be able to increase per-unit operating profit in proportion to increases in manufacturer production costs. DOE includes the range of estimated annualized change in INPV in the above table, drawing on the MIA explained further in Section IV.J, to provide additional context for assessing the estimated impacts of this rule to society, including potential changes in production and consumption, which is consistent with OMB’s Circular A–4 and E.O. 12866. If DOE were to include the INPV into the annualized net benefit calculation for this final rule, the annualized net benefits would range from \$376 million to \$378 million at 3-percent discount rate and would range from \$285 million to \$287 million at 7-percent discount rate. Parentheses () indicate negative values.

DOE’s analysis of the national impacts of the adopted standards is described in sections IV.H, IV.K, and IV.L of this document.

D. Conclusion

DOE concludes, based on clear and convincing evidence as presented in the following sections, that the standards adopted in this final rule are technologically feasible and economically justified, and would result in significant additional conservation of energy. Specifically, with regards to technological feasibility, CWH equipment achieving the adopted

standard levels are already commercially available for all equipment classes covered by this final rule. As for economic justification, DOE’s analysis shows that the benefits of the proposed standard exceed, to a great extent, the burdens of the adopted standards. Using a 7-percent discount rate for consumer benefits and costs and NO_x and SO₂ reduction benefits, and a 3-percent discount rate case for GHG social costs, the estimated monetized cost of the proposed standards for CWH equipment is \$78 million per year in increased equipment costs, while the estimated annual monetized benefits are

\$118 million in reduced equipment operating costs, \$125 million in monetized climate benefits from GHG reductions, and \$125 million in monetized air pollutant health benefits. In this case, the net monetized benefit would amount to \$289 million per year.

The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking.¹² For example, some

¹² Procedures, Interpretations, and Policies for Consideration in New or Revised Energy

covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis. As previously mentioned, the standards are projected to result in estimated full-fuel cycle (“FFC”) national energy savings of 0.70 quad for equipment purchased in the 30-year period that begins in the anticipated year of compliance with the amended standards (2026–2055), the equivalent of the electricity use of approximately 28 million homes in 1 year. In addition, they are projected to reduce CO₂ emissions by 38 Mt. Based on these findings, DOE has determined the energy savings from the standard levels adopted in this final rule are “significant” within the meaning of 42 U.S.C. 6313(a)(6)(A)(ii)(II). A more detailed discussion of the basis for these conclusions is contained in the remainder of this document and the accompanying TSD.

II. Introduction

The following section briefly discusses the statutory authority underlying this final rule, as well as some of the relevant historical background related to the establishment of standards for CWH equipment. CWH equipment includes storage water heaters, instantaneous water heaters, and unfired hot water storage tanks. Such equipment (besides unfired hot water storage tanks, which only store hot water) may use gas, oil, or electricity to heat potable water. CWH equipment generally have higher input ratings than residential water heaters and are used in a wide variety of applications (including restaurants, hotels, multi-family housing, schools, convention centers, etc.). Some CWH equipment (in particular, residential-duty CWH) may also be used in certain residential applications.

A. Authority

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and industrial equipment. Title III, Part C of EPCA, added by Public Law 95–619, Title IV, section 441(a) (42 U.S.C. 6311–6317, as codified), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a

variety of provisions designed to improve energy efficiency. This equipment includes the classes of CWH equipment that are the subject of this final rule. (42 U.S.C. 6311(1)(K)) EPCA prescribed energy conservation standards for CWH equipment. (42 U.S.C. 6313(a)(5)) Pursuant to EPCA, DOE is to consider amending the energy efficiency standards for certain types of commercial and industrial equipment, including CWH equipment, whenever ASHRAE amends the standard levels or design requirements prescribed in ASHRAE/IES Standard 90.1, and at a minimum, every 6 years. (42 U.S.C. 6313(a)(6)(A)–(C))

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) the establishment of Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6311), energy conservation standards (42 U.S.C. 6313), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), and the authority to require information and reports from manufacturers (42 U.S.C. 6316).

Federal energy efficiency requirements for covered equipment established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions set forth under EPCA. (*See* 42 U.S.C. 6316(b)(2)(D))

Subject to certain criteria and conditions, DOE is required to develop test procedures to measure the energy efficiency, energy use, or estimated annual operating cost of covered equipment. Manufacturers of covered equipment must use the Federal test procedures as the basis for (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6316(b); 42 U.S.C. 6296), and (2) making representations about the efficiency of that equipment (42 U.S.C. 6314(d)). Similarly, DOE uses these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. The DOE test procedures for CWH equipment appear at part 431, subpart G.

ASHRAE Standard 90.1 sets industry energy efficiency levels for small, large, and very large commercial package air-

conditioning and heating equipment, packaged terminal air conditioners, packaged terminal heat pumps, warm air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, and unfired hot water storage tanks (collectively “ASHRAE equipment”). For each type of listed equipment, EPCA directs that if ASHRAE amends Standard 90.1, DOE must adopt amended standards at the new ASHRAE efficiency level, unless DOE determines, supported by clear and convincing evidence,¹³ that adoption of a more stringent level would produce significant additional conservation of energy and would be technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(ii)) Under EPCA, DOE must also review energy efficiency standards for CWH equipment every 6 years and either: (1) issue a notice of determination that the standards do not need to be amended as adoption of a more stringent level is not supported by clear and convincing evidence; or (2) issue a notice of proposed rulemaking including new proposed standards based on certain criteria and procedures in subparagraph (B) of 42 U.S.C. 6313(a)(6).¹⁴ (42 U.S.C. 6313(a)(6)(C))

In deciding whether a more-stringent standard is economically justified, under either the provisions of 42 U.S.C. 6313(a)(6)(A) or 42 U.S.C. 6313(a)(6)(C), DOE must determine whether the benefits of the standard exceed its burdens. DOE must make this determination after receiving comments on the proposed standard, and by considering, to the greatest extent practicable, the following seven statutory factors:

¹³ The clear and convincing threshold is a heightened standard, and would only be met where the Secretary has an abiding conviction, based on available facts, data, and DOE’s own analyses, that it is highly probable an amended standard would result in a significant additional amount of energy savings, and is technologically feasible and economically justified. *American Public Gas Association v. U.S. Dep’t of Energy*, 22 F.4th 1018, 1025 (D.C. Cir. January 18, 2022) (citing *Colorado v. New Mexico*, 467 U.S. 310, 316, 104 S. Ct. 2433, 81 L. Ed. 2d 247 (1984)).

¹⁴ In relevant part, subparagraph (B) specifies that: (1) in making a determination of economic justification, DOE must consider, to the maximum extent practicable, the benefits and burdens of an amended standard based on the seven criteria described in EPCA; (2) DOE may not prescribe any standard that increases the energy use or decreases the energy efficiency of a covered product; and (3) DOE may not prescribe any standard that interested persons have established by a preponderance of evidence is likely to result in the unavailability in the United States of any product type (or class) of performance characteristics (including reliability, features, sizes, capacities, and volumes) that are substantially the same as those generally available in the United States. (42 U.S.C. 6313(a)(6)(B)(ii)–(iii))

(1) The economic impact of the standard on manufacturers and consumers of products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered equipment that are likely to result from the standard;

(3) The total projected amount of energy savings likely to result directly from the standard;

(4) Any lessening of the utility or the performance of the covered product likely to result from the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;

(6) The need for national energy conservation; and

(7) Other factors the Secretary of Energy considers relevant.

(42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII))

Further, EPCA, as codified, establishes a rebuttable presumption that a standard is economically justified if the Secretary finds that the additional

cost to the consumer of purchasing a product complying with the standard will be less than three times the value of the energy (and, as applicable, water) savings during the first year that the consumer will receive as a result of the standard, as calculated under the applicable test procedure. (42 U.S.C. 6295(o)(2)(B)(iii)) However, while this rebuttable presumption analysis applies to most commercial and industrial equipment (42 U.S.C. 6316(a)), it is not a required analysis for ASHRAE equipment (42 U.S.C. 6316(b)(1)). Nonetheless, DOE included the analysis of rebuttable presumption in its economic analysis and presents the results in section V.B.1.c of this document.

EPCA, as codified, also contains what is known as an “anti-backsliding” provision, which prevents the Secretary from prescribing any amended standard that either increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product. (42 U.S.C. 6313(a)(6)(B)(iii)(I)) Also, the Secretary may not prescribe an amended or new

standard if interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States in any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States. (42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa))

B. Background

1. Current Standards

The current standards for all CWH equipment classes are set forth in DOE’s regulations at 10 CFR 431.110, except for electric instantaneous water heaters that are not residential duty, which are included in EPCA (the history of the standards for electric instantaneous water heaters is discussed in section III.B.3 of this document). (42 U.S.C. 6313(a)(5)(D)–(E)) Table II.1 shows the current standards for all CWH equipment classes, except residential-duty commercial water heaters, which are shown in Table II.2 of this document.

TABLE II.1—CURRENT FEDERAL ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT EXCEPT FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Product	Size	Energy conservation standards *	
		Minimum thermal efficiency (equipment manufactured on and after October 9, 2015)** *** (%)	Maximum standby loss (equipment manufactured on and after October 29, 2003) ** †
Electric storage water heaters	All	N/A	0.30 + 27/V _m (%/h).
Gas-fired storage water heaters	≤155,000 Btu/h	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
	>155,000 Btu/h	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Oil-fired storage water heaters	≤155,000 Btu/h	*** 80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
	>155,000 Btu/h	*** 80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Electric instantaneous water heaters ‡	<10 gal	80	N/A.
	≥10 gal	77	2.30 + 67/V _m (%/h).
Gas-fired instantaneous water heaters and hot water supply boilers	<10 gal	80	N/A.
	≥10 gal	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Oil-fired instantaneous water heater and hot water supply boilers	<10 gal	80	N/A.
	≥10 gal	78	Q/800 + 110(V _r) ^{1/2} (Btu/h).
		Minimum thermal insulation	
Unfired hot water storage tank	All	R–12.5	

* V_m is the measured storage volume, and V_r is the rated volume, both in gallons. Q is the nameplate input rate in Btu/h.

** For hot water supply boilers with a capacity of less than 10 gallons: (1) the standards are mandatory for products manufactured on and after October 21, 2005 and (2) products manufactured prior to that date, and on or after October 23, 2003, must meet either the standards listed in this table or the applicable standards in subpart E of this part for a “commercial packaged boiler.”

*** For oil-fired storage water heaters: (1) the standards are mandatory for equipment manufactured on and after October 9, 2015 and (2) equipment manufactured prior to that date must meet a minimum thermal efficiency level of 78 percent.

† Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if: (1) the tank surface area is thermally insulated to R–12.5 or more, (2) a standing pilot light is not used, and (3) for gas or oil-fired storage water heaters, they have a fire damper or fan-assisted combustion.

‡ Energy conservation standards for electric instantaneous water heaters are included in EPCA. (42 U.S.C. 6313(a)(5)(D)–(E)) The compliance date for these energy conservation standards is January 1, 1994. In this final rule, DOE codifies these standards for electric instantaneous water heaters in its regulations at 10 CFR 431.110. Further discussion of standards for electric instantaneous water heaters is included in section III.B.3 of this final rule.

TABLE II.2—CURRENT ENERGY CONSERVATION STANDARDS FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment	Specification *	Draw pattern **	Uniform energy factor	Compliance date
Gas-fired storage	>75 kBtu/h and ≤105 kBtu/h and ≤120 gal	Very Small	0.2674 – (0.0009 × V _r)	December 29, 2016.
		Low	0.5362 – (0.0012 × V _r)	
		Medium	0.6002 – (0.0011 × V _r)	
		High	0.6597 – (0.0009 × V _r)	
Oil-fired storage	>105 kBtu/h and ≤140 kBtu/h and ≤120 gal	Very Small	0.2932 – (0.0015 × V _r)	
		Low	0.5596 – (0.0018 × V _r)	
		Medium	0.6194 – (0.0016 × V _r)	
		High	0.6740 – (0.0013 × V _r)	
Electric instantaneous	>12 kW and ≤58.6 kW and ≤2 gal	Very Small	0.80	
		Low	0.80	
		Medium	0.80	
		High	0.80	

* Additionally, to be classified as a residential-duty water heater, a commercial water heater must meet the following conditions: (1) if requiring electricity, use single-phase external power supply; and (2) the water heater must not be designed to heat water at temperatures greater than 180 °F.

** Draw pattern is a classification of hot water use of a consumer water heater or residential-duty commercial water heater, based upon the first-hour rating. The draw pattern is determined using the *Uniform Test Method for Measuring the Energy Consumption of Water Heaters* in appendix E to subpart B of 10 CFR part 430.

2. History of Standards Rulemaking for CWH Equipment

As previously noted, EPCA established initial Federal energy conservation standards for CWH equipment that generally corresponded to the levels in ASHRAE Standard 90.1–1989. On October 29, 1999, ASHRAE released Standard 90.1–1999, which included new efficiency levels for numerous categories of CWH equipment. DOE evaluated these new standards and subsequently amended energy conservation standards for CWH equipment in a final rule published in the **Federal Register** on January 12, 2001. 66 FR 3336 (“January 2001 final rule”). DOE adopted the levels in ASHRAE Standard 90.1–1999 for all classes of CWH equipment, except for electric storage water heaters. For electric storage water heaters, the standard in ASHRAE Standard 90.1–1999 was less stringent than the standard prescribed in EPCA and, consequently, would have increased energy consumption.

Under those circumstances, DOE could not adopt the new efficiency level for electric storage water heaters in ASHRAE Standard 90.1–1999. 66 FR 3336, 3350. In the January 2001 final rule, DOE also adopted the efficiency levels contained in the Addendum to ASHRAE Standard 90.1–1989 for hot water supply boilers, which were identical to the efficiency levels for instantaneous water heaters. 66 FR 3336, 3356.

On October 21, 2004, DOE published a direct final rule in the **Federal Register** (“October 2004 direct final rule”) that recodified the existing energy conservation standards, so that they are located contiguous with the test

procedures that were promulgated in the same notice. 69 FR 61974. The October 2004 final rule also updated definitions for CWH equipment at 10 CFR 431.102.

The American Energy Manufacturing Technical Corrections Act (“AEMTCA”), Public Law 112–210 (Dec. 18, 2012), amended EPCA to require that DOE publish a final rule establishing a uniform efficiency descriptor and accompanying test methods for covered consumer water heaters and some CWH equipment. (42 U.S.C. 6295(e)(5)(B)) EPCA further required that the final rule must replace the energy factor (for consumer water heaters) and thermal efficiency and standby loss (for some commercial water heaters) metrics with a uniform efficiency descriptor. (42 U.S.C. 6295(e)(5)(C)) Pursuant to 42 U.S.C. 6295(e), on July 11, 2014, DOE published a final rule for test procedures for residential and certain commercial water heaters (“July 2014 final rule”) that, among other things, established UEF, a revised version of the current residential energy factor metric, as the uniform efficiency descriptor required by AEMTCA. 79 FR 40542, 40578. In addition, the July 2014 final rule defined the term “residential-duty commercial water heater,” an equipment category that is subject to the new UEF metric and the corresponding UEF test procedures. 79 FR 40542, 40586–40588 (July 11, 2014). Conversely, CWH equipment that does not meet the definition of a residential-duty commercial water heater is not subject to the UEF metric or corresponding UEF test procedures. *Id.* Further details on the UEF metric and residential-duty commercial water

heaters are discussed in section III.C of this document.

In a notice of proposed rulemaking (“NOPR”) published on April 14, 2015 (“April 2015 NOPR”), DOE proposed, among other things, conversion factors from thermal efficiency and standby loss to UEF for residential-duty commercial water heaters. 80 FR 20116, 20143. Subsequently, in a final rule published on December 29, 2016 (the “December 2016 conversion factor final rule”), DOE specified standards for residential-duty commercial water heaters in terms of UEF. However, while the metric was changed from thermal efficiency and/or standby loss, the stringency was not changed. 81 FR 96204, 96239 (Dec. 29, 2016).

In ASHRAE Standard 90.1–2013, ASHRAE increased the thermal efficiency level for commercial oil-fired storage water heaters, thereby triggering DOE’s statutory obligation to promulgate an amended uniform national standard at those levels, unless DOE were to determine that there is clear and convincing evidence supporting the adoption of more-stringent energy conservation standards than the ASHRAE levels.¹⁵ In a final

¹⁵ ASHRAE Standard 90.1–2013 also appeared to change the standby loss levels for four equipment classes (gas-fired storage water heaters, oil-fired storage water heaters, gas-fired instantaneous water heaters, and oil-fired instantaneous water heaters) to efficiency levels that surpassed the Federal energy conservation standard levels. However, upon reviewing the changes DOE concluded that all changes to standby loss levels for these equipment classes were editorial errors because they were identical to SI (International System of Units; metric system) formulas rather than I-P (Inch-Pound; English system) formulas. As a result, DOE did not conduct an analysis of the potential energy savings from amended standby loss standards for this equipment in response to the ASHRAE updates. DOE did not receive any comments on this

rule published on July 17, 2015 (“July 2015 ASHRAE equipment final rule”), among other things, DOE adopted the standard for commercial oil-fired storage water heaters at the level set forth in ASHRAE Standard 90.1–2013, which increased the standard from 78 to 80 percent thermal efficiency with compliance required starting on October 9, 2015. 80 FR 42614 (July 17, 2015). Since that time ASHRAE has issued 2 updated versions of Standard 90.1, 90.1–2016 and 90.1–2019. However, DOE was not triggered to review amended standards for commercial water heaters by any updates in ASHRAE Standard 90.1–2016 or ASHRAE Standard 90.1–2019. Overall, DOE has not been triggered to review the standards for the equipment subject to this rulemaking (*i.e.*, commercial water heating equipment other than commercial oil-fired storage water heaters) based on an update to the efficiency levels in ASHRAE Standard 90.1 since the 1999 edition because ASHRAE has not updated the efficiency levels for such equipment since 1999.

On October 21, 2014, DOE published a request for information (“RFI”) as an initial step for reviewing the energy conservation standards for CWH equipment. 79 FR 62899 (“October 2014 RFI”). The October 2014 RFI solicited information from the public to help DOE determine whether more-stringent energy conservation standards for CWH equipment would result in a significant amount of additional energy savings, and whether those standards would be technologically feasible and economically justified. 79 FR 62899, 62899–62900. DOE received a number of comments from interested parties in response to the October 2014 RFI.

On May 31, 2016, DOE published a NOPR and notice of public meeting in

the **Federal Register** (“May 2016 CWH ECS NOPR”) that addressed all of the comments received in response to the RFI and proposed amended energy conservation standards for CWH equipment. 81 FR 34440. The May 2016 CWH ECS NOPR and the technical support document (“TSD”) for that NOPR are available at www.regulations.gov/docket?D=EERE-2014-BT-STD-0042.

On June 6, 2016, DOE held a public meeting at which it presented and discussed the analyses conducted as part of this rulemaking (*e.g.*, engineering analysis, LCC, PBP, and MIA). In the public meeting, DOE presented the results of the analysis and requested comments from stakeholders on various issues related to the rulemaking in response to the May 2016 CWH ECS NOPR.

On December 23, 2016, DOE published a notice of data availability (“NODA”) for energy conservation standards for CWH equipment (“December 2016 CWH ECS NODA”). 81 FR 94234. The December 2016 CWH ECS NODA presented the thermal efficiency and standby loss levels analyzed in the May 2016 CWH ECS NOPR for residential-duty gas-fired storage water heaters in terms of UEF, using the updated conversion factors for gas-fired and oil-fired storage water heaters adopted in the December 2016 conversion factor final rule (81 FR 94234, 94237).

On January 15, 2021, in response to a petition for rulemaking submitted by the American Public Gas Association, Spire, Inc., the Natural Gas Supply Association, the American Gas Association, and the National Propane Gas Association (83 FR 54883; Nov. 1, 2018) DOE published a final interpretive rule (“the January 2021 final

interpretive rule”) determining that, in the context of residential furnaces, commercial water heaters, and similarly-situated products/equipment, use of non-condensing technology (and associated venting) constitute a performance-related “feature” under EPCA that cannot be eliminated through adoption of an energy conservation standard. 86 FR 4776. Correspondingly, DOE withdrew the May 2016 CWH ECS NOPR.¹⁶ 86 FR 3873 (Jan. 15, 2021). However, DOE has subsequently published a final interpretive rule that returns to the previous and long-standing interpretation (in effect prior to the January 15, 2021 final interpretive rule), under which the technology used to supply heated air or hot water is not a performance-related “feature” that provides a distinct consumer utility under EPCA. 86 FR 73947 (Dec. 29, 2021). In conducting the analysis for this final rule, DOE evaluates condensing technologies and associated venting systems (*i.e.*, trial standard levels (“TSLs”) 2, 3, and 4) in its analysis of potential energy conservation standards. Any adverse impacts on utility and availability of non-condensing technology options are considered in DOE’s analyses of these TSLs.

On May 19, 2022, DOE published a NOPR (“May 2022 CWH ECS NOPR”) for CWH equipment, in which DOE proposed amended energy conservation standards for certain classes of CWH equipment and proposed to codify existing standards from EPCA for commercial electric instantaneous water heaters (except for residential-duty commercial electric instantaneous water heaters).¹⁷ 87 FR 30610. DOE received 28 comments in response to the May 2022 CWH ECS NOPR from the interested parties listed in Table II.3.

TABLE II.3—MAY 2022 CWH ECS NOPR WRITTEN COMMENTS

Commenter(s)	Abbreviation	Comment No. in the docket	Commenter type*
Sean Erwin	Sean Erwin	6	I
The American Gas Association (“AGA”), American Public Gas Association (“AGPA”), National Propane Gas Association (“NPGA”), Spire Inc., and ONE Gas, Inc.	Joint Gas Commenters	7, 14, 34	UA
JJM Alkaline Technologies	JJM Alkaline	10	M
Atmos Energy Corporation	Atmos Energy	11, 36	U
American Public Gas Association	APGA	13**	UA
Bradford White Corporation	Bradford White	12, 23	M
Law Offices of Barton Day, PLLC (representing Spire)	Barton Day Law	13**	U
American Society for Testing and Materials	ASTM	15	EA

issue. 80 FR 1171, 1185 (January 8, 2015). The standby loss levels for these equipment classes were reverted to the previous levels in ASHRAE Standard 90.1–2016 and have not been updated since then.

¹⁶ The rulemaking for CWH equipment has been subject to multiple rounds of public comment,

including public meetings, and extensive records have been developed in the relevant dockets. (See Docket Number EERE–2014–BT–STD–0042). Consequently, although the May 2016 CWH ECS NOPR was withdrawn, the information obtained through those earlier rounds of public comment,

information exchange, and data gathering have been considered in this rulemaking.

¹⁷ On July 20, 2022, DOE published a notice that re-opened the comment period for the May 2022 CWH ECS NOPR to allow comments to be submitted until August 1, 2022. 87 FR 43226.

TABLE II.3—MAY 2022 CWH ECS NOPR WRITTEN COMMENTS—Continued

Commenter(s)	Abbreviation	Comment No. in the docket	Commenter type*
Suburban Propane Partners, L.P	Suburban Propane	16	U
Center for Climate and Energy Solutions, Institute for Policy Integrity at New York University School of Law, Montana Environmental Information Center, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists.	Joint Climate Commenters.	19	EA
Bock Water Heaters, Inc	Bock Water Heaters	20	M
Northwest Power and Conservation Council	NWPCC	21	EA
A.O. Smith Corporation	A.O. Smith	22	M
Rheem Manufacturing Company	Rheem	24	M
WM Technologies, LLC	WM Technologies	25	M
Patterson-Kelley, LLC	Patterson-Kelley	26	M
California Energy Commission	CEC	27	EA
Plumbing-Heating-Cooling Contractors National Association	PHCC	28	TA
Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), Natural Resources Defense Council (NRDC), and Rocky Mountain Institute (RMI).	Joint Advocates	29	EA
New York State Energy Research and Development Authority	NYSERDA	30	EA
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	31	TA
The Aluminum Association; American Coke and Coal Chemicals Institute; American Farm Bureau Federation; American Gas Association; American Public Gas Association; Council of Industrial Boiler Owners; Independent Petroleum Association of America; National Mining Association; U.S. Chamber of Commerce.	The Associations	32	TA
California Investor-Owned Utilities (Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and the Southern California Edison (SCE)).	CA IOUs	33, 37	UA
Northwest Energy Efficiency Alliance	NEEA	35	EA

* TA: trade association, EA: efficiency/environmental advocate, IR: industry representative, M: manufacturer, OS: other stakeholder, U: utility, utilities filing jointly, or utility representative, UA: utility association, and I: individual.

** Comments raised during the June 23, 2022 public meeting. Docket No. 13 refers to the public meeting transcript.

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.¹⁸ To the extent that interested parties have provided written comments that are substantively consistent with any oral comments provided during the June 23, 2022 public meeting, DOE cites the written comments throughout this final rule. Any oral comments provided during the webinar that are not substantively addressed by written comments are summarized and cited separately throughout this final rule.

C. Deviation From Appendix A

On June 21, 2023, DOE published a test procedure final rule for consumer water heaters and residential-duty commercial water heaters. 88 FR 40406. In accordance with section 3(a) of 10 CFR part 430, subpart C, appendix A (“appendix A”), DOE notes that it is deviating from the provision in appendix A specifying that test procedures be finalized at least 180 days before new or amended standards are proposed for the same equipment. 10

¹⁸The parenthetical reference provides a reference for information located in the docket of DOE’s rulemaking to develop energy conservation standards for CWH equipment. (Docket No. EERE-2021-BT-STD-0027, which is maintained at www.regulations.gov). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

CFR part 430, subpart C, appendix A, section 8(d)(2). DOE is opting to deviate from this step because the DOE has determined that the test procedure amendments for residential-duty commercial water heaters will not impact the current efficiency ratings. 88 FR 40406, 40412. See section III.C of this document for additional information on the test procedures for CWH equipment.

III. General Discussion

DOE developed this final rule after considering oral and written comments, data, and information from interested parties that represent a variety of interests. The following discussion addresses issues raised by these commenters.

A. General Comments

This section summarizes general comments received from interested parties regarding rulemaking timing and process.

1. Clear and Convincing Threshold

In response to the May 2022 CWH ECS NOPR in which DOE concluded that it had clear and convincing evidence to propose a standard more stringent than ASHRAE Standard 90.1, the Joint Gas Commenters stated that since CWH are included in ASHRAE Standard 90.1, DOE must presume that standards more stringent than the

ASHRAE standards would not be desirable in the absence of clear and convincing evidence that they are justified. Therefore, the commenters argued that DOE must resolve doubts against the need for more stringent standards, but in developing the NOPR, the Joint Gas Commenters stated that DOE has done the opposite. (Joint Gas Commenters, No. 34 at pp. 15–16) The Joint Gas Commenters stated that DOE should follow the rulings of ASHRAE 90.1, and noted that to date, the ASHRAE committee has not considered an increase in the energy efficiency of these commercial water heaters in order to lower overall energy consumption. (Joint Gas Commenters, No. 34 at p. 34)

Contrary to the Joint Gas Commenters’ suggestion, EPCA does not require DOE to presume that standards more stringent than the ASHRAE standards would not be desirable in the absence of clear and convincing evidence that they are justified. As noted by the Joint Gas Commenters and as discussed in section II.A of this final rule, pursuant to EPCA, DOE must determine, supported by clear and convincing evidence, that amended standards for CWH equipment would result in significant additional conservation of energy and be technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(ii)(II); 42 U.S.C. 6313(a)(6)(C)(i)) In making the

determination of economic justification of an amended standard, DOE must determine whether the benefits of the proposed standard exceed the burdens of the proposed standard by considering, to the maximum extent practicable, the seven criteria described in EPCA (see 42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII)). The clear and convincing threshold is a heightened standard, and would only be met where the Secretary has an abiding conviction, based on available facts, data, and DOE's own analyses, that it is highly probable an amended standard would result in a significant additional amount of energy savings, and is technologically feasible and economically justified. See *American Public Gas Association v. U.S. Dept of Energy*, 22 F. 4th at 1025 (D.C. Cir. January 18, 2022) (citing *Colorado v. New Mexico*, 467 U.S. 310, 316, 104 S.Ct. 2433, 81 L.Ed.2d 247 (1984)). However, this standard does not require a presumption of desirability for the efficiency levels in ASHRAE 90.1. As noted previously, DOE has determined that there is clear and convincing evidence for standards for CWH equipment more stringent than those found in ASHRAE 90.1. A discussion of DOE's consideration of the statutory factors is contained in section V of this final rule.

2. Analytical Structure and Inputs

In response to both the withdrawn May 2016 CWH ECS NOPR and the May 2022 CWH ECS NOPR, DOE received comments and information regarding the assumptions that it used for inputs in the rulemaking analyses. DOE considered these comments in appropriate analyses conducted in this final rule and modified its assumptions and inputs as necessary to account for the information or feedback provided by industry representatives. Section IV of this final rule provides details on DOE's updates to its various analyses.

Addressing the specific analysis that supports this rulemaking, Bradford White highlighted that some sources are as many as 14 years old and urged DOE to conduct updated surveys and studies in order to inform these major regulatory policy decisions. (Bradford White, No. 23 at p. 7) Additionally, the Joint Gas Commenters stated that in several cases, DOE lacks the data required to provide or support critical inputs to its analysis. (The Joint Gas Commenters, No. 34 at p. 16) In response, DOE uses the most recent data sources available at the time of the analysis whenever possible, as discussed further throughout section IV of this document.

The Joint Gas Commenters urged DOE to implement recommendations from the recent National Academies of Sciences, Engineering, and Medicine ("NASEM") report into all its appliance rulemakings, highlighting recommendations 2–2, 3–5, 4–1, 4–13, and 4–14 as the most pertinent. (Joint Gas Commenters, No. 34 at pp. 38–39) In response, the Department notes that the rulemaking process for standards of covered products and equipment are outlined at appendix A to subpart C of 10 CFR part 430 ("appendix A"), and DOE periodically examines and revises these provisions in separate rulemaking proceedings. The recommendations in the NASEM report, which pertain to the processes by which DOE analyzes energy conservation standards, will be considered in a separate rulemaking considering all product categories.

PHCC noted that this rule impacts the resources of PHCC; therefore, PHCC feels it is necessary to present the contractors' perspective on these issues. PHCC stated that certain customers would bear extraordinary costs as a result of this rule, and claimed that PHCC's members will ultimately be the ones to shoulder the effects to those consumers by finding economical solutions for their clients. (PHCC, No. 28 at p. 11) In response, DOE recognizes that contractors play an important role in helping consumers purchase and install CWH equipment. DOE appreciates the perspective of all interested parties, including contractors and realizes that contractors will likely be responsible for characterizing the costs for new and replacement equipment installations to their customers as well as assisting in identifying and implementing economical solutions. DOE's evaluation of the cost and benefits of this final rule is discussed in section V of this document, including impacts on certain consumers.

3. Final Selection of Standards Levels

DOE received several comments expressing general approval or disapproval for the proposed standards.

The Joint Advocates, NYSERDA, the CA IOUs, and CEC supported the proposed standards. (Joint Advocates, No. 29 at p. 1; NYSERDA No. 30 at p. 2; CEC, No. 27 at p. 1; CA IOUs, No. 33 at p. 1) NYSERDA stated that DOE should act swiftly to finalize the proposed standards and noted that these standards will play an important role in meeting their State climate goals through decarbonization of the water heater market. (NYSERDA, No. 30 at pp. 1–2)

The CA IOUs expressed general support for DOE's proposal to increase the efficiency requirements of commercial gas water heaters to condensing levels and suggested that market data show that the market is ready for this increase. (CA IOUs, No. 33 at p. 1) NEEA also stated support for DOE's proposal to increase the efficiency levels of CWH equipment to reflect condensing performance, and asserted that they find the DOE analysis to be sound. They similarly commented in support of DOE's proposal to increase the efficiency requirements of gas-fired residential-duty commercial storage products. They explained that doing so will realize the energy efficiency goals that were intended with the residential standard, and would harmonize commercial and residential requirements. (NEEA, No. 35 at p. 1)

The Joint Advocates echoed similar support for the proposed standards and mentioned that updated standards for commercial gas-fired water heaters are long overdue as they have not been amended since 2001. (The Joint Advocates, No. 29 at p. 1)

The CEC stated that based on data from its Modernized Appliance Efficiency Database System ("MAEDbS"), CWH products meeting the proposed standard are already certified for sale in California; 50 percent (969 out of 1936) meet the proposed requirement of 95 percent thermal efficiency and 24 percent (299 out of 1259) of the instantaneous models meet the proposed 96 percent thermal efficiency. The CEC argues that these data indicate no market barrier to the proposed standards. (CEC, No. 27 at p. 4) The CEC also encouraged DOE to finalize its proposal to phase out non-condensing technology, thus closing what they consider a significant loophole for standards of residential-duty CWHs. *Id.* at p. 3. Further, according to CEC, MAEDbS includes 324 residential-duty commercial gas water heaters, and none have storage above 55 gallons. Therefore, CEC claims that residential water heaters in California's market are exploiting this "loophole" since consumer gas ratings with input ratings above 75,000 Btu/hour would only be subject to a condensing standard if the storage volume is greater than 55 gallons. *Id.* The CA IOUs supported DOE's proposed standards, and raised the same concern as CEC, stating that the energy efficiency standards for residential gas storage water heaters with a capacity greater than 55 gallons are currently higher than the requirements for commercial residential-duty gas storage heaters of similar capacity. As a result,

they claim that the greater-than-55-gallon-capacity segment of the residential gas storage water heater market is exclusively served by commercial residential-duty products. (CA IOUs, No. 33 at p. 2) Rheem also suggested that DOE evaluate the proposed efficiency levels for residential-duty commercial gas-fired storage water heaters to ensure more equitable treatment for these products and consumer water heaters with a rated storage volume greater than 55 gallons because, they said, these categories can be used for the same applications. (Rheem, No. 24 at pp. 3–4)

Sean Erwin commented that DOE's proposal is agreeable, but also explained various types of solar water heating systems that could be a cost-effective means of generating hot water. (Erwin, No. 6 at p. 1)

A.O. Smith also commented noting support for DOE's proposal to move the minimum energy conservation standards for CWH to a standard that will require the utilization of condensing technology for gas-fired equipment, inclusive of both the proposed thermal efficiency and standby loss levels, with some modifications. (A.O. Smith, No. 22 at pp. 2, 7) A.O. Smith commented that the adoption of this equipment will not only assist in reducing greenhouse gas emissions, but will also help property and business owners save money on their monthly energy bills, as well as preserve flexibility for businesses to install water heating equipment that is the most economical to meet the intended utility. A.O. Smith also recommended that high-efficiency gas-fired water heating equipment remain available for commercial customers. *Id.* at pp. 2–3. A.O. Smith suggested several modifications to the standards proposed in the May 2022 CWH ECS NOPR, which are discussed in the appropriate sections on this final rule. *Id.* at pp. 2–5. Additionally, Rheem raised concerns that many equipment sizes are not available at the proposed thermal efficiency levels and that, in some cases, the proposed levels are at the maximum technologically feasible (“max-tech”) levels evaluated. Rheem also stated that the DOE's analysis has not shown that the proposed TSL is economically viable for the entire range of equipment sizes. (Rheem, No. 24 at p. 2)

Several commenters suggested that DOE should analyze a 94 percent thermal efficiency level for gas-fired water heaters (A.O. Smith, No. 22 at pp. 2–4; AHRI, No. 31 at p. 2; Rheem, No. 24 at p. 3). These comments, and DOE's response, are discussed in more detail

in section IV.C.4.a of this document. A.O. Smith also proposed an adjustment to the proposed efficiency level for gas-fired residential-duty commercial water heaters, as discussed in section IV.C.4.c of this document.

AHRI raised concerns that, because gas-fired storage and gas-fired instantaneous equipment are used in similar settings, setting higher efficiency standards for one class (*i.e.*, gas-fired instantaneous water heaters and hot water supply boilers) inappropriately disadvantages that class in the marketplace compared to the other class(es). Therefore, AHRI requested the Department align the efficiency standards for all gas-fired water heaters. (AHRI, No. 31 at p. 2). Bock Water Heaters asserted their agreement with comments submitted by AHRI. (Bock Water Heaters, No. 20 at p. 2) DOE received a similar comment from Bradford White expressing concern that DOE has proposed more stringent requirements for gas-fired instantaneous water heaters, including hot water supply boilers, for greater than 10 gallons. Bradford White recommended that the thermal efficiency requirements for gas-fired instantaneous and hot water supply boilers be harmonized with that for gas-fired storage water heaters. They further noted that this approach would allow DOE to avoid unfairly biasing the marketplace towards one technology over another. (Bradford White, No. 23 at p. 3)

The Joint Gas Commenters argued that a condensing standard would have numerous adverse impacts on building owners, including required building modifications, impacts on other equipment, impacts on occupied spaces or building aesthetics, inconvenience or loss to business as a result of additional time spent replacing equipment, additional installation services, or overall impracticality. (Joint Gas Commenters, No. 34 at pp. 9–10) They added that the proposed standards would violate the “unavailability” provision of EPCA and would leave many purchasers without gas products suitable for their needs. (Joint Gas Commenters, No. 34 at p. 39) WM Technologies called on DOE to rigorously review the inputs and the calculations in the LCC analysis because, they suggest, under the anti-backsliding provision of EPCA, the damage to the end user would be irreparable should the Department promulgate condensing requirements for commercial water heaters. WM Technologies asserted that such requirements would exceed the existing infrastructures' ability to adapt to condensing products and appliances in

many places across the country, resulting in the unavailability of the product due to an increase in the minimum efficiency, violating the unavailability clause of EPCA (EPACT). As an example, WM Technologies stated that row houses in many urban East Coast regions do not have the ability to vent through an outside wall, which is a requirement for many condensing products. (WM Technologies, No. 25 at pp. 5–6) Atmos Energy stated that DOE should allow the continued manufacture and availability of water heaters that meet consumer needs (including businesses) and suggested that the elimination of affordable products would undermine the goals of the energy efficiency program overall. (Atmos Energy, No. 36 at pp. 1–2) DOE has provided more specific responses to these comments throughout this document, but specifically, DOE addresses comments regarding the downtime during replacement in section IV.F.2.h of this document, comments regarding the unavailability of noncondensing commercial water heaters in section IV.A.2.b of this document and comments regarding the unavailability of certain equipment sizes in IV.C.4.a of this document. Because there are comments relating to regional differences, DOE would note that the analysis accounts for the impact of entering water temperature on loads by type of building, both of which are linked to region by the location variables included in the source databases (see section IV.E of this document). However, DOE would specifically note that row houses tend to be comprised of single family dwellings that DOE believes are far more likely to use consumer water heaters or potentially a consumer boiler with unfired storage tanks rather than the CWH equipment that is the subject of this final rule.

Atmos Energy stated that where insufficient data exist, DOE should conclude it lacks evidence to support its proposed rule. It further offered its opinion that more data are needed to assess the proposed rule, including distributions of equipment by storage volume and input capacities, frequencies of installations that are infeasible or costly, installed costs, and customers' annual fuel use. Atmos Energy stated that real-world data exist for this information and stated that DOE should collect actual data rather than relying on estimates, though Atmos Energy does not provide any such data or suggested sources. To ensure standards are economically justified, Atmos Energy stated DOE must fully

assess LCC, potential for fuel switching, economic benefits of efficiency improvements, and actual installation costs. (Atmos Energy, No. 36 at pp. 2, 4)

As already noted, DOE uses the most current data available when performing rulemaking analyses, such as this CWH analysis. Atmos Energy is correct in the assertion that considerable data exist, but overlooks the fact that much of these data exists in forms not in the public domain. For example, consumers receive quotes for installing new or replacement water heaters, but such information is proprietary to the parties involved, and even if not proprietary, DOE is unaware of any existing service or process that aggregates such information. Contrary to the position Atmos Energy takes the fact that this information may exist in some form does not make this information necessarily available or usable to the general public or to DOE. Some of the data that Atmos Energy claims DOE should collect and use are not reasonably available to DOE. DOE uses publicly available and referenceable cost data, along with information collected during manufacturer interviews, to develop models to estimate such information in a fashion reasonably consistent with installation practice. For example, DOE uses U.S. Census data for developing contractor markup for installation costs; manufacturer shipment, DOE's Compliance Certification Management System, and Energy Star data to develop equipment efficiency distributions; and price data from RSMeans and/or from available and referenceable public sources. In short, DOE's method is to collect and use the best current data that are available to DOE and to develop analyses to estimate in a reasonable fashion the costs and benefits of proposed energy conservation standards. The specific analyses listed by Atmos Energy are addressed within this final rule document.

As a general response to the comments in this section, DOE notes that it may prescribe an energy conservation standard more stringent than the level for such equipment in ASHRAE Standard 90.1, as amended, only if "clear and convincing evidence" shows that a more-stringent standard would result in significant additional conservation of energy and is technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(ii)(II)) In determining whether a standard is economically justified, the Secretary must determine whether the benefits of the standard exceed its burdens by, to the greatest

extent practicable, considering the seven statutory factors discussed previously. (42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII) and 42 U.S.C. 6313(a)(6)(C)(i)) As described in section V.A of this document, DOE typically evaluates potential amended standards for products and equipment by grouping individual efficiency levels for each class into TSLs. The use of TSLs allows DOE to identify and consider, among other things, market cross elasticity from consumer purchasing decisions that may change when different standard levels are set. DOE typically evaluates potential amended standards for products and equipment by grouping individual efficiency levels for each class into TSLs. Furthermore, as described in section V.C of this document, DOE considered the impacts of amended standards for CWH equipment at each TSL, with respect to the aforementioned criteria, and determined that there is clear and convincing evidence that the adopted standards are both technologically feasible and economically justified and save a significant amount of energy. The benefits and costs of the standard levels adopted in this final rule are discussed in section V.C.2 of this document.

B. Scope of Coverage

1. Oil-Fired Commercial Water Heating Equipment

As discussed in the May 2022 CWH ECS NOPR, DOE has determined that amended efficiency standards (in terms of both thermal efficiency and standby loss) for commercial oil-fired storage water heaters (including residential-duty oil-fired storage water heaters) would not be warranted and did not analyze amended efficiency standards for this equipment in this final rule. 87 FR 30610, 30622.

Similarly, DOE did not analyze amended standards for commercial oil-fired instantaneous water heaters and hot water supply boilers in the May 2022 CWH ECS NOPR because the energy savings possible from amended standards for such equipment is expected to be negligible. *Id.* Based on this rationale and because DOE has not received information suggesting otherwise, DOE has continued to exclude commercial oil-fired water heating equipment from the analysis conducted for this final rule.

2. Unfired Hot Water Storage Tanks

Unfired hot water storage tanks are a class of CWH equipment. In response to the May 2022 CWH ECS NOPR, the CA IOUs stated that the efficiency requirements for unfired hot water

storage tanks have been unrevised since 2001 and recommended that DOE develop performance requirements for unfired hot water storage tanks, which they said are often incorporated into heat pump water heating systems. (The CA IOUs, No. 33 at pp. 3–4) The CA IOUs requested that DOE develop performance-based testing and standards for unfired hot water storage tanks, stating that a performance-based metric would allow for innovation and would reward manufacturers who insulate well. *Id.*

On May 24, 2022, DOE published a notice of final determination not to amend energy conservation standards for unfired hot water storage tanks. 87 FR 31359. Because amended energy conservation standards for unfired hot water storage tanks were considered as part of that proceeding, they were not considered further for this final rule. Similarly, amended test procedures for unfired hot water storage tanks and other CWH equipment will be considered in a separate rulemaking.

3. Electric Instantaneous Water Heaters

EPCA prescribes energy conservation standards for several classes of CWH equipment manufactured on or after January 1, 1994. (42 U.S.C. 6313(a)(5)) DOE codified these standards in its regulations for CWH equipment at 10 CFR 431.110. However, when codifying these standards from EPCA, DOE inadvertently omitted the standards put in place by EPCA for electric instantaneous water heaters. Specifically, for instantaneous water heaters with a storage volume of less than 10 gallons, EPCA prescribes a minimum thermal efficiency of 80 percent. For instantaneous water heaters with a storage volume of 10 gallons or more, EPCA prescribes a minimum thermal efficiency of 77 percent and a maximum standby loss, in percent/hour, of $2.30 + (67/\text{measured volume (in gallons)})$. (42 U.S.C. 6313(a)(5)(D) and (E)) Although, DOE's regulations at 10 CFR 431.110 do not currently include energy conservation standards for electric instantaneous water heaters, these standards prescribed in EPCA are applicable. Therefore, in this final rule, DOE is codifying these standards in its regulations at 10 CFR 431.110.

In the May 2022 CWH ECS NOPR, DOE also discussed allowing the use of a calculation-based method for determining storage volume of electric instantaneous water heaters that is the same as the method for gas-fired and oil-fired instantaneous water heaters and hot water supply boilers found at 10 CFR 429.72(e) (added at 81 FR 79261, 79320 (Nov. 10, 2016)). DOE initially

concluded that the same rationale for including these provisions for gas-fired and oil-fired instantaneous water heaters and hot water supply boilers also applies to electric instantaneous water heaters (*i.e.*, it may be difficult to completely empty the instantaneous water heater in order to obtain a dry weight measurement, which is needed in a weight-based test for an accurate representation of the storage volume). Therefore, DOE tentatively concluded that including electric instantaneous water heaters in these provisions would provide manufacturers with flexibility as to how the storage volume is determined. 87 FR 30622. However, DOE is considering these certification changes in a separate rulemaking. Therefore, DOE is not enacting any changes at 10 CFR 429.72(e) to allow the use of a calculation-based method for determining the storage volume of electric instantaneous water heaters in this final rule.

Additionally, as discussed in the May 2022 CWH ECS NOPR, DOE notes that because electric instantaneous water heaters typically use electric resistance heating, which is highly efficient, the thermal efficiency of these units already approaches 100 percent. DOE has also determined that there are no options for substantially increasing the rated thermal efficiency of this equipment, and the impact of setting thermal efficiency energy conservation standards for these products would be negligible. Similarly, the stored water volume is typically low, resulting in limited potential for reducing standby losses for most electric instantaneous water heaters. As a result, amending the standards for electric instantaneous water heaters established in EPCA would result in minimal energy savings. Even if DOE were to account for the energy savings potential of amended standards for electric instantaneous water heaters, the contribution of any potential energy savings from amended standards for these units would be negligible and not appreciably impact the energy savings analysis for CWH equipment. Therefore, DOE did not analyze amended energy conservation standards for electric instantaneous water heaters in this final rule.¹⁹

¹⁹In the May 2022 CWH ECS NOPR, DOE noted that it did not analyze amended energy conservation standards for residential-duty electric instantaneous water heaters (87 FR 30631), which are a separate equipment class within DOE's regulations for CWH equipment. *See* 79 FR 40541, 40588 (Jul. 11, 2014). Consistent with the May 2022 CWH ECS NOPR, DOE did not analyze amended standards for residential-duty electric instantaneous water heaters in this final rule for similar reasons as those stated for not analyzing standards for electric instantaneous water heaters.

4. Commercial Heat Pump Water Heaters

In response to the May 2022 CWH ECS NOPR, DOE received multiple comments regarding DOE's proposal not to consider energy conservation standards for commercial heat pump water heaters. Rheem supported DOE's decision not to consider heat pump technology in the current analysis but encouraged DOE to review and amend the equipment class structure to include heat pump water heaters as a technology option for specific applications in a future rulemaking. (Rheem, No. 24 at p. 5) In contrast, NEEA and the CA IOUs requested that DOE include heat pump water heaters in its analysis. Both NEEA and the CA IOUs mentioned that these technologies represent the current max-tech efficiency levels for CWH. (NEEA, No. 35 at p. 2; the CA IOUs, No. 33 at p. 3) NEEA also stated that an analysis of current commercial water heating is incomplete without this consideration. (NEEA, No. 35 at p. 2) Further, NEEA, the CA IOUs, and the Joint Advocates noted that many commercial-duty heat pump products from several different manufacturers are available on the market already, and NEEA and the CA IOUs provided numerous citations to specific models. (NEEA, No. 35 at p. 2; the CA IOUs, No. 33 at p. 3; Joint Advocates, No. 29 at p. 14) The CA IOUs further commented that commercial electric heat pump water heaters have already been successfully and efficiently providing hot water to commercial buildings across the country and can include electric resistance elements that allow them to deliver comparable peak demand performance to commercial electric-resistance-only storage water heaters. (CA IOUs, No. 33 at p. 3)

WM Technologies and Patterson-Kelley argued that they are not aware of compressor-based water heating products which can operate at the water temperatures required to achieve commercial hot water flow rate at adequate temperatures, let alone sanitizing conditions, and added that if such products become available, the sizing of various internal components would be significantly different than heat pumps utilized for other applications. (WM Technologies, No. 25 at p. 7; Patterson-Kelley, No. 26 at p. 5) WM Technologies and Patterson-Kelley also stated that if available, those products should be required to meet the efficiencies at operating conditions of adequate hot water flow rate at the required temperature. *Id.* Furthermore, WM Technologies said, if any part of the heat pump system is located in

unconditioned spaces, that portion of the heat pump should be maintained at the worst-case national temperature at which the product may experience during efficiency testing. (WM Technologies, No. 25 at p. 7)

Rheem, AHRI, and Bradford White additionally suggested that it may be difficult to meet the same hot water loads with an integrated heat pump as with a commercial electric storage water heater. (AHRI, No. 31 at pp. 3–4; Rheem, No. 24 at p. 5; Bradford White, No. 23 at pp. 7–8) The commenters further noted that heat pump water heaters typically have a slower recovery time than commercial electric storage water heaters and may also have difficulty reaching the same temperatures as commercial electric storage water heaters without backup resistance elements. *Id.* Further, Rheem and AHRI noted in particular that integrated heat pump water heaters may have difficulty reaching sanitizing temperatures. (AHRI, No. 31 at pp. 3–4; Rheem, No. 24 at p. 5) Rheem also noted that the larger footprint may limit replacement opportunities and may result in a decrease in workspace (such as kitchen space) as opposed to a decrease in mechanical room space. (Rheem, No. 24 at p. 5) Furthermore, Bradford White stated that given that most heat pump water heaters recover at a much slower rate, additional storage capacity must be added to the hot water system, which likely means that a split system heat pump water heater would be used instead of an integrated heat pump water heater. (Bradford White, No. 23 at p. 7)

DOE did not consider commercial integrated heat pump water heaters in this final rule. DOE found only one such model on the market, at a single storage volume and heating capacity. Given the wide range of capacities and stored water volumes in products currently on the market, which are required to meet hot water loads in commercial buildings, it is unclear based on this single model whether heat pump water heater technology would be suitable to meet the range of load demands on the market. Similarly, based on the information currently available and comments regarding the performance of heat pump water heaters as compared to electric resistance water heaters in commercial settings, it is uncertain if split-system heat pump water heaters can serve all the applications currently filled by electric instantaneous water heaters. Therefore, DOE is not analyzing this equipment in the current analysis. However, DOE may analyze commercial heat pump water heaters in a future rulemaking, at which time DOE will

consider the appropriate equipment class structure for commercial electric water heaters, including commercial heat pump water heaters.

5. Electric Storage Water Heaters

In this rulemaking, DOE did not analyze thermal efficiency standards for electric storage water heaters. Electric storage water heaters are not currently subject to a thermal efficiency standard under 10 CFR 431.110. Electric storage water heaters typically use electric resistance heating elements, which are highly efficient. The thermal efficiency of these units already approaches 100 percent. As discussed in section III.B.4 of this document, DOE did not consider commercial integrated heat pump water heaters as the max-tech for electric storage water heaters at this time.

In the May 2022 CWH ECS NOPR, DOE concluded that the only technology option that DOE analyzed in the engineering analysis as providing standby loss reduction for electric storage water heaters (*i.e.*, increasing tank foam insulation thickness to 3 inches) is already currently included in some models rated at or near the current standby loss standard. Consequently, DOE did not analyze any technology options for reducing standby loss below (*i.e.*, more stringent than) the current standard. In response to the May 2022 CWH ECS NOPR, Bock Water Heaters indicated support for not amending the standby loss standard for electric storage water heaters. (Bock Water Heaters, No. 20 at p. 1) Bradford White similarly supported DOE's decision not to change standards for commercial electric storage, as there is no electric resistance or insulation technology that would allow them to comply with more stringent standards. (Bradford White, No. 23 at p. 3) DOE maintains its conclusion originally stated in the May 2022 CWH ECS NOPR and therefore, in this final rule, DOE did not further analyze and is not adopting amended standby loss standards for electric storage water heaters.

6. Instantaneous Water Heaters and Hot Water Supply Boilers

Other than storage-type instantaneous water heaters, DOE did not include instantaneous water heaters and hot water supply boilers in its analysis of potential amended standby loss standards.²⁰ Instantaneous water heaters

and hot water supply boilers (other than storage-type instantaneous water heaters) with greater than 10 gallons of water stored have a standby loss requirement under 10 CFR 431.110. However, DOE did not analyze more stringent standby loss standards for these units because it has determined that such amended standards would result in minimal energy savings. Even if DOE were to account for the energy savings potential of amended standby loss standards for instantaneous water heaters and hot water supply boilers (other than storage-type instantaneous water heaters) with greater than 10 gallons of water stored CWH equipment, the contribution of any potential energy savings from amended standards for these units would be negligible and not appreciably impact the energy savings analysis for CWH equipment.

DOE has determined that instantaneous water heaters (other than storage-type instantaneous water heaters) and hot water supply boilers with less than 10 gallons of water stored would not have significantly different costs and benefits as compared to instantaneous water heaters (other than storage-type instantaneous water heaters) and hot water supply boilers with greater than or equal to 10 gallons of water stored. (See section IV.C.7 of this document for further discussion of the costs for instantaneous water heaters and hot water supply boilers.) Therefore, DOE analyzed both equipment classes of instantaneous water heaters and hot water supply boilers (less than 10 gallons and greater than or equal to 10 gallons stored volume) together for thermal efficiency standard levels in this final rule, which is discussed further in section IV.C.3 of this document.

DOE also determined that establishing standby loss standards for instantaneous water heaters and hot water supply boilers with less than or equal to 10 gallons water stored would result in minimal energy savings. Even if DOE were to account for the energy savings potential of amended standby loss standards for instantaneous water heaters and hot water supply boilers with less than or equal to 10 gallons of water stored, the contribution any potential energy savings from amended standards for these units would be negligible and not appreciably impact the energy savings analysis for CWH equipment. Bradford White commented in support of DOE's determination not to establish standby loss standards for gas-fired instantaneous and hot water

supply boilers less than 10 gallons. (Bradford White, No. 23 at p. 3) For instantaneous water heaters and hot water supply boilers (other than storage-type instantaneous water heaters), DOE has not found and did not receive any information or data suggesting that DOE should analyze amended standby loss standards.

Bradford White commented that there is confusion in how different types of products are characterized by DOE and stated that there appears to be overlap in the structure of the proposed standards. (Bradford White, No. 23 at p. 1) In particular, Bradford White stated that gas-fired storage-type instantaneous water heaters and gas-fired instantaneous water heaters are handled differently and that certain products appear to fall into the two different categories with two different sets of energy conservation standards. *Id.* AHRI stated that it understands that the Department's intent is for the equipment class of "instantaneous water heaters and hot water supply boilers greater than 10 gallons" to refer specifically to hot water supply boilers with storage tanks and circulating water heaters with an external storage tank. AHRI stated that including separate standards for "gas-fired storage water heaters and storage-type instantaneous water heaters" and "gas-fired instantaneous water heaters with a storage capacity greater than or equal to 10 gallons" in Table 1 to 10 CFR 431.110(a) of the May 2022 CWH ECS NOPR could cause market confusion by creating unintentional overlap between these product types. (AHRI, No. 31 at pp. 2–3)

In response, DOE clarifies that in this final rule, it is adopting a minimum thermal efficiency of 95 percent for gas-fired storage-instantaneous water heaters and a minimum thermal efficiency of 96 percent for tankless water heaters and circulating water heaters and hot water supply boilers. As discussed in section IV.A.2.a of this document, gas-fired storage-type instantaneous water heaters were analyzed together with gas-fired storage water heaters because of the similarity of these types of equipment. Additionally, as discussed in section IV.A.2.c of this document, DOE analyzed tankless water heaters and circulating water heaters and hot water supply boilers as two separate kinds of representative equipment for this rulemaking analysis, to reflect the differences between these types of equipment, but they are part of the same equipment class (gas-fired instantaneous water heaters and hot water supply boilers), and DOE is adopting the same

²⁰ On November 10, 2016, DOE published a final rule amending the test procedures for certain CWH equipment ("November 2016 CWH TP final rule"). 81 FR 79261. DOE adopted a definition for "storage-type instantaneous water heater" in the November 2016 CWH TP final rule. *Id.* at 79289–79290.

Storage-type instantaneous water heaters are discussed in section IV.A.2.a of this final rule.

minimum efficiency requirements for these equipment in this final rule. Similarly, DOE notes that storage-type instantaneous water heaters are instantaneous water heaters that include a storage tank with a storage volume greater than or equal to 10 gallons. Other instantaneous water heaters may also have greater than or equal to 10 gallons but if that storage volume is included within the heat exchanger itself rather than a storage tank, they are not considered storage-type instantaneous water heaters.

C. Test Procedure

EPCA sets forth generally applicable criteria and procedures for DOE's adoption and amendment of test procedures. (42 U.S.C. 6314(a)) Manufacturers of covered products must use these test procedures to certify to DOE that their product complies with energy conservation standards and to quantify the efficiency of their product.

DOE's current test procedures for CWH equipment are specified at 10 CFR 431.106 and provide mandatory methods for determining the thermal efficiency, standby loss, and UEF, as applicable, of CWH equipment.²¹ As discussed in the May 2022 CWH ECS NOPR, DOE analyzed standards for residential-duty gas-fired storage water heaters in terms of UEF. However, on January 11, 2022, DOE published a test procedure NOPR for consumer water heaters and residential-duty commercial water heaters. 87 FR 1554. Subsequently, on July 14, 2022, DOE published a supplemental NOPR ("SNOPR") ("the July 2022 SNOPR") proposing to amend the test procedure for consumer water heaters and residential-duty commercial water heaters. 87 FR 42270. Finally, on June 21, 2023, DOE published the final rule ("the June 2023 TP Final Rule")

²¹ "Thermal efficiency" for an instantaneous water heater, a storage water heater or a hot water supply boiler means the ratio of the heat transferred to the water flowing through the water heater to the amount of energy consumed by the water heater as measured during the thermal efficiency test procedure prescribed in this subpart. "Standby loss" means: (1) For electric commercial water heating equipment (not including commercial heat pump water heaters), the average hourly energy required to maintain the stored water temperature expressed as a percent per hour (%/h) of the heat content of the stored water above room temperature and determined in accordance with appendix B or D to subpart G of part 431 (as applicable), denoted by the term "S"; or (2) For gas-fired and oil-fired commercial water heating equipment, the average hourly energy required to maintain the stored water temperature expressed in British thermal units per hour (Btu/h) based on a 70 °F temperature differential between stored water and ambient room temperature and determined in accordance with appendix A or C to subpart G of part 431 (as applicable), denoted by the term "SL." 10 CFR 431.102.

amending the test procedure for consumer water heaters and residential-duty commercial water heaters. 88 FR 40406.

In response to the May 2022 CWH ECS NOPR, DOE received several comments relating to the proposed test procedure amendments. A.O. Smith stated that they do not anticipate any meaningful impact on future energy efficiency ratings for residential-duty commercial water heaters resulting from the proposed changes. (A.O. Smith, No. 22 at p. 5) However, DOE also received several comments stating that the proposed changes could cause impacts to the efficiency ratings of residential-duty commercial water heaters. In particular, AHRI expressed concern about changes to how effective storage volume is calculated, how internal tank temperature is determined, the ramifications of overheating on ratings, and the definition of demand response. (AHRI, No. 31 at p. 3) Bradford White commented that they were still assessing the potential impacts of the proposed test procedure amendments but noted that a few of the proposed changes could possibly greatly impact the efficiency ratings. (Bradford White, No. 23 at p. 7). Rheem similarly raised concerns that the test procedure amendments proposed in the July 2022 SNOPR could impact efficiency ratings for residential-duty water heaters, and encouraged DOE to issue the final rule of the consumer water heater test procedure at least 180 days prior to the issuance of a CWH energy conservation standards rule, as recommended by the Process Rule provisions in section (8)(d)(10) of appendix A to subpart C of part 430. (Rheem, No. 24 at p. 4) The Joint Gas Commenters stated that completing the residential-duty gas storage water heater test procedure rulemaking before completing the CWH standards rulemaking may be required by the Process Rule. (Joint Gas Commenters, No. 34 at p. 37)

In response, as discussed in the June 2023 TP Final Rule, DOE has concluded that the test procedure changes that were adopted in the June 2023 Final Rule will not alter the UEF ratings of residential-duty water heaters. 88 FR 40406, 40412. In addition, DOE notes that it has discretion to deviate from the procedures in appendix A in certain cases. DOE's rationale for deviating from the 180day requirement in appendix A is discussed in section II.C of this document.

D. Technological Feasibility

1. General

In each energy conservation standards rulemaking, DOE conducts a screening analysis based on information gathered on all current technology options and prototype designs that could improve the efficiency of the products or equipment that are the subject of the rulemaking. As the first step in such an analysis, DOE develops a list of technology options for consideration in consultation with manufacturers, design engineers, and other interested parties. DOE then determines which of those means for improving efficiency are technologically feasible. DOE considers technologies incorporated in commercially available products or in working prototypes to be technologically feasible. *See generally* 10 CFR 431.4; sections 6(b)(3)(i) and 7(b)(1) of appendix A to 10 CFR part 430 subpart C ("Process Rule").

After DOE has determined that particular technology options are technologically feasible, it further evaluates each technology option in light of the following additional screening criteria: (1) practicability to manufacture, install, and service; (2) adverse impacts on product utility or availability; (3) adverse impacts on health or safety and (4) unique-pathway proprietary technologies. *See generally* 10 CFR 431.4; 10 CFR part 430, subpart C, appendix A, sections 6(c)(3)(ii)–(v) and 7(b)(2)–(5). Section IV.B of this document discusses the results of the screening analysis for CWH equipment, particularly the designs DOE considered, those it screened out, and those that are the basis for the standards considered in this rulemaking. For further details on the screening analysis for this rulemaking, see chapter 4 of the final rule TSD.

2. Maximum Technologically Feasible Levels

When DOE proposes to adopt an amended standard for a type or class of covered equipment, it determines the maximum improvement in energy efficiency or maximum reduction in energy use that is technologically feasible for such equipment. Accordingly, in the engineering analysis, DOE determined the max-tech improvements in energy efficiency for CWH equipment, using the design parameters for the most efficient products available on the market or in working prototypes. The max-tech levels that DOE determined for this rulemaking are described in section IV.C.4 of this final rule and in chapter 5 of the final rule TSD.

E. Energy Savings

1. Determination of Savings

For each TSL, DOE projected energy savings from application of the TSL to CWH equipment purchased in the 30-year period that begins in the year of compliance with the amended standards (2026–2055 for gas-fired CWH equipment).²² The savings are measured over the entire lifetime of CWH equipment purchased in the 30-year analysis period. DOE quantified the energy savings attributable to each TSL as the difference in energy consumption between each standards case and the no-new-standards case. The no-new-standards case represents a projection of energy consumption that reflects how the market for a product would likely evolve in the absence of amended energy conservation standards.

DOE used its national impact analysis (“NIA”) spreadsheet models to estimate national energy savings (“NES”) from potential amended standards for CWH equipment. The NIA spreadsheet model (described in section IV.H of this document) calculates energy savings in terms of site energy, which is the energy directly consumed by products at the locations where they are used. For electricity, DOE reports NES in terms of primary energy savings, which is the savings in the energy that is used to generate and transmit the site electricity. For natural gas, the primary energy savings are considered to be equal to the site energy savings because they are supplied to the user without transformation from another form of energy.

DOE also calculates NES in terms of FFC energy savings. The FFC metric includes the energy consumed in extracting, processing, and transporting primary fuels (*i.e.*, coal, natural gas, petroleum fuels), and thus presents a more complete picture of the impacts of energy conservation standards.²³ DOE’s approach is based on the calculation of an FFC multiplier for each of the energy types used by covered equipment.²⁴ For more information on FFC energy savings, see section IV.H.3 of this document.

2. Significance of Savings

To adopt any new or amended standards for a covered product, DOE

²² DOE also presents a sensitivity analysis that considers impacts for equipment shipped in a 9-year period.

²³ The FFC metric is discussed in DOE’s statement of policy and notice of policy amendment. 76 FR 51282 (Aug. 18, 2011), as amended at 77 FR 49701 (Aug. 17, 2012).

²⁴ Natural gas and electricity were the energy types analyzed in the FFC calculations.

must determine that such action would result in significant energy savings. (*See* 42 U.S.C. 6313(a)(6)(C)(i); 42 U.S.C. 6313(a)(6)(A)(ii)(II))²⁵

The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking.²⁶ For example, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of this equipment on the energy infrastructure can be more pronounced than equipment with relatively constant demand. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis, taking into account the significance of cumulative FFC national energy savings, the cumulative FFC emissions reductions, and the need to confront the global climate crisis, among other factors.

As stated, the standard levels adopted in this final rule are projected to result in national energy savings of 0.70 quads. Based on the amount of FFC savings, the corresponding reduction in emissions, and need to confront the global climate crisis, DOE has determined (based on the methodology described in section IV.E of this document and the analytical results presented in section V.B.3.a of this document) that there is clear and convincing evidence that the energy savings from the standard levels adopted in this final rule are “significant” within the meaning of 42 U.S.C. 6313(a)(6)(A)(ii)(II).

F. Economic Justification

1. Specific Criteria

As noted previously, EPCA provides seven factors to be evaluated in determining whether a potential energy conservation standard is economically

²⁵ In setting a more stringent standard for ASHRAE equipment, DOE must have “clear and convincing evidence” that doing so “would result in significant additional conservation of energy” in addition to being technologically feasible and economically justified. 42 U.S.C. 6313(a)(6)(A)(ii)(II). This language indicates that Congress had intended for DOE to ensure that, in addition to the savings from the ASHRAE standards, DOE’s standards would yield additional energy savings that are significant. In DOE’s view, this statutory provision shares the requirement with the statutory provision applicable to covered products and non-ASHRAE equipment that “significant conservation of energy” must be present (42 U.S.C. 6295(o)(3)(B))—and supported with “clear and convincing evidence”—to permit DOE to set a more stringent requirement than ASHRAE.

²⁶ The numeric threshold for determining the significance of energy savings established in a final rule published on February 14, 2020 (85 FR 8626, 8670) was subsequently eliminated in a final rule published on December 13, 2021 (86 FR 70892).

justified. (42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII) and (C)(i)) The following sections discuss how DOE has addressed each of those seven factors in this rulemaking.

a. Economic Impact on Manufacturers and Consumers

EPCA requires DOE to consider the economic impact of a standard on manufacturers and the consumers of the products subject to the standard. (42 U.S.C. 6313(a)(6)(B)(I) and (C)(i)) In determining the impacts of potential amended standards on manufacturers, DOE conducts an MIA, as discussed in section IV.J of this document. For the MIA, DOE first uses an annual cash-flow approach to determine the quantitative impacts. This step includes both a short-term assessment—based on the cost and capital requirements during the period between when a regulation is issued and when entities must comply with the regulation—and a long-term assessment over a 30-year period. The industry-wide impacts analyzed include: (1) INPV, which values the industry on the basis of expected future cash flows; (2) cash flows by year; (3) changes in revenue and income; and (4) other measures of impact, as appropriate. Second, DOE analyzes and reports the impacts on different types of manufacturers (manufacturer subgroups), including impacts on small manufacturers. Third, DOE considers the impact of standards on domestic manufacturer employment and manufacturing capacity, as well as the potential for standards to result in plant closures and loss of capital investment. Finally, DOE takes into account cumulative impacts of various DOE regulations and other regulatory requirements on manufacturers.

For individual consumers, measures of economic impact include the changes in LCC and PBP associated with new or amended standards. These measures are discussed further in the following section. For consumers in the aggregate, DOE also calculates the national NPV of the economic impacts applicable to a particular rulemaking. DOE also evaluates the impacts of potential standards on identifiable subgroups of consumers that may be affected disproportionately by a national standard.

b. Savings in Operating Costs Compared to Increase in Price (LCC and PBP)

EPCA requires DOE to consider the savings in operating costs throughout the estimated average life of CWH equipment compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered product that are likely to result from a

standard. (42 U.S.C. 6313(a)(6)(B)(ii)(II); 42 U.S.C. 6313(a)(6)(C)(i)) DOE conducts this comparison in its LCC and PBP analysis.

The LCC is the sum of the purchase price of a piece of equipment (including its installation and sales tax) and the operating expense (including energy, maintenance, and repair expenditures) discounted over the lifetime of the equipment. The LCC analysis requires a variety of inputs, such as product prices, product energy consumption, energy prices, maintenance and repair costs, product lifetime, and discount rates appropriate for consumers. To account for uncertainty and variability in specific inputs, such as equipment lifetime and discount rate, DOE uses a distribution of values, with probabilities attached to each value. For its analysis, DOE assumes that consumers will purchase the covered equipment in the first full year of compliance with amended standards.

The PBP is the estimated amount of time (in years) it takes consumers to recover the increased purchase cost (including installation) of a more-efficient product through lower operating costs. DOE calculates the PBP by dividing the change in purchase cost due to a more-stringent standard by the change in annual operating cost for the year that standards are assumed to take effect.

The LCC savings for the considered efficiency levels are calculated relative to the no-new-standards case that reflects projected market trends in the absence of new or amended standards. DOE identifies the percentage of consumers estimated to receive LCC savings or experience an LCC increase, in addition to the average LCC savings associated with a particular standard level. DOE's LCC and PBP analysis is discussed in further detail in section IV.F of this document.

c. Energy Savings

Although significant conservation of energy is a separate statutory requirement for adopting an energy conservation standard, EPCA requires DOE, in determining the economic justification of a standard, to consider the total projected energy savings that are expected to result directly from the standard. (42 U.S.C. 6313(a)(6)(B)(ii)(III)) As discussed in section IV.H of this document and chapter 10 of the final rule TSD, DOE uses the NIA spreadsheet models to project national energy savings.

d. Lessening of Utility or Performance of Products

In establishing classes of equipment, and in evaluating design options and the impact of potential standard levels, DOE must consider any lessening of the utility or performance of the considered equipment likely to result from the standard. (42 U.S.C. 6313(a)(6)(B)(ii)(IV)) Based on data available to DOE, the standards in this document would not reduce the utility or performance of the products under consideration in this rulemaking. As discussed in section IV.A.2.b of this document, DOE considered whether different venting technologies should be considered a necessary feature.

Although the standards in this final rule would effectively eliminate non-condensing technology (and associated venting), DOE has recently published a final interpretive rule that returns to the previous and long-standing interpretation (in effect prior to the January 15, 2021 final interpretive rule), under which the technology used to supply heated air or hot water is not a performance-related "feature" that provides a distinct utility under EPCA. 86 FR 73947 (Dec. 29, 2021). Therefore, for the purpose of the analysis conducted for this rulemaking, DOE has determined that it is not prohibited from setting energy conservation standards that preclude non-condensing technology and did not analyze separate equipment classes for non-condensing and condensing CWH equipment in this final rule. A more detailed explanation of DOE's determination may be found in section IV.A.2 of this document.

e. Impact of Any Lessening of Competition

EPCA directs DOE to consider the impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from a standard. (See 42 U.S.C. 6313(a)(6)(B)(ii)(V)) To assist the Department of Justice ("DOJ") in making such a determination, DOE transmitted copies of its proposed rule and the NOPR TSD to the Attorney General for review, with a request that the DOJ provide its determination on this issue. In its assessment letter responding to DOE, DOJ concluded that the proposed energy conservation standards for CWH equipment are unlikely to have a significant adverse impact on competition. DOE is publishing the Attorney General's assessment at the end of this final rule.

f. Need for National Energy Conservation

DOE also considers the need for national energy and water conservation in determining whether a new or amended standard is economically justified. (42 U.S.C. 6313(a)(6)(B)(ii)(VI)) The energy savings from the adopted standards are likely to provide improvements to the security and reliability of the Nation's energy system. Reductions in the demand for electricity also may result in reduced costs for maintaining the reliability of the Nation's electricity system. DOE conducts a utility impact analysis to estimate how standards may affect the Nation's needed power generation capacity, as discussed in section IV.M of this document.

DOE maintains that environmental and public health benefits associated with the more efficient use of energy are important to take into account when considering the need for national energy conservation. The adopted standards are likely to result in environmental benefits in the form of reduced emissions of air pollutants and greenhouse gases ("GHGs") associated with energy production and use. As part of the analysis of the need for national energy and water conservation, DOE conducts an emissions analysis to estimate how potential standards may affect these emissions, as discussed in section IV.K of this document; the estimated emissions impacts are reported in section V.B.6 of this document.²⁷ DOE also estimates the economic value of emissions reductions resulting from the considered TSLs, as discussed in section IV.L of this document. DOE emphasizes that the SC-GHG analysis presented in this final rule and TSD was performed in support of the cost-benefit analyses required by Executive Order ("E.O.") 12866, and is provided to inform the public of the impacts of emissions reductions resulting from this rule. The SC-GHG estimates were not factored into DOE's EPCA analysis of the need for national energy and water conservation.

²⁷ As discussed in section IV.L of this document, for the purpose of complying with the requirements of E.O. 12866, DOE also estimates the economic value of emissions reductions resulting from the considered TSLs. DOE calculates this estimate using a measure of the social cost ("SC") of each pollutant (e.g., SC-CO₂). Although this estimate is calculated for the purpose of complying with E.O. 12866, the Seventh Circuit Court of Appeals confirmed in 2016 that DOE's consideration of the social cost of carbon in energy conservation standards rulemakings is permissible under EPCA. *Zero Zone v. Dept. of Energy*, 832 F.3d 654, 678 (7th Cir. 2016).

g. Other Factors

In determining whether an energy conservation standard is economically justified, DOE may consider any other factors that the Secretary deems to be relevant. (42 U.S.C. 6313(a)(6)(B)(ii)(VII) and (C)(i)) DOE did not consider other factors for this document.

2. Rebuttable Presumption

EPCA creates a rebuttable presumption that an energy conservation standard is economically justified if the additional cost to the consumer of a product that meets the standard is less than three times the value of the first year's energy savings resulting from the standard, as calculated under the applicable DOE test procedure. DOE's LCC and PBP analyses generate values used to calculate the effects that potential amended energy conservation standards would have on the PBP for consumers. These analyses include, but are not limited to, the 3-year PBP contemplated under the rebuttable presumption test.

In addition, DOE routinely conducts an economic analysis that considers the full range of impacts to consumers, manufacturers, the Nation, and the environment, as required under 42 U.S.C. 6313(a)(6)(B)(ii) and 42 U.S.C. 6313(a)(6)(C)(i). The results of this analysis serve as the basis for DOE's evaluation of the economic justification for a potential standard level (thereby supporting or rebutting the results of any preliminary determination of economic justification). The rebuttable presumption payback calculation is discussed in section V.B.1.c of this document.

G. Revisions to Notes in Regulatory Text

In the May 2022 CWH ECS NOPR, DOE proposed to modify the three notes to the table of energy conservation standards in 10 CFR 431.110. 87 FR 30610, 30626–30627. First, DOE proposed to modify the note to the table of energy conservation standards denoted by subscript “a” to replace the term “nameplate input rate” with the term “rated input.” DOE noted that this change ensures consistency in nomenclature throughout DOE's regulations for CWH equipment. *Id.*

DOE also proposed in the May 2022 CWH ECS NOPR to remove the note to the table of energy conservation standards denoted by subscript “b.” This note clarifies the compliance date for energy conservation standards for hot water supply boilers with capacity less than 10 gallons. However, the note is no longer needed because the specific compliance date for hot water supply

boilers with less than 10 gallons of storage is well in the past, with all such equipment being required to meet the standards in the table in 10 CFR 431.110 since October 21, 2005. *Id.*

In the May 2022 CWH ECS NOPR, DOE also proposed to modify the note to the table of energy conservation standards denoted by subscript “c,” which establishes design requirements for water heaters and hot water supply boilers having more than 140 gallons of storage capacity that do not meet the standby loss standard. DOE proposed to replace the phrase “fire damper” with the phrase “flue damper,” because “flue damper” was more consistent with commonly used terminology and likely the intended meaning, and that “fire damper” was a typographical error. 87 FR 30610, 30626–30627. This revised footnote, new footnote b on Table 1 to 10 CFR 431.110(a), was inadvertently omitted in the May 2022 CWH ECS NOPR. DOE did not intend to remove this footnote and is retaining that footnote in this final rule.

Finally, in the May 2022 CWH ECS NOPR, DOE proposed to add a footnote to Table 1 at 10 CFR 431.110(a) (new footnote c) to clarify that the compliance date for energy conservation standards for electric instantaneous water heaters is January 1, 1994. 87 FR 30610, 306728. As discussed in section III.B.3 of this document, DOE is codifying standards for electric instantaneous water heaters that were originally set by EPCA but were inadvertently omitted in DOE's regulations at 10 CFR 431.110.

In response to the May 2022 CWH ECS NOPR, Bradford White stated that they support DOE's decision not to change the requirements for a model's rated input. (Bradford White, No. 23 at p. 8) WM Technologies and Patterson-Kelley also indicated support for using the term “rated input”, as long as the method to determine this value is unchanged. They also encouraged DOE to maintain the “b” and “c” subscripts for posterity to maintain chronological information. (WM Technologies, No. 25 at p. 7; Patterson-Kelley No. 26 at p. 5) In response, DOE notes that the Electronic Code of Federal Regulations (eCFR)²⁸ allows users to access historical versions of the CFR by using the “Timeline” or “Go to Date” functions when viewing a page of the CFR. Therefore, because chronological information about changes to the CFR remain available to the public, DOE does not consider it necessary to retain these notes in the current version of the CFR.

In footnote b(1), DOE is amending the text to refer to the existing definition of R-value in § 431.102, rather than refer directly to industry standards in this note. This does not change the standards regarding standby loss, or the thermal insulation requirement as detailed in this note, but improves consistency and prevents future discrepancies between § 431.102 and § 431.110. DOE is adopting the changes to notes “b” and “c” as proposed in the May 2022 CWH ECS NOPR, with this editorial revision.

H. Certification, Compliance, and Enforcement Issues

In the withdrawn May 2016 CWH ECS NOPR, DOE proposed to add requirements to its certification, compliance, and enforcement regulations at 10 CFR 429.44 that the rated value of storage volume must equal the mean of the measured storage volume of the units in the sample. 81 FR 34440, 34458 (May 31, 2016). Additionally, in the withdrawn May 2016 CWH ECS NOPR, DOE proposed changes to the equations for maximum standby losses that would be consistent with the proposed changes to DOE's certification, compliance, and enforcement regulations. 81 FR 34440, 34458–34459. In the May 2022 CWH ECS NOPR, DOE explained that after considering comments from stakeholders related to this topic, it decided not to propose changes to the requirements regarding certification of storage volume or the related changes to the equations for maximum standby loss. 87 FR 30610, 30628.

Bock and Bradford White indicated support for DOE's proposal not to change the requirements regarding certification of storage volume for storage-type water heaters. (Bock, No. 20 at p. 1; Bradford White, No. 23 at p. 8) After considering the comments, DOE is not adopting any changes to the requirements regarding certification of storage volume in this final rule.

Additionally, in response to the May 2022 CWH ECS NOPR, Rheem recommended that the certification criteria at 10 CFR 429.44(c)(2) be amended to require manufacturers to state whether a basic model is a “storage-type instantaneous water heater.” Rheem also recommended that DOE should publish an example certification template. (Rheem, No. 24 at p. 3) In response, DOE notes that manufacturers of commercial gas-fired and oil-fired instantaneous water heaters and hot water supply boilers with storage capacity greater than or equal to 10 gallons are already required to certify whether the water heater

²⁸ The eCFR is available at [ecfr.gov](https://www.ecfr.gov).

includes a storage tank with a storage volume greater than or equal to 10 gallons. 10 CFR 429.44(c)(2)(iv). Such units that include a storage tank with a storage volume greater than or equal to 10 gallons would meet DOE's definition of storage-type water heaters as set out at 10 CFR 431.102.

Lastly, in the May 2022 CWH ECS NOPR, DOE stated that it was not proposing to establish equipment-specific certification requirements for electric instantaneous water heaters, but may propose to establish certification requirements for electric instantaneous water heaters in future rulemakings. 87 FR 30610, 30628. DOE did not receive any comments related to this topic and is not establishing certification requirements specific to electric instantaneous water heaters in this final rule.

IV. Methodology and Discussion of Related Comments

This section addresses the analyses DOE has performed for this rulemaking with regard to CWH equipment. Separate subsections address each component of DOE's analyses.

In overview, DOE used several analytical tools to estimate the impact of the standards considered in this document. The first tool is a spreadsheet that calculates the LCC savings and PBP of potential amended or new energy conservation standards. The NIA uses a second spreadsheet set that provides shipments forecasts and calculates NES and NPV resulting from potential new or amended energy conservation standards.²⁹ These spreadsheet tools are available on the DOE website for this rulemaking: www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=36. Additionally, DOE used output from the latest version of the Energy Information Administration's ("EIA's") *Annual Energy Outlook* ("AEO") for the emissions and utility impact analyses.

A. Market and Technology Assessment

For the market and technology assessment for CWH equipment, DOE gathered information in the market and technology assessment that provides an overall picture of the market for the equipment concerned, including the purpose of the equipment, the industry structure, manufacturers, market characteristics, and technologies used in the equipment. This activity includes both quantitative and qualitative assessments, based primarily on

publicly-available information. The subjects addressed in the market and technology assessment for this rulemaking include the following: (1) a determination of the scope of the rulemaking and equipment classes, (2) manufacturers and industry structure, (3) types and quantities of CWH equipment sold, (4) existing efficiency programs, and (5) technologies that could improve the energy efficiency of CWH equipment. The key findings of DOE's market assessment are summarized in the following sections. See chapter 3 of the final rule TSD for further discussion of the market and technology assessment.

1. Definitions

EPCA includes the following categories of CWH equipment as covered industrial equipment: storage water heaters, instantaneous water heaters, and unfired hot water storage tanks. EPCA defines a "storage water heater" as a water heater that heats and stores water internally at a thermostatically-controlled temperature for use on demand. This term does not include units that heat with an input rating of 4,000 Btu per hour or more per gallon of stored water. EPCA defines an "instantaneous water heater" as a water heater that heats with an input rating of at least 4,000 Btu per hour per gallon of stored water. Lastly, EPCA defines an "unfired hot water storage tank" as a tank that is used to store water that is heated external to the tank. (42 U.S.C. 6311(12)(A)–(C))

DOE first codified the following more specific definitions for CWH equipment at 10 CFR 431.102 in the October 2004 direct final rule. 69 FR 61974, 61983. Several of these definitions were subsequently amended in the November 2016 CWH TP final rule. 81 FR 79261, 79287–79288 (Nov. 10, 2016).

Specifically, DOE now defines "hot water supply boiler" in 10 CFR 431.102 as a packaged boiler that is industrial equipment and that (1) has an input rating from 300,000 Btu/h to 12,500,000 Btu/h and of at least 4,000 Btu/h per gallon of stored water; (2) is suitable for heating potable water; and (3) meets either or both of the following conditions: (i) it has the temperature and pressure controls necessary for heating potable water for purposes other than space heating; or (ii) the manufacturer's product literature, product markings, product marketing, or product installation and operation instructions indicate that the boiler's intended uses include heating potable water for purposes other than space heating.

DOE also defines an "instantaneous water heater" in 10 CFR 431.102 as a water heater that uses gas, oil, or electricity, including: (1) gas-fired instantaneous water heaters with a rated input both greater than 200,000 Btu/h and not less than 4,000 Btu/h per gallon of stored water; (2) oil-fired instantaneous water heaters with a rated input both greater than 210,000 Btu/h and not less than 4,000 Btu/h per gallon of stored water; and (3) electric instantaneous water heaters with a rated input both greater than 12 kW and not less than 4,000 Btu/h per gallon of stored water.

DOE defines a "storage water heater" in 10 CFR 431.102 as a water heater that uses gas, oil, or electricity to heat and store water within the appliance at a thermostatically-controlled temperature for delivery on demand including: (1) gas-fired storage water heaters with a rated input both greater than 75,000 Btu/h and less than 4,000 Btu/h per gallon of stored water; (2) oil-fired storage water heaters with a rated input both greater than 105,000 Btu/h and less than 4,000 Btu/h per gallon of stored water; and (3) electric storage water heaters with a rated input both greater than 12 kW and less than 4,000 Btu/h per gallon of stored water.

Lastly, DOE defines an "unfired hot water storage tank" in 10 CFR 431.102 as a tank used to store water that is heated externally, and that is industrial equipment.

Relating to these definitions, Rheem recommended that the definition of "storage-type instantaneous water heater" at 10 CFR 431.102 should be based on "rated storage volume" and that the certification criteria at 10 CFR 429.44 be amended to be based on "measured storage volume." (Rheem, No. 24 at p. 3) DOE agrees that basing the categorizations of storage-type instantaneous water heaters based on the rated storage volume is consistent with the criteria DOE uses to identify such equipment. Therefore, DOE is amending the definition of "storage-type instantaneous water heater" at 10 CFR 431.102 to clarify that the storage volume refers to the rated storage volume. However, as discussed in section III.H of this document, DOE has decided not to amend its requirements regarding certification of storage volume of commercial water heaters (including storage-type instantaneous water heaters) in this final rule. Rheem also suggested that DOE's requirements for non-storage-type commercial gas-fired instantaneous water heaters at 10 CFR 429.44(C)(2)(iv) be changed so that manufacturers are required to state whether a calculation-based method

²⁹ DOE uses a third spreadsheet tool, the Government Regulatory Impact Model ("GRIM"), to assess the financial impacts of potential new or amended standards on manufacturers.

was used to determine the “rated storage volume” instead of the “measured storage volume.” (Rheem, No. 24 at p. 3) Consistent with its decision not to address certification requirements in this final rule, DOE is not making such clarification in this final rule. However, DOE may consider a clarification to this certification language in a separate rulemaking.

2. Equipment Classes

When evaluating and establishing energy conservation standards, DOE divides covered equipment into equipment classes by the type of energy used. DOE will also establish separate

equipment classes if a group of equipment has a capacity or other performance-related feature that other equipment within such type do not have and such feature justifies a different standard. (42 U.S.C. 6295(q); 42 U.S.C. 6316(a)) In determining whether a performance-related feature justifies a different standard, DOE considers such factors as the utility to the consumers of the feature and other factors DOE determines are appropriate.

CWH equipment classes are divided based on the energy source, equipment category (*i.e.*, storage vs. instantaneous and hot water supply boilers), and size

(*i.e.*, input capacity and rated storage volume). Unfired hot water storage tanks are also included as a separate equipment class, but as discussed in section III.B.2 of this rulemaking, were considered as part of a separate proceeding and therefore were not analyzed for this final rule. Table IV.1 shows the current equipment classes and energy conservation standards for CWH equipment other than residential-duty commercial water heaters, and Table IV.2 shows DOE’s current equipment classes and energy conservation standards for residential-duty commercial water heaters.³⁰

TABLE IV.1—CURRENT EQUIPMENT CLASSES AND ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT EXCEPT FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment class	Size	Energy conservation standards *	
		Minimum thermal efficiency (equipment manufactured on and after October 9, 2015)** *** (%)	Maximum standby loss (equipment manufactured on and after October 29, 2003)** ‡
Electric storage water heaters	All	N/A	0.30 + 27/V _m (%/h).
Gas-fired storage water heaters	≤155,000 Btu/h	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
	>155,000 Btu/h	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Oil-fired storage water heaters	≤155,000 Btu/h	*** 80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
	>155,000 Btu/h	*** 80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Electric instantaneous water heaters ‡	<10 gal	80	N/A.
	≥10 gal	77	2.30 + 67/V _m (%/h).
Gas-fired instantaneous water heaters and hot water supply boilers	<10 gal	80	N/A.
	≥10 gal	80	Q/800 + 110(V _r) ^{1/2} (Btu/h).
Oil-fired instantaneous water heater and hot water supply boilers	<10 gal	80	N/A.
	≥10 gal	78	Q/800 + 110(V _r) ^{1/2} (Btu/h).
		Minimum thermal insulation.	
Unfired hot water storage tank	All	R–12.5.	

* V_m is the measured storage volume, and V_r is the rated volume, both in gallons. Q is the nameplate input rate in Btu/h.
 ** For hot water supply boilers with a capacity of less than 10 gallons: (1) the standards are mandatory for products manufactured on and after October 21, 2005 and (2) products manufactured prior to that date, and on or after October 23, 2003, must meet either the standards listed in this table or the applicable standards in subpart E of part 431 for a “commercial packaged boiler.”
 *** For oil-fired storage water heaters: (1) the standards are mandatory for equipment manufactured on and after October 9, 2015 and (2) equipment manufactured prior to that date must meet a minimum thermal efficiency level of 78 percent.
 † Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if: (1) the tank surface area is thermally insulated to R–12.5 or more, (2) a standing pilot light is not used, and (3) for gas or oil-fired storage water heaters, they have a fire damper or fan-assisted combustion.
 ‡ Energy conservation standards for electric instantaneous water heaters are included in EPCA. In this rule, DOE codifies these standards for electric instantaneous water heaters in its regulations at 10 CFR 431.110. Further discussion of standards for electric instantaneous water heaters is included in section III.B.3 of this document.

³⁰ Consumer water heaters are separately covered products that are distributed in commerce for personal use or consumption by individuals, as opposed to commercial applications. These products generally have lower input ratings than commercial water heaters. Energy conservation

standards for consumer water heaters can be found at 10 CFR 430.32(d), and the test procedure for these products can be found at appendix E to subpart B of 10 CFR part 430. Residential-duty commercial water heaters are commercial water heater that meet additional criteria, including using

only single-phase electrical power (if they use electricity) and not being designed to heat water at temperatures greater than 180 °F, as discussed in the footnotes to Table IV.2 of this document.

TABLE IV.2—CURRENT EQUIPMENT CLASSES AND ENERGY CONSERVATION STANDARDS FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment	Specification*	Draw pattern**	Uniform energy factor
Gas-fired storage	>75 kBtu/h and	Very Small	0.2674 – (0.0009 × V _r).
	≤105 kBtu/h and	Low	0.5362 – (0.0012 × V _r).
	≤120 gal and	Medium	0.6002 – (0.0011 × V _r).
	≤180 °F	High	0.6597 – (0.0009 × V _r).
Oil-fired storage	>105 kBtu/h and	Very Small	0.2932 – (0.0015 × V _r).
	≤140 kBtu/h and	Low	0.5596 – (0.0018 × V _r).
	≤120 gal and	Medium	0.6194 – (0.0016 × V _r).
	≤180 °F	High	0.6740 – (0.0013 × V _r).
Electric instantaneous	>12 kW and	Very Small	0.80
	≤58.6 kW and	Low	0.80
	≤2 gal and	Medium	0.80
	≤180 °F	High	0.80.

*To be classified as a residential-duty water heater, a commercial water heater must, if requiring electricity, use single-phase external power supply; and not be designed to heat water at temperatures greater than 180 °F.

**Draw pattern is a classification of hot water use of a consumer water heater or residential-duty commercial water heater, based upon the first-hour rating. The draw pattern is determined using the *Uniform Test Method for Measuring the Energy Consumption of Water Heaters* in appendix E to subpart B of 10 CFR part 430.

The following subsections include further discussion of comments received on equipment classes and DOE’s approach to equipment classes for this final rule.

a. Storage-Type Instantaneous Water Heaters

Based on a review of equipment on the market, DOE has found that gas-fired storage-type instantaneous water heaters are very similar to gas-fired storage water heaters, but with a higher ratio of input rating to tank volume. This higher input-volume ratio is achieved with a relatively larger heat exchanger paired with a relatively smaller tank. Increasing either the input capacity or storage volume increases the hot water delivery capacity of the water heater. However, through a review of product literature, DOE did not identify any significant design differences that would warrant different energy conservation standard levels (for either thermal efficiency or standby loss) between models in these two equipment classes. Therefore, DOE grouped the two equipment classes together in the May 2022 CWH ECS NOPR analyses and proposed the same standard levels for each equipment class. 87 FR 30610, 30631–30632.

Barton Day Law questioned whether gas-fired storage water heaters and storage-type instantaneous water heaters can be categorized as the same product within the analysis, and whether the same numbers can be used to represent both product types. (Barton Day Law, Public Meeting Transcript No. 13 at p. 23) However, Barton Day Law did not provide any specific reasons that these products are functionally different. In contrast, the Joint Advocates agreed

with DOE’s methodology for analyzing equipment types and stated that it was appropriate to analyze commercial gas-fired storage and storage-type instantaneous water heaters together due to the commonalities in design and shared features. (The Joint Advocates, No. 29 at pp. 1, 2)

As noted, DOE has found that gas-fired storage-type instantaneous water heaters have a higher ratio of input rating to tank volume than gas-fired storage water heaters (i.e., the ratio exceeds the 4,000 Btu/h per gallon of stored water threshold included in the definition of instantaneous water heaters at 10 CFR 431.102). However, through a review of product literature, neither DOE nor any commenters identified any significant design differences that would warrant different energy conservation standard levels (for either thermal efficiency or standby loss) between models in these two equipment classes. Therefore, DOE continued to group the two equipment classes together in this final rule.

The standard levels considered in this document reflect the similarity of these types of equipment, with the same standard levels considered for both storage water heaters and storage-type instantaneous water heaters.

b. Venting for Gas-Fired Water Heating Equipment

In response to the May 2022 CWH ECS NOPR, Patterson-Kelley and WM Technologies stated that increasing efficiencies beyond the capabilities of Category I Venting as defined in the National Fuel Gas Code NFPA 54 will result in the unavailability of products that use category I venting. (Patterson-Kelley, No. 26 at pp. 1–2; WM Technologies, No. 25 at p. 2) Patterson-

Kelley explained that converting to Category I appliances may be costly and application prohibitive in establishments in densely populated areas. (Patterson-Kelley, No. 26 at p. 2) The Joint Gas Commenters stated that DOE’s treatment of venting issues raised by condensing-level standards is unreasonable and contrary to law. Specifically, the Joint Gas Commenters described that the imposition of standards that non-condensing products cannot achieve would raise significant practical, economic, and legal issues. Cumulatively, they said, inaccurate assumptions undermine the May 2022 CWH ECS NOPR’s economic evaluation and its estimate of the market impacts of the proposed standards. (The Joint Gas Commenters, No. 34 at p. 3)

Similarly, the Joint Gas Commenters argued that venting type is indeed a performance feature and pointed to the January 2021 Final Rule for Residential Furnaces and Commercial Water Heaters that agreed with this logic but has since been withdrawn. (Joint Gas Commenters, No. 34 at p. 10) Patterson-Kelley and WM Technologies agreed and commented that they maintain the same justification per 42 U.S.C. 6295(q)(1) documented in the Final Interpretive Rule provided in 86 FR 4776 applies to fuel-fired commercial water heaters. As such, Patterson-Kelley and WM Technologies also continue to support DOE’s January 2021 acceptance of the Gas Industry Petition to recognize non-condensing as a product feature per EPCA. (WM Technologies, No. 25 at p. 2; Patterson-Kelley, No. 26 at pp. 1–2) WM Technologies believes that 42 U.S.C. 6313(a)(6)(B)(II)(aa) prohibits the elimination of non-condensing water heaters. (WM Technologies, No. 25 at p.

1) The Joint Gas Commenters further claimed that DOE should recognize the compatibility of a product with the existing atmospheric venting systems is a performance-related feature that would require separate standards for condensing and non-condensing products if standards specific to condensing products are justified. (The Joint Gas Commenters, No. 34 at p. 11) They explained that DOE is precluded by EPCA from amending standards in such a way that renders existing venting systems unusable by eliminating products consistent with the venting type. (Joint Gas Commenters, No. 34 at p. 10) The Joint Gas Commenters stated that Congress understood that buildings are designed to accommodate standard installations and sought to ensure that standards would not deprive consumers of the utility and convenience of products that can be installed without the need to modify the existing buildings to accommodate them. *Id.* The Joint Gas Commenters drew parallels between the question of vent-type consistency and other instances in which DOE avoided setting standards that would make it impossible for consumers to install a space constrained product. *Id.* The Joint Gas Commenters requested that any final rule in this proceeding include a written finding that interested persons have established by a preponderance of the evidence that the proposed standards are likely to result in the unavailability in the United States of commercial water heaters with “performance characteristics (including reliability, features, sizes, capacities, and volumes) that are substantially the same as those generally available in the United States” on the date any such rule issues. (Joint Gas Commenters, No. 34 at p. 11)

PHCC similarly noted that they have on prior occasion expressed concern for the elimination of non-condensing technology for commercial gas fire water heaters. They believe that there are numerous parts of the May 2022 CWH ECS NOPR that are overly optimistic, do not reflect current market conditions, make inaccurate assumptions, and minimize installation issues for condensing type products. (PHCC, No. 28 at p. 1)

Patterson-Kelley stated that hybridization of standard efficiency and high efficiency products would be a low-cost migration to the efficiencies the DOE is looking for, while mitigating the cost of full conversions of the system. They noted that this would also allow for proper analysis of the correctly sized equipment for the space commercially and would further increase the system level efficiency,

which is the ultimate goal. (Patterson-Kelley, No. 26 at p. 2) Addressing many of the same concepts as the Joint Gas Commenters, the CA IOUs instead expressed support for DOE’s arguments; they agreed with analyzing both venting and condensing gas water heaters together, and with DOE’s withdrawal of the Condensing Products Interpretive Rule. The commenters added that their commissioned research with other utility partners shows it is always possible to retrofit a non-condensing gas water heater with a condensing product. (CA IOUs, No. 33 at p. 5) The CEC also indicated support for DOE’s analysis, noting that DOE’s application of its rule interpreting EPCA’s “features provision” is lawful. (CEC, No. 27 at p. 3)

Under EPCA, DOE may not prescribe an amended standard if interested persons have established by a preponderance of the evidence that a standard is likely to result in the unavailability in the United States in any product type (or class) of performance characteristics (including reliability, features, sizes, capacities, and volumes) that are substantially the same as those generally available in the United States. (42 U.S.C. 6313(a)(6)(B)(iii)(II)). Commenters have not provided, and DOE has not found, any evidence that eliminating CHWs that use category I venting would result in the unavailability of CWH models of substantially the same reliability, sizes, capacities, or volumes as those generally available in the current market. As demonstrated in chapter 3 of the TSD accompanying this final rule, condensing-level CWH equipment is generally available in the same capacities and volumes as noncondensing CWH equipment. With respect to reliability, all available data that DOE has reviewed suggest that the lifetimes of condensing CWH equipment are substantially the same as noncondensing CWH equipment. DOE notes that it does have, and has incorporated, data regarding increased repair costs for individual component failures that may occur in higher-efficiency condensing equipment, as discussed in section IV.F.5.b of this document.³¹ However, the increased repair costs are largely related to the increased component cost and even in

the case of heat exchangers where DOE cites a higher failure rate, such does not translate directly to decreased product life. Moreover, DOE has not found a decrease in product performance over the life of condensing models dissimilar from what would be expected in noncondensing CWH equipment. As discussed in IV.F.6 of this document, DOE has found that, within each equipment class, the average lifetime of all equipment covered by this rulemaking is the same for all thermal efficiency levels, from baseline through max-tech. Thus, DOE believes the reliability of condensing and noncondensing CWH equipment, in terms of equipment performance and ability to serve the hot water loads and in terms of overall lifetime, is substantially the same, and that there are no known reliability concerns endemic to condensing technology.

With respect to commenters’ statements that category I venting itself is a performance characteristic that DOE’s standards cannot make unavailable, DOE first notes that venting, like a gas burner or heat exchanger, is one of the basic components found in every gas-fired water heater (condensing or noncondensing). As such, assuming venting is a performance characteristic, a standard would have to eliminate all vented gas-fired water heaters on the market—*i.e.*, both condensing and non-condensing models—to run afoul of the unavailability provision in EPCA. Thus, in order to meet the unavailability requirements in 42 U.S.C.

6313(a)(6)(B)(iii)(II), Joint Gas Commenters and others are requesting DOE determine that a specific type of venting is a performance characteristic.

In response, DOE first notes that almost every component of a covered product or equipment could be broken down further by any of a number of factors. For example, heat exchangers, which are used in a variety of covered equipment and products, could be divided further by geometry or material; refrigerator compressors could be further divided by single-speed or variable-speed, and air-conditioning refrigerants could be further divided by global warming potential. As a general matter, energy conservation standards save energy by removing the least-efficient technologies and designs from the market. For example, DOE set energy conservation standards for furnace fans at a level that effectively eliminated permanent split capacitor (PSC) motors from several product classes, but which could be met by brushless permanent magnet (BPM) motors, which are more efficient. 79 FR

³¹ Repair costs are based on annual failure rates of combustion systems and controls. Increased repair costs reflect increased costs for combustion systems and controls found in high efficiency CWH equipment, as well as increased frequency of repair for high efficiency controls. Heat exchanger replacement was also considered for commercial gas-fired instantaneous circulating water heaters and hot water supply boilers.

38130 (July 3, 2014). As another example, DOE set energy conservation standards for microwave oven standby mode and off mode at a level that effectively eliminated the use of linear power supplies, but which could be met by switch-mode power supplies, which exhibit significantly lower standby mode and off mode power consumption. 78 FR 36316 (June 17, 2013). The energy-saving purposes of EPCA would be completely frustrated if DOE were required to set standards that maintain less-efficient covered products and equipment in the market based simply on the fact that they use a specific type of (less efficient) heat exchanger, motor, power supply, *etc.*

As discussed in the December 2021 final interpretive rule, DOE believes that a consumer would be aware of performance-related features of a covered product or equipment and would recognize such features as providing additional benefits during operation of the covered product or equipment. 86 FR 73955. Using the previous example of furnace fan motors, if an interested person had wanted to preserve furnace fans with PSC motors in the market, they would have had to show that furnace fans with PSC motors offered some additional benefit during operation as compared to furnace fans with BPM motors. Refrigerator-freezers, on the other hand, are an example of where DOE determined that a specific type of performance-related feature offered additional benefit during operation. Some refrigerator-freezers have automatic icemakers. Additionally, some automatic icemakers offer through-the-door ice service, which provides consumers with an additional benefit during operation. As such, DOE further divided refrigerator-freezers into product classes based on the specific type of automatic icemaker (*i.e.*, whether the automatic icemaker offers through-the-door ice service). *See* 10 CFR 430.32(a).

Joint Gas Commenters and others have not pointed to any additional benefits during operation offered by CWHs that use Category I venting as compared to CWHs that use other types of venting. Instead, these commenters cite the January 2021 final interpretive rule and economic considerations as reasons why Category I venting should be considered a performance characteristic for the purposes of EPCA's unavailability provision. With regards to the January 2021 final rule, DOE cited the potential for increased fuel switching and the potential need for significant modifications during installation as support for revising the Department's long-standing

interpretation that Category 1 venting is not a performance-related feature. 86 FR 4816. DOE's response to these issues remains largely the same from the December 2021 final interpretive rule. First, as explained in the December 2021 final interpretive rule, the potential for increased fuel switching is simply not a performance characteristic that could serve as the basis for an unavailability finding under EPCA.

Second, with regards to the potential need for significant modifications during installation, this argument overlaps with other comments focused on the economic impacts of installation scenarios where existing Category I venting systems need to be replaced with a venting system suitable for a condensing CWH. DOE acknowledges that a condensing water heater may not be operated if installed with a non-condensing venting system, and that potentially complex replacement or modification of these venting systems will typically be required at a cost (as discussed in more detail in sections IV.F.2.c and IV.F.2.d. of this document). However, while using existing venting can reduce installation costs, it does not provide the consumer with any additional benefits during operation. Further, EPCA specifically directs DOE to consider installation and operating costs as part of the Department's determination of economic justification (*see* 42 U.S.C. 6313(a)(6)(B)(ii)(II)). As a result, there is a clear distinction in EPCA between the purposes of the unavailability provision in 42 U.S.C. 6313(a)(6)(B)(iii)(II)—to preserve performance-related features in the market—and the economic justification requirement in 42 U.S.C. 6313(a)(6)(B)(ii)—to determine whether the benefits (*e.g.*, reduced fuel costs for an appliance) of a proposed standard exceed the burdens (*e.g.*, increased installed cost). Thus, the appropriate analysis to determine whether less-efficient, non-condensing CWHs that use Category I venting should remain in the market is the economic justification analysis under 42 U.S.C. 6313(a)(6)(B)(ii). Accordingly, DOE has conducted such an analysis as part of the standards amendment process for this rulemaking. DOE analyzed ventilation installation and cost issues in the May 2022 CWH ECS NOPR, and does so again in this final rule. DOE's consideration of these issues and responses to associated comments may be found in section IV.F.2 of this document.

For these reasons, DOE disagrees with commenters that eliminating noncondensing CWHs that use Category I venting from the market would violate

EPCA's "unavailability" provision as that technology does not provide unique utility to consumers that is not substantially the same as that provided by condensing CWH equipment. Accordingly, for the purpose of the analysis conducted for this rulemaking, DOE did not analyze separate equipment classes for non-condensing and condensing CWH equipment in this final rule.

c. Tankless Water Heaters and Hot Water Supply Boilers

In the May 2022 CWH ECS NOPR, DOE analyzed "tankless water heaters" and "circulating water heaters and hot water supply boilers" as two separate kinds of representative equipment in the gas-fired instantaneous water heaters equipment class, in order to reflect the differences in design and application between these kinds of equipment. DOE also presented analytical results separately for the two types of representative equipment. 87 FR 30610, 30632. In the June 23, 2022 public meeting, Barton Day Law questioned whether commercial instantaneous water heaters and hot water supply boilers can be appropriately categorized as the same product within DOE's analysis. (Barton Day Law, Public Meeting Transcript No. 13 at pp. 18–22)

In response, DOE notes that its analysis does account for the differences between these product types by including different installation costs for each. Tankless water heaters are typically flow-activated, wall-mounted, used without a storage tank, and capable of higher temperature rises. Circulating water heaters and hot water supply boilers, conversely, are typically used with a storage tank and recirculation loop, thermostatically-activated, and typically floor-mounted. However, despite these differences, tankless water heaters and hot water supply boilers are grouped in the same equipment category because they share basic fundamental similarities: both kinds of equipment supply hot water in commercial applications with an input rate of at least 4,000 Btu/h per gallon of stored water, and both include heat exchangers through which incoming water flows and is heated by combustion flue gases that flow around the heat exchanger tubes.

Therefore, for this final rule, DOE maintained its approach of analyzing "tankless water heaters" and "circulating water heaters and hot water supply boilers" as two separate kinds of representative equipment in the gas-fired instantaneous water heaters equipment class, and presents analytical results separately for the two types of

representative equipment in section V of this final rule, although DOE is not proposing to restructure the equipment classes.³²

d. Gas-Fired and Oil-Fired Storage Water Heaters

In the May 2022 CWH ECS NOPR, DOE proposed to consolidate commercial gas-fired and oil-fired storage water heater equipment classes that are currently divided by input rates of 155,000 Btu/h into two equipment classes without an input rate distinction: (1) gas-fired storage water heaters and (2) oil-fired storage water heaters. DOE noted that this class structure would be consistent with the equipment class structure in the latest version of ASHRAE Standard 90.1. 87 FR 30610, 30633. In response Bradford White agreed with combining the classes for gas-fired storage water heaters above and below 155,000 Btu/h and noted that the historical reasons for the requirements being separated are no longer applicable. (Bradford White, No. 23 at p. 1) Bock Water Heaters and Rheem similarly indicated support for DOE removing the 155,000 Btu sizing categories from the energy conservation standards tables. (Bock Water Heaters, No. 20 at p. 1; Rheem, No. 24 at p. 2) AHRI also expressed support for the proposal and noted that these categories had no efficiency differences and separating them adds unnecessary complexity. (AHRI, No. 31 at p. 3) DOE is adopting this proposal in this final rule and is removing the input rate size distinctions for commercial gas-fired and oil-fired storage water heaters.

e. Grid-Enabled Water Heaters

In the May 2022 CWH ECS NOPR, DOE explained that it was not proposing to establish a separate equipment class for grid-enabled electric storage water heaters (*i.e.*, electric storage water heaters that can receive and react to commands sent from local utilities and which could at a minimum reduce their instantaneous power consumption in response) because DOE did not propose to amend the standard for commercial

electric storage water heaters, and because a grid-enabled water heater would not be differentially impacted by a standby loss standard. 87 FR 30610, 30633. Bradford White agreed with DOE's decision not to establish a separate class for grid-enabled water heaters. (Bradford White, No. 23 at p. 1) DOE maintains its position from the May 2022 CWH ECS NOPR and is not establishing a separate class for grid-enabled water heaters.

3. Review of the Current Market for CWH Equipment

In order to gather information needed for the market assessment for CWH equipment, DOE consulted a variety of sources, including manufacturer literature, manufacturer websites, the AHRI Directory of Certified Product Performance,³³ the CEC Appliance Efficiency Database,³⁴ and DOE's Compliance Certification Database.³⁵ DOE used these sources to compile a database of CWH equipment that served as resource material throughout the analyses conducted for this rulemaking. This database contained the following counts of unique models for which DOE analyzed for amended thermal efficiency standards: 431 commercial gas-fired storage water heaters, 44 residential-duty commercial gas-fired storage water heaters, 111 commercial gas-fired storage-type instantaneous water heaters (tank-type water heaters with greater than 4,000 Btu/h per gallon of stored water), 22 gas-fired tankless water heaters, and 280 gas-fired circulating water heaters and hot water supply boilers. Chapter 3 of the final rule TSD provides more information on the CWH equipment currently available on the market, including a full breakdown of these units into their equipment classes and graphs showing performance data.

4. Technology Options

As part of the market and technology assessment, DOE uses information about commercially-available technology options and prototype designs to help identify technologies that manufacturers could use to improve energy efficiency for CWH equipment. This effort produces an initial list of all the technologies that are technologically feasible. This assessment provides the technical background and structure on

which DOE bases its screening and engineering analyses.

In response to the May 2022 CWH ECS NOPR, the Joint Advocates encouraged DOE to evaluate heat pump technology as a technology option for electric storage water heaters. (The Joint Advocates, No. 29 at p. 4) The Joint Advocates and the CA IOUs both noted that commercial integrated heat pump water heaters on the market have electric resistance elements that allow them to meet required hot water demand when heat-pump-only operation would not suffice, and the CA IOUs cited such products. (The Joint Advocates, No. 29 at p. 4; CA IOUs, No. 33 at pp. 4–5) The Joint Advocates further cited that when both backup elements and the heat pump compressor are operating together in hybrid mode, this unit can achieve almost twice the heating capacity of a 12 kW commercial electric resistance water heater. (The Joint Advocates, No. 29 at p. 4) The Joint Advocates stated that they are not aware of any reason why commercial heat pump water heaters could not meet the same hot water loads as commercial electric storage water heaters. *Id.*

NYSERDA similarly urged DOE to include commercial heat pump water heaters in the analysis. They cited a recent New York Commercial Baseline Study that found that between 1 and 4 percent of commercial water heaters were classified as heat pumps across a variety of applications. Therefore, NYSERDA recommended that DOE acknowledge heat pumps in subsequent rulemakings, both as a max-tech option and as a technology across the board. (NYSERDA, No. 30, pp. 1–2)

NWPCC also commented in support of DOE including commercial heat pump water heaters as the max-tech in the analysis. NWPCC stated that the analysis is incomplete without this consideration as there are already many commercial-duty heat pump products available on the market from several manufacturers. (NWPCC, No. 21 at p. 1) They explained that heat pump water heaters are of interest to the Northwest region, as the Regional Technical Forum estimates between 20 and 30 average megawatts of energy saving potential for unitary commercial heat pump water heaters and an additional 15 megawatts of potential for consumer heat pump water heaters in commercial applications. *Id.* In contrast, A.O. Smith added that inlet water temperature will vary across regions of the country and climate zones for air-source heat pump water heaters and noted that heat-pump water heaters may require backup heating in certain scenarios. A.O. Smith also stated that an integrated heat pump

³² In the May 2022 CWH ECS NOPR, DOE responded to comments on the May 2016 CWH ECS NOPR. DOE received comments suggesting that DOE should split up the equipment class for gas-fired instantaneous water heaters and hot water supply boilers by input capacity, similar to DOE's current energy conservation standards for commercial packaged boilers. 87 FR 30633. As noted in the May 2022 CWH ECS NOPR, ASHRAE 90.1 does not divide the equipment classes for commercial gas-fired instantaneous water heaters and hot water supply boilers by input capacity. Therefore, DOE did not, in the NOPR, and has not in this final rule, analyzed separate classes for gas-fired instantaneous water heaters and hot water supply boilers equipment class by input capacity.

³³ Last accessed on March 4, 2021 and available at www.ahridirectory.org.

³⁴ Last accessed on March 4, 2021 and available at cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx.

³⁵ Last accessed on February 26, 2021 and available at www.regulations.doe.gov/certification-data/.

water heater may not be the correct technology option for applications that require very large loads. (A.O. Smith, No. 22 at p. 6)

In response to these comments, DOE notes that, as discussed in section III.B.4 of this document, it did not consider commercial heat pump water heaters in this final rule because of the limited number of units on the market, but may analyze commercial heat pump water heaters in a future rulemaking.

Because thermal efficiency, standby loss, and UEF are the relevant performance metrics in this rulemaking, DOE did not consider technologies that have no significant effect on these metrics. However, DOE does not discourage manufacturers from using these other technologies because they might reduce annual energy consumption in the field. The following list includes the technologies that DOE did not consider because they would not significantly affect efficiency as measured by the DOE test procedure. Chapter 3 of the final rule TSD provides details and reasoning for the exclusion from further consideration of each technology option, as listed here:

- Plastic tank
- Direct vent
- Timer controls
- Intelligent and wireless controls
- Modulating combustion
- Self-cleaning.

DOE also did not consider technologies as options for increasing efficiency if they are included in baseline equipment, as determined from an assessment of units on the market. DOE's research suggests that electromechanical flue dampers and electronic ignition are technologies included in baseline equipment for commercial gas-fired storage water heaters; therefore, they were not included as technology options for that equipment class. However, electromechanical flue dampers and electronic ignition were not identified on baseline units for residential-duty gas-fired storage water heaters, and these options were, therefore, considered for increasing efficiency of residential-duty gas-fired storage water heaters. DOE also considered insulation of fittings around pipes and ports in the tank to be included in baseline equipment; therefore, such insulation was not considered as a technology option for the analysis.

The technology options that were considered for improving the energy efficiency of CWH equipment for this final rule are as follows:

- Improved insulation (including increasing jacket insulation,

insulating tank bottom, advanced insulation types, and foam insulation)

- Mechanical draft (including induced draft (also known as power vent) and forced draft)
- Condensing heat exchanger (for all gas-fired equipment classes and including optimized flue geometry)
- Condensing pulse combustion
- Improved heat exchanger design (including increased surface area and increased baffling)
- Sidearm heating and two-phase thermosiphon technology
- Electronic ignition systems
- Improved heat pump water heaters (including gas absorption heat pump water heaters)
- Premix burner (including submerged combustion chamber for gas-fired storage water heaters and storage-type instantaneous water heaters)
- Electromechanical flue damper
- Modulating combustion.

Chapter 3 of the final rule TSD includes descriptions of all technology options identified for this equipment.

B. Screening Analysis

DOE uses the following screening criteria to determine which technology options are suitable for further consideration in an energy conservation standards rulemaking:

(1) *Technological feasibility.*

Technologies that are not incorporated in commercial products or in commercially viable, existing prototypes will not be considered further.

(2) *Practicability to manufacture, install, and service.* If it is determined that mass production of a technology in commercial products and reliable installation and servicing of the technology could not be achieved on the scale necessary to serve the relevant market at the time of the projected compliance date of the standard, then that technology will not be considered further.

(3) *Impacts on product utility.* If a technology is determined to have a significant adverse impact on the utility of the product to subgroups of consumers, or result in the unavailability of any covered product type with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as products generally available in the United States at the time, it will not be considered further.

(4) *Safety of technologies.* If it is determined that a technology would have significant adverse impacts on health or safety, it will not be considered further.

(5) *Unique-pathway proprietary technologies.* If a technology has proprietary protection and represents a unique pathway to achieving a given efficiency level, it will not be considered further, due to the potential for monopolistic concerns.

10 CFR 431.4; 10 CFR part 430, subpart C, appendix A, sections 6(c)(3) and 7(b).

In sum, if DOE determines that a technology, or a combination of technologies, fails to meet one or more of the listed five criteria, it will be excluded from further consideration in the engineering analysis.

1. Screened-Out Technologies

Technologies that pass through the screening analysis are subsequently examined in the engineering analysis for consideration in DOE's downstream cost-benefit analysis. In the May 2022 CWH ECS NOPR, DOE screened out gas absorption heat pump water heaters due to concerns about their practicability to manufacture, install, and service. In response, the Joint Advocates encouraged DOE to evaluate this technology as a potential max-tech efficiency level for commercial gas storage water heaters. The Joint Advocates explained that there appear to be gas-fired heat pump models on the market that can provide both space and water heating capabilities, and cited one such example. (The Joint Advocates, No. 29 at p. 2) The CA IOUs and NEEA also stated that DOE should evaluate gas heat pump water heaters as a max-tech level, and cited several examples. (CA IOUs, No. 33 at p. 3; NEEA, No. 35, pp. 2–3)

DOE notes that the examples cited by the Joint Advocates and the CA IOUs do not meet the input rating requirements to be considered CWH equipment by the definitions in 10 CFR 431.102. However, other examples provided by commenters do appear to meet the requirements to be considered CWH equipment, but have low maximum output water temperatures and may not be suitable for all applications. Therefore, DOE does not have adequate information at this time to determine if these products would result in adverse impacts on consumer utility. Additionally, DOE is not aware of any demonstration of this technology as being suitable for commercial applications or as being practicable to manufacture, install, and service on the scale necessary to serve the CWH equipment market at the time of the effective date of this adopted standard. Accordingly, that technology remains screened out.

Based upon a review under the above factors, DOE screened out the design options listed in Table IV.3 for the

reasons provided. Chapter 4 of the final rule TSD contains additional details on the screening analysis, including a

discussion of why each technology option was screened out.

TABLE IV.3—SUMMARY OF SCREENED-OUT TECHNOLOGY OPTIONS

Excluded technology option	Applicable equipment classes*	Reasons for exclusion				
		Technological feasibility	Practicability to manufacture, install, and service	Adverse impacts on product utility	Adverse impacts on health or safety	Unique-pathway proprietary technology
Advanced insulation types ..	All storage water heaters ...	X	X	.....	.....	.....
Condensing pulse combustion.	All gas-fired equipment classes.	.....	X	.....	.....	.....
Sidearm heating	All gas-fired storage .....	.....	X	.....	.....	.....
Two-phase thermosiphon technology.	All gas-fired storage .....	.....	X	.....	.....	.....
Gas absorption heat pump water heaters.	Gas-fired instantaneous water heaters.	.....	X	.....	.....	.....

* All mentions of storage water heaters in this column refer to both storage water heaters and storage-type instantaneous water heaters.

In this final rule, DOE concludes that none of the identified technology options are proprietary. However, in the engineering analysis, DOE included the manufacturer production costs associated with multiple designs of condensing heat exchangers used by a range of manufacturers, which represent the vast majority of the condensing gas-

fired storage water heater market, to account for intellectual property rights surrounding specific designs of condensing heat exchangers.

2. Remaining Technologies

After screening out or otherwise removing from consideration certain technologies, the remaining

technologies are passed through for consideration in the engineering analysis. Table IV.4 presents identified technologies for consideration in the engineering analysis. Chapter 3 of the final rule TSD contains additional details on the technology assessment and the technologies analyzed.

TABLE IV.4—TECHNOLOGY OPTIONS CONSIDERED FOR ENGINEERING ANALYSIS

Equipment	Mechanical draft	Condensing heat exchanger	Increased heat exchanger area, baffling	Electronic ignition	Premix burner	Electro-mechanical flue damper
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	X	X	X	.....	X	.....
Residential-duty gas-fired storage water heaters	X	X	X	X	X	X
Gas-fired instantaneous water heaters and hot water supply boilers	X	X	X	.....	X	.....

DOE determined that these technology options are technologically feasible because they are being used or have previously been used in commercially-available products or working prototypes. DOE also finds that all of the remaining technology options meet the other screening criteria (*i.e.*, practicable to manufacture, install, and service and do not result in adverse impacts on consumer utility, product availability, health, or safety). For additional details, see chapter 4 of the final rule TSD.

C. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of CWH equipment. There are two elements to consider in the engineering analysis; the

selection of efficiency levels to analyze (*i.e.*, the “efficiency analysis”) and the determination of product cost at each efficiency level (*i.e.*, the “cost analysis”). In determining the performance of higher-efficiency equipment, DOE considers technologies and design option combinations not eliminated by the screening analysis. For each equipment category, DOE estimates the baseline cost, as well as the incremental cost for the equipment at efficiency levels above the baseline. The output of the engineering analysis is a set of cost-efficiency “curves” that are used in downstream analyses (*i.e.*, the LCC and PBP analyses and the NIA).

1. Efficiency Analysis

DOE typically uses one of two approaches to develop energy efficiency

levels for the engineering analysis: (1) relying on observed efficiency levels in the market (*i.e.*, the efficiency-level approach), or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.*, the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing products (in other words, based on the range of efficiencies and efficiency level “clusters” that already exist on the market). Using the design option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency

improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the efficiency-level approach (based on actual products on the market) may be extended using the design option approach to interpolate to define “gap fill” levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the max-tech level (particularly in cases where the max-tech level exceeds the maximum efficiency level currently available on the market).

For the analysis of thermal efficiency and UEF levels, DOE identified the efficiency levels for the analysis based on market data (*i.e.*, the efficiency level approach). For the analysis of standby loss levels, DOE identified efficiency levels for analysis based on market data, commonly used technology options (*e.g.*, electronic ignition), and testing data (*i.e.*, a combination of the efficiency level approach and the design option approach). DOE’s selection of efficiency levels for this final rule is discussed in additional detail in section IV.C.4 of this document.

2. Cost Analysis

The cost analysis portion of the engineering analysis is conducted using one or a combination of cost approaches. The selection of cost approach depends on a suite of factors, including the availability and reliability of public information, characteristics of the regulated product, the availability and timeliness of purchasing the equipment on the market. The cost approaches are summarized as follows:

- *Physical teardowns*: Under this approach, DOE physically dismantles a commercially available product, component-by-component, to develop a detailed bill of materials (“BOM”) for the product.

- *Catalog teardowns*: In lieu of physically deconstructing a product, DOE identifies each component using parts diagrams (available from manufacturer websites or appliance repair websites, for example) to develop the BOM for the product.

- *Price surveys*: If neither a physical nor catalog teardown is feasible (for example, for tightly integrated products such as fluorescent lamps, which are infeasible to disassemble and for which parts diagrams are unavailable) or cost-prohibitive and otherwise impractical (*e.g.*, large commercial boilers), DOE conducts price surveys using publicly available pricing data published on major online retailer websites and/or by

soliciting prices from distributors and other commercial channels.

For this final rule, DOE conducted the cost analysis using a combination of physical teardowns and catalog teardowns. The resulting BOMs from physical and catalog teardowns provide the basis for the manufacturer production cost (“MPC”) estimates.

To account for manufacturers’ non-production costs and profit margin, DOE applies a non-production cost multiplier (the manufacturer markup) to the MPC. The resulting manufacturer selling price (“MSP”) is the price at which the manufacturer distributes a unit into commerce. DOE developed an average manufacturer markup by examining the annual Securities and Exchange Commission (“SEC”) 10-K reports filed by companies that manufacturer CWH equipment, and information gathered from manufacturers as part of the analytic process for the May 2016 CWH ECS NOPR. Chapter 5 of the final rule TSD includes further detail on the engineering analysis.

In the May 2022 CWH ECS NOPR, DOE chose the physical and catalog teardown approach over the price survey approach, based upon several factors. 87 FR 30635–30636. In response to the May 2022 CWH ECS NOPR, Bradford White suggested that DOE conduct additional interviews given that previous interviews were conducted over 6 years ago, meaning the data would not have taken into account the national and international impacts of the global pandemic. (Bradford White, No. 23 at p. 8) Bradford White and Rheem both indicated interest in participating in confidential interviews to provide further feedback. (Bradford White, No. 23 at p. 8, Rheem, No. 24 at p. 1) PHCC also encouraged the DOE to revise its production cost information due to recent market conditions, stating that projections based on the value of the U.S. dollar in 2020 do not accurately capture the effects of supply chain issues and the increase in steel prices. (PHCC, No. 28 at p. 9) PHCC stated that inflationary pressures have tremendously changed prices recently. However, PHCC acknowledged that as an association, anti-trust regulations limit their ability to gather or distribute pricing information; therefore, their analysis is based on available sources such as online retailers in order to gauge current market realities. *Id.*

In response to this feedback, DOE conducted additional interviews after the publication of the May 2022 CWH ECS NOPR to better understand manufacturer’s concerns regarding the proposals of the May 2022 CWH ECS NOPR and gathered additional feedback

to inform its updated MPC estimates. Additionally, DOE updated all its part prices to reflect more recent data, as discussed in section IV.C.7 of this document.

The MPCs presented in this final rule take into account the feedback received from manufacturers, which DOE has found to be a valuable tool for ensuring the accuracy of its cost estimates. Without adequate safeguards, manufacturers would likely be unwilling to share information relevant to the rulemaking, which would have correspondingly negative impacts on the rulemaking process. In the present case, as is generally the case in appliance standards rulemakings, manufacturer and equipment specific data are presented in aggregate. Additionally, as discussed in more detail in section IV.C.7 of this document, prices for raw materials and purchased parts have been updated to the most recent market estimates to create the current MPCs, resulting in increased MPCs as compared to the results presented in the May 2022 CWH ECS NOPR.

3. Representative Equipment for Analysis

For the engineering analysis, DOE reviewed all CWH equipment categories analyzed in this rulemaking (see section III.B of this document for discussion of rulemaking scope) and examined each one separately. Within each equipment category, DOE analyzed the distributions of input rating and storage volume of models available on the market and held discussions with manufacturers to determine appropriate representative equipment. DOE notes that representative equipment was selected which reflects the most common capacity and/or storage volume for a given equipment category. While a single representative equipment capacity can never perfectly represent a wide range of input capacities or storage volumes, DOE reasons that analyzing a representative capacity and storage volume that was selected using manufacturer feedback is sufficiently representative of the equipment category while also allowing for a feasible analysis.

For storage water heaters, the volume of the tank is a significant factor for costs and efficiency. Water heaters with larger volumes have higher materials, labor, and shipping costs. A larger tank volume is likely to lead to a larger tank surface area, thereby increasing the standby loss of the tank (assuming other factors are held constant, *e.g.*, same insulation thickness and materials). The current standby loss standards for storage water heaters are, in part, a

function of volume to account for this variation with tank size. The incremental cost of increasing insulation thickness varies as the tank volume increases, and there may be additional installation concerns for increasing the insulation thickness on larger tanks. Installation concerns are discussed in more detail in section IV.F.2.b of this final rule. DOE examined specific storage volumes for storage water heaters and storage-type instantaneous water heaters (referred to as representative storage volumes). Because DOE lacked specific information on shipments, DOE used its CWH equipment database (discussed in section IV.A.3 of this final rule) to examine the number of models at each rated storage volume to determine the representative storage volume, and also solicited feedback from manufacturers during manufacturer interviews as to which storage volumes corresponded to the most shipments. Table IV.5 shows the representative storage volumes that DOE determined best characterize each equipment category.

For all CWH equipment categories, the input capacity is also a significant factor for cost and efficiency. Water heaters with higher input capacities typically have higher materials costs and may also have higher labor and shipping costs. Gas-fired storage water heaters with higher input capacities may have additional heat exchanger length to transfer more heat. This leads to higher material costs and may require the tank to expand to compensate for the displaced volume. Gas-fired tankless water heaters, circulating water heaters, and hot water supply boilers require larger heat exchangers to transfer more heat with a higher input capacity. In the May 2022 CWH ECS NOPR, DOE examined input capacities for models in all gas-fired CWH equipment categories to determine representative input capacities. Because the gas-fired instantaneous water heaters and hot water supply boilers equipment class includes several types of equipment that is technologically disparate, DOE selected representative input capacities that would represent both tankless water heaters and circulating water heaters and hot water supply boilers within this broader equipment class. DOE did not receive any shipments data for specific input capacities, and, therefore, DOE considered the number of models at each input capacity in the database of models it compiled (based on DOE's Compliance Certification Database, the AHRI Directory, the CEC Appliance Database, and manufacturer literature), as well as feedback from

manufacturer interviews in determining the appropriate representative input capacities for this final rule.

In response to the May 2022 CWH ECS NOPR, the Joint Advocates agreed that DOE's approach of using a representative capacity chosen based on discussions with manufacturers allows the analysis to be both feasible and sufficiently representative. (The Joint Advocates, No. 29 at p. 2) A.O. Smith commented that based on their analysis, the most popular size of residential-duty commercial water heater units is 75 and 100 gallon non-condensing models. (A.O. Smith, No. 22 at p. 4) DOE agrees with A.O. Smith that the most popular size of residential-duty CWH units is 75 and 100 gallons but notes that 75 gallon size is the most common size in its database. Therefore, DOE continued to use 75 gallons as the representative storage volume for residential-duty commercial water heaters in this final rule.

Bradford White questioned how DOE found similar costs for instantaneous and hot water supply boilers with storage volumes greater than or equal to 10 gallons and those with storage volumes less than 10 gallons. Bradford White stated that DOE assumed heat exchanger costs will increase as input and surface area increase; however, Bradford White suggested that this relationship changes at larger inputs where manufacturers cannot necessarily justify automating the manufacturing of heat exchangers or some part of them. They also added that combustion systems and other non-heat-exchanger costs will increase stepwise at a certain point. (Bradford White, No. 23 at p. 5)

DOE agrees that MPCs related to the combustion and heat exchange subsystems for condensing circulating water heaters and hot water supply boilers typically follows a step-like pattern as input capacities increase. DOE's research suggests that within a set input capacity range, circulating water heaters and hot water supply boilers feature many of the same components. For example, a larger-capacity condensing circulating water heater or hot water supply boiler may feature one or more heat exchangers, each of which features a separate pre-mix burner, gas valve, and blower system. Thus, within a given range of input capacities, the MPC of the combustion and heat exchange system will not change materially until an input/efficiency limit is reached; at that point, manufacturers typically add another parallel combustion path to the system (requiring a burner, heat exchanger, blower, and associated controls) or turn to a wholly new

combustion system. As previously noted, DOE conducted this engineering analysis using a representative capacity and storage volume for each equipment category that was determined to be sufficiently representative of the category as a whole while also allowing for a feasible analysis. However, no representative storage volume was chosen for the instantaneous water heaters and hot water supply boilers equipment class because only gas-fired instantaneous water heaters and hot water supply boilers with greater than or equal to 10 gallons of storage volume have standby loss standards but amended standby loss standards for this equipment were not analyzed in this final rule (as discussed in section III.B.6 of this document). Given the similarities in thermal efficiency performance and the technologies that could be used to improve thermal efficiency of circulating water heaters and hot water supply boilers with storage volumes greater than or equal to 10 gallons and those with storage volumes less than 10 gallons, DOE concluded that a single representative input capacity would sufficiently represent this entire equipment category for the analysis of amended thermal efficiency levels.

Additionally, Barton Day Law argued that DOE's categorization of products is inappropriate in the context of the LCC analysis, claiming that some LCC inputs would be different for products within the same category. In particular, Barton Day Law noted that there is only one LCC analysis for four separate standards for residential-duty water heaters with different draw patterns. (Barton Day Law, Public Meeting Transcript, No. 13 at pp. 29–30) In response to the comments from Barton Day Law, as described in section V.A of this final rule, DOE groups various efficiency levels for each equipment class into TSLs in order to examine the combined impact that amended standards for all analyzed equipment classes would have on an industry. This approach also allows DOE to capture the effects on manufacturers of amended standards for all classes, better reflecting the burdens for manufacturers that produce equipment across several equipment classes. Additionally, DOE is only aware of residential-duty water heaters in the high draw pattern group at the time of the current analysis. Therefore, DOE's analysis used representative storage volumes and input capacities that reflect this draw pattern group but DOE then applied its findings to other draw patterns.

The representative input capacities used in the analyses for this final rule are shown in Table IV.5. The

representative volume and input capacities shown in Table IV.5 are the same as those used for May 2022 CWH ECS NOPR.

TABLE IV.5—REPRESENTATIVE STORAGE VOLUMES AND INPUT CAPACITIES

Equipment	Specifications	Representative rated storage volume (gal)	Representative input capacity (kBtu/h)
Commercial gas-fired storage water heaters and gas-fired storage-type instantaneous water heaters*.	>105 kBtu/h or >120 gal	100	199
Residential-duty gas-fired storage water heaters**	≤105 and ≤120 gal	75	76
Gas-fired instantaneous water heaters and hot water supply boilers:			
Tankless water heaters	<10 gal .....	.....	250
Circulating water heaters and hot water supply boilers.	All*** .....	.....	399

* Any commercial gas storage water heater that does not meet the definition of a residential-duty storage water heater is a commercial gas-fired storage water heater regardless of whether it meets the specifications listed.

** To be classified as a residential-duty water heater, a commercial water heater must, if requiring electricity, use single-phase external power supply, and not be designed to heat water at temperatures greater than 180 °F. 79 FR 40542, 40586 (July 11, 2014).

*** For the engineering analysis, circulating water heaters and hot water supply boilers with storage volume <10 gallons and ≥10 gallons were analyzed in the same equipment class. Amended standby loss standards for circulating water heaters and hot water supply boilers with storage volume ≥10 gallons were not analyzed in this final rule, as discussed in section III.B.6 of this final rule. Therefore, no representative storage volume was chosen for the instantaneous water heaters and hot water supply boilers equipment class.

In the May 2022 CWH ECS NOPR, in response to commenters’ concerns about the use of a representative input capacity in its analysis of circulating water heaters and hot water boilers, DOE stated that the increase in price of a purchased part used in the construction of an especially high-capacity circulating water heater or hot water supply boiler and purchased at low volumes would be offset by the many instances in which the production costs remain fixed regardless of input capacity. 87 FR 30610, 30638. Bradford White requested that DOE clarify how fixed costs would offset an increase in the cost of other purchased parts. (Bradford White, No. 23 at p. 5) In response, DOE notes that the statement was not intended to suggest that fixed costs could lead to negative cost impacts that offset higher purchased part costs. However, the increase in cost due to

those specialized components that must be purchased at lower volumes is expected to be a relatively small fraction of the overall cost of the unit, and would not significantly impact the overall product cost (but would result in a small increase).

4. Efficiency Levels for Analysis

For each equipment category, DOE analyzed multiple efficiency levels and estimated manufacturer production costs at each efficiency level. The following subsections provide a description of the full efficiency level range that DOE analyzed from the baseline efficiency level to the max-tech efficiency level for each equipment category.

Baseline equipment is used as a reference point for each equipment category in the engineering analysis and the LCC and PBP analyses, which provides a starting point for analyzing

potential technologies that provide energy efficiency improvements. Generally, DOE considers “baseline” equipment to refer to a model or models having features and technologies that just meet, but do not exceed, the Federal energy conservation standard and provide basic consumer utility.

DOE conducted a survey of its CWH equipment database and manufacturers’ websites to determine the highest thermal efficiency or UEF levels on the market for each equipment category.

a. Thermal Efficiency Levels

In establishing the baseline thermal efficiency levels for this analysis, DOE used the current energy conservation standards for CWH equipment to identify baseline units. The baseline thermal efficiency levels used for the analysis in this final rule are presented in Table IV.6.

TABLE IV.6—BASELINE THERMAL EFFICIENCY LEVELS FOR CWH EQUIPMENT

Equipment	Thermal efficiency (%)
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	80
Gas-fired instantaneous water heaters and hot water supply boilers	80

For both the commercial gas-fired storage water heaters and gas-fired instantaneous water heaters and hot water supply boilers equipment categories, DOE analyzed several thermal efficiency levels and determined the manufacturing cost at each of these levels. For this final rule,

DOE developed thermal efficiency levels based on a review of equipment currently available on the market. As noted previously, DOE compiled a database of CWH equipment to determine what types of equipment are currently available to consumers. For each equipment class, DOE surveyed

various manufacturers’ equipment offerings to identify the commonly available thermal efficiency levels. By identifying the most prevalent thermal efficiency levels in the range of available equipment and examining models at these levels, DOE established a technology path that manufacturers

typically use to increase the thermal efficiency of CWH equipment.

Consistent with the approach in the May 2022 CWH ECS NOPR, in this final rule, DOE established intermediate thermal efficiency levels for each gas-fired equipment category (aside from residential-duty gas-fired storage water heaters, which as noted previously were analyzed using UEF). The intermediate thermal efficiency levels are representative of the most common efficiency levels and those that represent significant technological changes in the design of CWH equipment. For commercial gas-fired storage water heaters and for commercial gas-fired instantaneous water heaters and hot water supply boilers, DOE chose four thermal efficiency levels between the baseline and max-tech levels for analysis. DOE selected the highest thermal efficiency level identified on the market (99 percent) as the “max-tech” level for commercial gas-fired storage water heaters and storage-type instantaneous water heaters. For gas-fired instantaneous water heaters and hot water supply boilers, DOE identified hot water supply boilers with thermal efficiency levels of up to 99 percent and tankless instantaneous water heaters with thermal efficiency levels of up to 97 percent available on the market.³⁶ However, the tankless water heaters with thermal efficiencies of 97 percent were at a single input capacity and it is unclear whether this thermal efficiency is achievable at other input capacities. As discussed in section IV.A.2.c of this document, DOE analyzed tankless water heaters and circulating water heaters and hot water supply boilers as two separate kinds of representative equipment for this rulemaking analysis, but they are part of the same equipment class (gas-fired instantaneous water heaters and hot water supply boilers). Therefore, because DOE did not find evidence that 97 percent would be an appropriate max-tech level for tankless instantaneous water heaters that is achievable across the range of product inputs currently available, DOE analyzed 96 percent thermal efficiency as the max-tech level for the gas-fired instantaneous water heaters and hot water supply boilers equipment class.

³⁶ DOE identified two models in CCMS with thermal efficiency levels of 98 percent but could not find any manufacturer literature for those models that would indicate whether they are tankless water heaters or hot water supply boilers. Because DOE was unable to confirm the type of construction for these water heaters and because they were not among the models listed as being available on the manufacturer’s website, 98 percent was not considered the max-tech level.

The selected thermal efficiency levels used in the current final rule analysis are shown in Table IV.7 of this document.

In response to the May 2022 CWH ECS NOPR, DOE received several comments from stakeholders about the thermal efficiency levels it analyzed. Rheem stated concerns with the inconsistent levels proposed for the different equipment classes, which can be used in the same applications. Rheem recommended that a lower condensing thermal efficiency level that does not exceed ENERGY STAR levels be applied uniformly across the four equipment classes. (Rheem, No. 24 at p. 2) Similarly, A.O. Smith stated that DOE should reconsider setting new minimum energy conservation standards for all commercial gas-fired water heaters (excepting residential-duty commercial water heaters) at 94 percent thermal efficiency or, in the alternative setting, a 95 percent thermal efficiency level across all product types, and added that either outcome will result in significant energy savings. However, A.O. Smith stated that a 94 percent thermal efficiency level would afford a broader set of product options for CWH consumers, while at the same time provide a more level playing field upon which manufacturers can compete, foster innovation, and allow for continued incentivizing of the market adoption of high-efficiency gas-fired CWH equipment. (A.O. Smith, No. 22 at pp. 2–4) AHRI requested that a 94 percent thermal efficiency be adopted if a condensing-only standard is set based on its review of market data, and noted that this efficiency aligns with the current ENERGY STAR levels and captures the main distribution of condensing models by market share. AHRI stated that its research indicates there is a misalignment between the market data and the available product data in terms of the market shares. (AHRI, No. 31 at p. 2) Rheem also argued that all commercial gas-fired storage-type instantaneous water heaters with a rated storage volume less than 100 gallons, as listed in the Compliance Certification Management System (“CCMS”), will not meet the proposed energy conservation standard of 95 percent thermal efficiency. Rheem further stated that it is unproven if the proposed efficiency level can be achieved, given the design constraints for this product size, and recommended that DOE reevaluate EL3 for gas-fired storage-type instantaneous water heaters and add a 94 percent thermal efficiency level, consistent with ENERGY STAR. (Rheem, No. 24 at p. 3) Similarly,

Rheem stated that all but two hot water supply boilers with input rates above 500 kBtu/h and 200 Btu/h per gallon of storage volume will not meet the proposed energy conservation standard of 96 percent thermal efficiency, and added that given the design constraints, it is unproven that the proposed efficiency level can be achieved for these product sizes as well. *Id.* Rheem recommended that DOE reevaluate EL3 and EL4 for gas-fired hot water supply boilers with input rates above 500 kBtu/h and 200 kBtu/h per gallon of storage volume, which is consistent with Version 2.0 of the Energy Star Program Requirements Product Specification for Commercial Water Heaters. *Id.*

A.O. Smith stated that the ENERGY STAR program has been a significant driver of the CWH market’s adoption of high efficiency equipment. They added that the ENERGY STAR market penetration stood at 51 percent in 2020, according to a report by ENERGY STAR. (A.O. Smith, No. 22 at p. 2, 3) Similarly, A.O. Smith added that while CWH customers continue to adopt high efficiency (*e.g.*, condensing) commercial gas-fired water heaters, the ENERGY STAR 94 percent thermal efficiency level for commercial gas-fired water heaters continues to be a catalyst. They explain that this standard still affords consumers a large range of high efficiency product options for the intended utility, which is especially important for small business owners who operate their enterprises on very small margins. In contrast, this range of options at or above 94 percent would become smaller if, as proposed, the Department sets new minimum energy conservation standards above the ENERGY STAR level. *Id.*

In response to these comments, DOE reviewed the distributions of products on the market. As initially shown in chapter 3 of the May 2022 CWH ECS NOPR TSD and updated in chapter 3 of the current final rule TSD, the market distributions show the greatest number of unique basic models within the condensing range at 96 percent for gas-fired storage water heaters and storage type-instantaneous water heaters, gas-fired tankless water heaters, and gas-fired circulating water heaters and hot water supply boilers. There are more models at this level than at either 95 or 94 percent for each product category. Although setting the standard at 94 percent would increase the potential for product differentiation at efficiency levels above the standard level, DOE anticipates that there is still room for product differentiation for both gas-fired storage water heaters (for which products above 95 percent efficiency

currently exist at 96, 97, 98, and 99 percent), tankless water heaters (for which products exist at 97 percent efficiency), and circulating water heaters and hot water supply boilers (for which products exist at 97, 98, and 99 percent). Furthermore, because most condensing gas water heaters are already at or above 95 percent (for gas storage water heaters) and 96 percent (for gas-fired instantaneous water heaters) and the equipment designs are similar at 94 percent but would result in

less energy savings, DOE did not find a strong justification for analyzing a 94 percent efficiency level in this final rule. Additionally, because storage water heaters and storage-type instantaneous water heaters provide different consumer utility than instantaneous water heaters other than storage-type instantaneous water heaters (*i.e.*, tankless water heaters and circulating water heaters and hot water supply boilers can provide a continuous supply of hot water on demand, while

storage water heaters are often better suited to handle large initial demands for hot water, and are also more likely to have energy losses associated with hot water storage), DOE does not agree that inconsistent efficiency levels across these equipment categories will disadvantage certain markets. Therefore, DOE continued to use the same efficiency levels in this final rule as were analyzed in the May 2022 CWH ECS NOPR.

TABLE IV.7—BASELINE, INTERMEDIATE, AND MAX-TECH THERMAL EFFICIENCY LEVELS FOR REPRESENTATIVE CWH EQUIPMENT

Equipment	Thermal efficiency levels					
	Baseline— E _t ELO	E _t EL1 (%)	E _t EL2 (%)	E _t EL3 (%)	E _t EL4 (%)	E _t EL5* (%)
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	80	82	90	92	95	99
Gas-fired instantaneous water heaters and hot water supply boilers	80	82	84	92	94	96

*E_t EL5 is the max-tech efficiency level for commercial gas-fired storage water heaters and storage-type instantaneous water heaters, as well as for gas-fired instantaneous water heaters and hot water supply boilers.

b. Standby Loss Levels

DOE used the current energy conservation standards for standby loss

to set the baseline standby loss levels. Table IV.8 shows these baseline standby loss levels for representative

commercial gas-fired storage water heaters and storage-type instantaneous water heaters.

TABLE IV.8—BASELINE STANDBY LOSS LEVELS FOR REPRESENTATIVE CWH EQUIPMENT

Equipment	Representative rated storage volume (gal)	Representative input capacity (kBtu/h)	Baseline standby loss level (Btu/h)
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	100	199	1349

Standby loss is a function of storage volume and input capacity for gas-fired and oil-fired storage water heaters, and is affected by many aspects of the design of a water heater. Additionally, standby loss is not widely reported in manufacturer literature so DOE relied on current and past data obtained from DOE's Compliance Certification Database and the AHRI Directory. There is significant variation in reported standby loss values in these databases (*e.g.*, standby loss values for commercial gas storage water heaters range from 33 percent to 100 percent of the maximum allowable standby loss standard for those units). However, most manufacturers do not disclose the presence of technology options that affect standby loss, including insulation thickness and type, and baffle design, in their publicly-available literature. Because most manufacturers do not disclose the presence of such options, DOE was unable to determine the

standby loss reduction from standby-loss-reducing technology options using market-rated standby loss data.

As discussed in the May 2022 CWH ECS NOPR, for all commercial gas-fired storage water heater levels, the only standby loss reduction analyzed corresponds to the inherent standby loss reduction from increasing thermal efficiency. (DOE notes that for non-condensing residential-duty gas-fired storage water heaters, an electromechanical flue damper and electronic ignition were considered which would improve UEF by reducing standby losses. This is discussed further in section IV.C.4.c of this document.) DOE did not analyze improved tank insulation as a technology option for reducing standby loss in this final rule because such insulation improvements would not be a viable standby loss reducing option for all models on the market.

Standby loss is measured in the test procedure predominantly as a function of the fuel used to heat the stored water during the standby loss test, with a small contribution of electric power consumption (if the unit requires a power supply). Because standby loss is calculated using the fuel consumed during the test to maintain the water temperature, the standby loss is dependent on the thermal efficiency of the water heater. DOE used data from independent testing of CWH equipment at a third-party laboratory to estimate the fraction of standby loss that can be attributed to fuel consumption or electric power consumption. DOE then scaled down (*i.e.*, made more stringent) the portion of the standby loss attributable to fuel consumption as thermal efficiency increased to estimate the inherent improvement in standby loss associated with increasing thermal efficiency. Chapter 5 of the final rule TSD explains these calculations, and the

interdependence of thermal efficiency and standby loss are explained in more detail.

Standby loss levels for each equipment category are shown in the following sections in terms of Btu/h for the representative equipment. However, to analyze potential amendments to the current Federal standard, factors (“standby loss reduction factors”) were developed to multiply by the current maximum standby loss equation for each equipment class, based on the ratio of standby loss at each efficiency level to the current standby loss standard. The translation from standby loss values to maximum standby loss equations is described in further detail in section IV.C.4 of this final rule.

In response to the May 2022 CWH ECS NOPR, Bock indicated support for DOE to set the reduction in standby loss to a level inherent with the proposed thermal efficiency. (Bock, No. 20 at p. 1) Rheem also commented in support of DOE’s use of one standby loss level for each efficiency level, but stated that DOE did not clarify which technologies were used at the baseline and how these would be scaled across the various equipment sizes for any of the four equipment classes analyzed. (Rheem, No. 24 at p. 2)

Bradford White requested that DOE reevaluate their assumptions that only changes in thermal efficiency will

impact the standby loss level achieved. Bradford White stated that the relationship between standby loss and thermal efficiency can be impacted by the difference between the ambient and average tank temperatures during the test and by the time or total duration of the test, which is a function of the water heater’s differential (*i.e.*, the temperature below the setpoint where the control will call for heat). (Bradford White, No. 23 at p. 9) Additionally, Bradford White raised concerns with the limited number of units tested to develop the standby loss reduction factors for commercial gas storage water heaters. Bradford White also noted that DOE did not elaborate on what type of heat exchangers were in the products that were evaluated, which would impact the observed results. For example, the commenter explained that a multi-pass heat exchanger is more likely to have greater standby loss as compared to a coiled heat exchanger that is only a single pass. Bradford White recommended that DOE analyze a greater number of units, as well as account for the types of heat exchangers when further refining the standby loss reduction factors. (Bradford White, No. 23 at p. 3)

As discussed in Chapter 5 of the TSD accompanying this final rule, DOE notes that it conducted testing prior to the withdrawn May 2016 CWH ECS NOPR

to estimate the fraction of standby loss that can be attributed to fuel consumption or electric power consumption, and this fraction does not necessarily depend on the overall level of standby loss associated with each unit. Further, the units tested incorporated both multi-pass and coiled heat exchangers. Additionally, DOE’s research regarding rated standby loss values showed that the majority of models at a given thermal efficiency level already meet the standby loss level associated with the standby loss reduction factor being applied for that level. In addition, because the majority of models on the market that meet each thermal efficiency level being analyzed also meet the corresponding standby loss level, further validating the standby loss levels by testing models on the market or by building water heater prototypes is not necessary and was not done for this final rule.

Table IV.9 presents the examined standby loss levels in this final rule for commercial gas-fired storage water heaters and storage-type instantaneous water heaters (other than residential-duty gas-fired storage water heaters, which are addressed in the next section). As discussed, these levels reflect only the reduction in standby loss that is achieved by increasing thermal efficiency.

TABLE IV.9—STANDBY LOSS LEVELS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS, 100 GALLON RATED STORAGE VOLUME, 199,000 BTU/H INPUT CAPACITY

Thermal efficiency level	Thermal efficiency (%)	Standby loss (Btu/h) (%)
E _t EL0	80	1349
E _t EL1	82	1316
E _t EL2	90	1223
E _t EL3	92	1197
E _t EL4	95	1160
E _t EL5	99	1115

c. Uniform Energy Efficiency Levels

DOE conducted all analyses of potential amended standards for residential-duty commercial water heaters in this document in terms of UEF to reflect the current test procedure and metric.

UEF standards are draw pattern-specific (*i.e.*, there are separate standards for very small, low, medium, and high draw patterns) and are expressed by an equation as a function of the stored water volume. DOE analyzed increased standards in terms of increases to the constant term of the UEF equations and did not consider changes to the slopes of the volume-

dependent term. Based on a review of the rated UEF and storage volume for products currently on the market, DOE determined that the existing slopes of the equations are representative of the relationship between UEF and stored volume across the range of efficiency levels, and thus, DOE did not find justification to consider varying the slope. Additionally, because all residential-duty gas-fired storage water heaters on the market are in the high draw pattern, the analysis was done for the high draw pattern and the same step increase are applied to all other residential-duty gas-fired storage water heater draw patterns. For residential-

duty gas-fired storage water heaters, DOE chose four UEF levels between the baseline and max-tech levels for analysis.

To determine the max-tech level, DOE analyzed the difference between UEF ratings of residential-duty gas-fired storage water heaters in its database (see section IV.A.3 of this document) and the minimum UEF allowed for each model based on their rated volumes. The maximum step increase (rounded to the nearest hundredth) was 0.35. However, this level was only achieved at a single storage volume and has not been demonstrated as being achievable across a range of storage volumes. As a result,

DOE considered the max-tech step increase to be 0.34, a level that has been demonstrated achievable by residential-duty gas-fired storage water heaters at a range of volumes.

In response to the May 2022 CWH ECS NOPR, A.O. Smith stated that DOE’s proposed condensing levels (including near max-tech (EL5) for the high draw pattern) for residential-duty gas-fired storage water heaters are disconnected from the current marketplace for this product category and may have the unintended consequence of severely restricting product availability, which will increase costs to consumers for this product type. A.O. Smith stated that manufacturers of residential-duty water heaters made capital investments and design improvements to this product class to meet the current ENERGY STAR 4.0 specification (e.g., UEF ≥ 0.80) and will need to potentially make additional investments in this product class given the ENERGY STAR program’s recent

publication of its final residential water heater version 5.0 specification, which sets a minimum of 0.86 UEF value for gas fired RDC products effective April 28, 2023. A.O. Smith recommended that the appropriateness of setting a minimum energy conservation standard at the condensing EL4 level for gas-fired residential-duty commercial water heaters be reconsidered, and suggested that the UEF standard for this equipment in the high draw pattern be calculated as $0.9297 - (0.0016 \times V_r)$. (A.O. Smith, No. 22 at pp. 4–5)

However, as noted previously, DOE has found that the existing slopes of the equations are representative of the relationship between UEF and stored volume across the range of efficiency levels. A.O. Smith did not provide an explanation of why a slope of 0.0016 is more appropriate than 0.0009, and thus, DOE did not find justification to consider varying the slope. Additionally, the impacts of each EL are considered in DOE’s subsequent

analyses and discussed in detail in section V of this final rule. However, DOE notes that, for each affected equipment class, existing equipment across a broad range of storage volumes and input capacities meets or exceeds the minimum efficiency levels adopted in this final rule. DOE does not agree that consumer choice will be restricted as a result of the revised energy conservation standards. Additionally, as discussed in section V.C, DOE has concluded that the energy conservation standards adopted in this final rule are economically justified.

The four intermediate UEF levels are representative of common efficiency levels and those that represent significant technological changes in the design of CWH equipment. Table IV.10 shows the examined UEF levels in this final rule for residential-duty gas-fired storage water heaters in terms of the incremental step increase and the resulting equation for high draw pattern models.

TABLE IV.1—BASELINE, INTERMEDIATE, AND MAX-TECH UEF LEVELS FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

UEF level	Incremental step increase	UEF (high draw pattern) *
EL0—Baseline	0	$0.6597 - (0.0009 \times V_r)$.
EL1	0.02	$0.6797 - (0.0009 \times V_r)$.
EL2	0.09	$0.7497 - (0.0009 \times V_r)$.
EL3	0.18	$0.8397 - (0.0009 \times V_r)$.
EL4	0.27	$0.9297 - (0.0009 \times V_r)$.
EL5	0.34	$0.9997 - (0.0009 \times V_r)$.

* UEF standards vary based on the test procedure draw pattern that is used to determine the UEF rating. For simplicity and because all residential-duty gas-fired storage water heaters on the market are in the high draw pattern, only the high draw pattern efficiency levels are shown.

5. Standby Loss Reduction Factors

As part of the engineering analysis for commercial gas-fired storage water heaters, DOE reviewed the maximum standby loss equations that define the existing Federal energy conservation standards for gas-fired storage water heaters. The equations allow DOE to expand the analysis on the representative rated input capacity and storage volume to the full range of

values covered under the existing Federal energy conservation standards.

DOE uses equations to characterize the relationship between rated input capacity, rated storage volume, and standby loss. The equations allow DOE to account for the increases in standby loss as input capacity and tank volume increase. As the tank storage volume increases, the tank surface area increases, resulting in higher jacket losses. As the input capacity increases, the surface area of flue tubes may

increase, thereby providing additional area for standby heat loss through the flue tubes. The current equations show that for gas-fired storage water heaters, the allowable standby loss increases as the rated storage volume and input rating increase. The current form of the standby loss standard (in Btu/h) for commercial gas-fired and oil-fired water heaters is shown in the multivariable equation below, depending upon both rated input (Q, Btu/h) and rated storage volume (V_r, gal).

$$SL = \frac{Q}{800} + 110\sqrt{V_r}$$

Eq. 1

In order to consider amended standby loss standards for commercial gas-fired storage water heaters, DOE needed to revise the current standby loss standard

equation to correspond to the decreased standby loss value, in Btu/h, determined for the representative capacity.

DOE analyzed more-stringent standby loss standards by multiplying the current maximum standby loss equation by reduction factors. The use of

reduction factors maintains the structure of the current maximum standby loss equation and does not change the dependence of maximum standby loss on rated input and rated storage volume, but still allows DOE to consider increased stringency for standby loss standards. The standby loss reduction factor is calculated by

dividing each standby loss level (in Btu/h) by the current standby loss standard (in Btu/h) for the representative input capacity and storage volume. Table IV.11 shows the standby loss reduction factors determined in this final rule for commercial gas-fired storage water heaters for each thermal efficiency level. As discussed in section

IV.C.4.b of this final rule, the standby loss reductions associated with commercial gas-fired storage water heaters result from increased thermal efficiency. Chapter 5 of the final rule TSD includes more detail on the calculation of the standby loss reduction factor.

TABLE IV.11—STANDBY LOSS REDUCTION FACTORS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS

Thermal efficiency level	Thermal efficiency (%)	Standby loss reduction factor
E _t EL0	80	1.00
E _t EL1	82	0.98
E _t EL2	90	0.91
E _t EL3	92	0.89
E _t EL4	95	0.86
E _t EL5	99	0.83

6. Teardown Analysis

After selecting a representative input capacity and representative storage volume (for storage water heaters) for each equipment category, DOE selected equipment near both the representative values and the selected efficiency levels for its teardown analysis. DOE gathered information from these teardowns to create detailed BOMs that included all components and processes used to manufacture the equipment. For the analysis of residential-duty gas-fired storage water heaters DOE identified the UEF ratings of previously torn-down models, wherever possible, and used information from those existing teardowns to inform its analyses. To assemble the BOMs and to calculate the MPCs of CWH equipment, DOE disassembled multiple units into their base components and estimated the materials, processes, and labor required for the manufacture of each individual component, a process known as a “physical teardown.” Using the data gathered from the physical teardowns, DOE characterized each component according to its weight, dimensions, material, quantity, and the manufacturing processes used to fabricate and assemble it.

DOE also used a supplementary method called a “catalog teardown,” which examines published manufacturer catalogs and supplementary component data to allow DOE to estimate the major differences between equipment that was physically disassembled and similar equipment that was not. For catalog teardowns, DOE gathered product data such as dimensions, weight, and design features from publicly-available information (e.g., manufacturer catalogs and

manufacturer websites). DOE also obtained information and data not typically found in catalogs, such as fan motor details or assembly details, from physical teardowns of similar equipment or through estimates based on industry knowledge. The teardown analysis performed for the withdrawn May 2016 CWH ECS NOPR used data from 11 physical teardowns and 22 catalog teardowns to inform development of cost estimates for CWH equipment. In the current final rule analysis, DOE included results from 11 additional physical teardowns of water heaters and hot water supply boilers. These additional physical teardowns replaced several of the virtual and physical teardowns conducted for the 2016 NOPR analysis to ensure that the MPC estimates better reflect designs of models on the market by including physical teardowns of models from additional manufacturers at numerous efficiency levels. Chapter 5 of the final rule TSD provides further detail on the CWH equipment units that were torn down.

The teardown analysis allowed DOE to identify the technologies that manufacturers typically incorporate into their equipment, along with the efficiency levels associated with each technology or combination of technologies. As noted previously, the end result of each teardown is a structured BOM, which DOE developed for each of the physical and catalog teardowns. The BOMs incorporate all materials, components, and fasteners (classified as either raw materials or purchased parts and assemblies) and characterize the materials and components by weight, manufacturing processes used, dimensions, material,

and quantity. The BOMs from the teardown analysis were then used to calculate the MPCs for each type of equipment that was torn down. The MPCs resulting from the teardowns were then used to develop an industry average MPC for each efficiency level and equipment category analyzed. Chapter 5 of the final rule TSD provides more details on BOMs and how they were used in determining the manufacturing cost estimates.

During the manufacturer interviews conducted prior to the withdrawn May 2016 CWH ECS NOPR as well as in advance of this final rule, DOE requested feedback on its engineering analysis. DOE used the information it gathered from those interviews, along with the information obtained through the teardown analysis, to refine the assumptions and data used to develop MPCs. Chapter 5 of the final rule TSD provides additional details on the teardown process.

During the teardown process, DOE gained insight into the typical technology options manufacturers use to reach specific efficiency levels. DOE also determined the efficiency levels at which manufacturers tend to make major technological design changes. Table IV.12 through Table IV.15 show the major technology options DOE observed and analyzed for each efficiency level and equipment category. DOE notes that in equipment above the baseline, and sometimes even at the baseline efficiency, additional features and functionalities that do not impact efficiency are often used to address non-efficiency-related consumer demands (e.g., related to comfort or noise when operating). DOE did not include the additional costs for options such as advanced building communication and

control systems that are included in many of the high-efficiency models currently on the market, as they do not improve efficiency but do add cost to

the model. In other words, DOE assumed the same level of non-efficiency related features and functionality at all efficiency levels.

Chapter 5 of the final rule TSD includes further detail on the exclusion of costs for non-efficiency-related features from DOE's MPC estimates.

TABLE IV.12—TECHNOLOGIES IDENTIFIED AT EACH THERMAL EFFICIENCY LEVEL FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS

Thermal efficiency level	Thermal efficiency(%)	Design changes *
E _t EL0	80	
E _t EL1	82	Increased heat exchanger area.
E _t EL2	90	Condensing heat exchanger, forced draft blower, premix burner.
E _t EL3	92	Condensing heat exchanger, forced draft blower, premix burner, increased heat exchanger surface area.
E _t EL4	95	Condensing heat exchanger, forced draft blower, premix burner, increased heat exchanger surface area.
E _t EL5	99	Condensing heat exchanger, forced draft blower, premix burner, increased heat exchanger surface area.

* The condensing heat exchanger surface area incrementally increases at each EL from E_t EL2 to E_t EL5.

TABLE IV.13—TECHNOLOGIES IDENTIFIED AT EACH THERMAL EFFICIENCY LEVEL FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

UEF level	UEF (high draw pattern) *	Design changes **
EL0—Baseline ..	0.6597 - (0.0009 × V _r).	
EL1	0.6797 - (0.0009 × V _r)	Increased heat exchanger area.
EL2	0.7497 - (0.0009 × V _r)	Electronic ignition, electromechanical flue damper or power venting; increased heat exchanger area.
EL3	0.8397 - (0.0009 × V _r)	Electronic ignition; condensing heat exchanger; power venting.
EL4	0.9297 - (0.0009 × V _r)	Electronic ignition; condensing heat exchanger; power venting; premix burner; increased heat exchanger area.
EL5	0.9997 - (0.0009 × V _r)	Electronic ignition; condensing heat exchanger; power venting; premix burner; increased heat exchanger area.

* UEF standards vary based on the test procedure draw pattern that is used to determine the UEF rating. For simplicity and because all residential-duty gas-fired storage water heaters on the market are in the high draw pattern, only the high draw pattern efficiency levels are shown.

** The condensing heat exchanger surface area incrementally increases at each EL from EL3 to EL5.

TABLE IV.14—TECHNOLOGIES IDENTIFIED AT EACH THERMAL EFFICIENCY LEVEL FOR GAS-FIRED TANKLESS WATER HEATERS

Thermal efficiency level	Thermal efficiency (%)	Design changes *
E _t EL0	80	
E _t EL1	82	Increased heat exchanger area.
E _t EL2	84	Increased heat exchanger area.
E _t EL3	92	Secondary condensing heat exchanger.
E _t EL4	94	Secondary condensing heat exchanger, increased heat exchanger surface area.
E _t EL5	96	Secondary condensing heat exchanger, increased heat exchanger surface area.

* The heat exchanger surface area incrementally increases at each EL from E_t EL0 to E_t EL2 and from E_t EL3 to E_t EL5.

TABLE IV.15—TECHNOLOGIES IDENTIFIED AT EACH THERMAL EFFICIENCY LEVEL FOR GAS-FIRED CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

Thermal efficiency level	Thermal efficiency (%)	Design changes *
E _t EL0	80	
E _t EL1	82	Increased heat exchanger area.
E _t EL2	84	Increased heat exchanger area, induced draft blower.
E _t EL3	92	Condensing heat exchanger, forced draft blower, premix burner.
E _t EL4	94	Condensing heat exchanger, forced draft blower, premix burner, increased heat exchanger surface area.
E _t EL5	96	Condensing heat exchanger, forced draft blower, premix burner, increased heat exchanger surface area.

* The heat exchanger surface area incrementally increases at each EL from E_t EL0 to E_t EL2 and from E_t EL3 to E_t EL5.

Rheem expressed doubt as to whether achieving 82 percent thermal efficiency is possible across the entire range of input rates and storage volumes without the addition of power venting technology. Rheem suggested that power venting technology should be included in the analysis at baseline and 82 percent thermal efficiency levels to reflect the regions requiring ultra-low NO_x CWHs. (Rheem, No. 24 at p. 2) However, DOE has identified multiple non-condensing ultra-low NO_x units that do not include power venting, which span a range of volumes and capacities. Therefore, contrary to Rheem's assertion, DOE does not expect that power venting would be necessary to achieve ultra-low NO_x operation and did not include a power vent for those levels.

Additionally, in response to the May 2022 CWH ECS NOPR, Bradford White commented that they disagree with DOE's assumption that unsophisticated controls can be used in condensing systems, stating that the controls need to be able to drive a blower, typically at different fan speeds, and provide diagnostics capability in order to provide the same reliability as non-condensing systems. Additionally, Bradford White stated that they disagree with the assumption that an increase in thermal efficiency would not affect heat loss because, they said, an increase in heat exchanger surface area will necessitate an increase in overall tank size to make up for lost storage volume and would likely lead to an increase in penetrations to the tank. (Bradford White, No. 23 at p. 2) Bradford White also noted that more sophisticated controls, a blower, different combustion components, and additional anodes are required to achieve condensing levels, and ensure a similar lifetime as non-condensing systems. (Bradford White, No. 23 at p. 5) Bradford White stated that there are some features in condensing water heaters that should have been included in DOE's cost analysis because these are necessary features to ensure that the product has comparable reliability to non-condensing water heaters, especially if condensing water heaters are assumed to have the same lifetime as non-condensing water heaters. *Id.*

As noted in the May 2022 CWH ECS NOPR, many condensing gas-fired storage water heaters currently on the market are often marketed as premium products and include non-efficiency-related features. Some of these features, such as built-in diagnostics and run history information, may require user interfaces, but a user interface is not necessary for operation of a condensing

gas-fired storage water heater. DOE research suggests that condensing appliances may feature as little as a push button and several light-emitting diodes on the control board to communicate the status of the unit, error codes, and so on. Some condensing models on the market also include modulating burners and gas valves, which do require more sophisticated controls. However, modulation is not required to achieve condensing operation for gas-fired storage water heaters and does not affect efficiency as measured by DOE's test procedure. Many condensing gas-fired storage water heaters currently on the market do not include modulating combustion systems or the corresponding more sophisticated controls. While a condensing combustion assembly (comprising a gas valve, blower, and premix burner) may require calibration by the manufacturer (the costs for which DOE accounts in its development of cost estimates), DOE does not believe that a technician would need a user interface included within the water heater in order to be able to successfully diagnose and service a gas-fired storage water heater with a non-modulating combustion assembly. In order to accurately assess the costs of adopting a more-stringent standard, DOE only considers costs of components that are necessary for models to achieve each efficiency level as measured by DOE's test procedure. 87 FR 30610, 30647. In response to Bradford White's assertion that increased thermal efficiency levels would necessitate increased storage volumes, DOE notes that its analysis was conducted for a fixed storage volume and DOE did account for slight adjustments to tank dimensions in its analysis of different efficiency levels.

Therefore, DOE continued to not include the costs of features such as modulation and more sophisticated controls in its costs for high-efficiency products. However, for the final rule analysis, DOE included powered anode rods in its cost models for some condensing gas-fired storage water heaters, in response to manufacturer feedback during interviews that these components may be necessary due to space constraints. In the May 2022 CWH ECS NOPR, DOE stated that the welds inside a storage water heater are typically the primary source of concern for corrosion inside a storage water heater. Further, DOE noted that a condensing gas-fired storage water heater with a multi-pass heat exchanger

design³⁷ will typically have more flue pipes and, therefore, more welds (joining the flue pipe and tank top or bottom) than would a non-condensing gas-fired storage water heater. To account for the fact that condensing gas-fired storage water heaters may require an additional anode rod to compensate for the additional welds, for the May 2022 CWH ECS NOPR analysis, DOE included the costs of an additional anode rod for residential-duty and commercial gas-fired storage water heaters with a multi-pass condensing heat exchanger design. 87 FR 30610, 30647. Manufacturer feedback during interviews conducted after the May 2022 CWH ECS NOPR suggested that in some cases adding additional (unpowered) anode rods is impractical due to internal geometry and therefore powered anode rods are required. DOE therefore included the additional costs for powered anode rods and associated controls for a subset of condensing gas-fired storage water heaters. Chapter 5 of the final rule TSD includes further detail on the exclusion of costs for non-efficiency-related features from DOE's MPC estimates and on the assumptions relating to anode rods.

In addition, Bradford White disagreed with DOE's assumption that a blower on top of a heat exchanger prevents hot air from escaping out of the flue like a flue damper. They stated that based on their testing and experience, a blower reduces standby loss but does not altogether prevent it as a damper would. (Bradford White, No. 23 at p. 2) In response, DOE notes that there are several residential-duty gas storage water heaters on the market that meet or exceed the efficiency of EL2 and include a blower but do not include a flue damper. Therefore, based on its review of the market, DOE expects that either technology option can be used to meet that efficiency level.

Additionally, for the May 2022 CWH ECS NOPR, DOE estimated that 20 percent of commercial gas-fired storage water heater shipments are manufactured with ASME construction, based on feedback from manufacturer interviews. For this share of the market, DOE applied a multiplier of 1.2 to the MPC to account for the various costs associated with ASME construction (*e.g.*, materials, labor, testing). 87 FR 30610, 30648. Bradford White commented in support of DOE's adjustment of its MPC estimates for

³⁷ In a multi-pass condensing heat exchanger design, the flue gases are forced through flue tubes that span the length of the tank multiple times. Typically, the flue gases are re-directed back through the tank via return plenums located above and below the tank.

commercial gas-fired storage water heaters for this final rule to account for the costs of American Society of Mechanical Engineers (“ASME”) construction. (Bradford White, No. 23 at p. 5) Chapter 5 of the final rule TSD includes additional details on DOE’s analysis of ASME construction for commercial gas-fired storage water heaters.

7. Manufacturing Production Costs

After calculating the cost estimates for all the components in each torn-down unit, DOE totaled the cost of materials, labor, depreciation, and direct overhead used to manufacture each type of equipment in order to calculate the MPC. DOE used the results of the teardowns on a market-share weighted average basis to determine the industry average cost increase to move from one efficiency level to the next. DOE reports the MPCs in aggregated form to maintain confidentiality of sensitive component data. DOE obtained input from manufacturers during the manufacturer interview process on the MPC estimates and assumptions.

DOE estimated the MPC at each efficiency level considered for representative equipment of each equipment category. DOE also calculated the percentages attributable to each element of total production costs (*i.e.*, materials, labor, depreciation, and overhead). These percentages are used to validate the assumptions by comparing them to manufacturers’ actual financial data published in annual reports, along with feedback obtained from manufacturers during interviews. Chapter 5 of the final rule TSD contains additional details on how DOE developed the MPCs and related results.

In response to the May 2022 CWH ECS NOPR, DOE received multiple comments regarding its MPC estimates. Rheem commented that the MPC estimates scaled from the May 2016 CWH ECS NOPR do not accurately reflect material supply chain issues and inflationary cost increases. (Rheem, No. 24 at p. 2) Rheem asserted that the MPCs presented in Table 5.12.2 of the May 2022 CWH ECS NOPR TSD are significantly underestimated and similarly stated that the MPCs in Table 5.12.4 of the May 2022 CWH ECS NOPR TSD are also significantly underestimated across all efficiency levels.³⁸ Specifically, they stated that in

Table 5.12.2 of the May 2022 CWH ECS NOPR TSD, the incremental cost to shift from non-condensing to condensing, EL2 to EL3, is especially significant, though the non-condensing MPC estimates are more reasonable. (Rheem, No. 24 at p. 4) Rheem added that the incremental cost from non-condensing to condensing in Table 5.12.4 of the May 2022 CWH ECS NOPR TSD, while low, is a reasonably accurate incremental increase. *Id.* Along the same lines, Rheem stated that the MPCs for all efficiency levels of commercial gas-fired storage water heaters are also significantly understated, and that the incremental cost between EL1 and EL2 should be much greater than \$106. Rheem commented that DOE is not fully accounting for the differences between consumer (residential-duty) and commercial water heaters. *Id.* at p. 4. (Rheem, No. 24 at p. 4) Bradford White also stated that the increase in cost between EL1 and EL2 should be greater than \$106 and cited the number of construction changes and components required to achieve condensing levels as rationale to support their assertion. (Bradford White, No. 23 at p. 5)

Bock Water Heaters stated that in Table IV.16 of the May 2022 CWH ECS NOPR,³⁹ the difference in cost between EL0 and condensing levels, specifically EL4, for commercial gas-fired storage water heaters is substantially understated. Bock Water Heaters also stated that the magnitude of the MPC estimates in Table IV.16 in the May 2022 CWH ECS NOPR were not representative of actual costs incurred by small manufacturers such as themselves. The commenter noted that although economies of scale will drive differences in MPC by manufacturer, the values presented in Table IV.16 of the May 2022 CWH ECS NOPR should be closer to an average representation of all manufacturers. (Bock Water Heaters, No. 20 at pp. 1–2)

A.O. Smith stated that there is a meaningful delta (*e.g.*, about 40 percent) in DOE’s estimated MPCs for the referenced 75 gallon product category versus what manufacturers submitted to the Department’s contractor during confidential interviews. (A.O. Smith, No. 22 at p. 4)

PHCC commented that DOE’s analysis has undervalued product costs at higher efficiency levels by omitting costs for additional features. They feel that the

net effect is a significant cost increase relative to the NOPR projections even if market pressures and streamlining of inventories leads to savings and lowers prices. (PHCC, No. 28 at p. 9) PHCC generally noted that they believe there are gaps in the economic analysis. (PHCC, No. 28 at p. 2) PHCC stated that according to a nationally known online plumbing wholesaler, one model of non-condensing 100-gallon 199,000 Btu water heater would sell for about \$8,100 (for product costs only) and the condensing version of that capacity would sell for about \$10,000. (PHCC, No. 28 at p. 10)

A.O. Smith expressed concern about the impacts of these inaccurate MPCs on the downstream analysis. (A.O. Smith, No. 22 at p. 4) Bock Water Heaters and Rheem expressed similar concern, and specifically noted that the understated MPC values may have affected the accuracy of the LCC analysis and PBP analysis. (Bock Water Heaters, No. 20 at pp. 1–2; Rheem, No. 24 at p. 1)

Bock Water Heaters, AHRI, Rheem, and PHCC also encouraged DOE to re-engage with manufacturers to verify its product cost information. (Bock Water Heaters, No. 20 at p. 2; AHRI, No. 31 at p. 5; Rheem, No. 24 at p. 1; PHCC, No. 28 at p. 10) Specifically, AHRI requested that additional manufacturer interviews be conducted relating to manufacturing processes, costs, and capacity constraints as well as impacts on small manufacturers and shipping costs. (AHRI, No. 31 at p. 5) Bradford White requested that DOE explain how it determined that improved economies of scale will offset other costs, noting that these other costs must be accounted for, will ideally be recovered, and will result from a more stringent standard (*e.g.*, capital conversion costs). (Bradford White, No. 23 at p. 6)

In response to these comments, DOE notes that it developed its MPC estimates based on teardowns of CWH equipment from a variety of manufacturers. DOE conducted several rounds of manufacturer interviews and follow-up interviews with all CWH equipment manufacturers that responded to DOE’s requests for interviews, including additional interviews conducted after the publication of the May 2022 CWH ECS NOPR. As part of the manufacturer interview process, DOE sought feedback on its MPC estimates, as well as feedback on specific component, material, labor, and assembly costs. DOE’s methodology for developing MPC estimates involves estimating the material, labor, depreciation, and overhead costs for every part and assembly within a unit. DOE agrees that

³⁸ Table 5.12.2 presents DOE’s estimated MPC, MSP, and shipping costs for residential-duty gas-fired storage water heaters at the representative rated storage volume of 75 gallons and representative input capacity of 76,000 Btu/h. Table 5.12.4 presents DOE’s estimated MPC, MSP, and

shipping costs for gas-fired circulating water heaters and hot water supply boilers at the representative input capacity of 399,000 Btu/h.

³⁹ Table IV.16 presents the MPC for commercial gas fires storage water heaters at the representative rated storage volume of 100 gallons and representative input capacity of 199,000 Btu/h.

prices for many parts have increased in recent years. Component costs were also updated for this final rule analysis, to reflect recent fluctuations and trends in cost values.

Conducting the analysis to this level of detail allows DOE to estimate the cost of units that were not physically torn down, or to estimate the costs of making slight design changes such as adding an inch of insulation or increasing heat exchanger size. In the interviews conducted prior to the withdrawn May 2016 CWH ECS NOPR, DOE presented manufacturers with MPC estimates broken down by each assembly (e.g., burner and gas valve, heat exchanger, controls) of the water heater, or even a BOM of a torn-down unit from that manufacturer for specific feedback on the estimated costs for every single part within the torn-down unit.

Regarding the incremental costs between non-condensing and condensing levels, DOE first notes that the incremental MPC estimate reflects the additional components needed to build a condensing product while subtracting components that are either replaced or obviated. For example, condensing gas-fired storage water heaters require a mechanical draft combustion system, while baseline non-condensing models do not. Conversely, baseline non-condensing commercial water heaters typically include an electromechanical flue damper, while condensing models do not because they have a mechanical-draft combustion system that obviates the need for a flue damper.

Additionally, as discussed in section IV.C.6 of this final rule, DOE standardized non-efficiency-related features across all efficiency levels. This may cause DOE's incremental MPC estimates to seem lower than that of equipment currently on the market, because in many cases condensing equipment is currently marketed as a

premium product and includes features (e.g., advanced controls or modulating gas valves) that are not necessary for condensing operation and do not affect efficiency as measured by DOE's test procedure. However, as discussed in section IV.C.6, based on feedback received during manufacturer interviews, DOE did update its cost models for a subset of condensing gas-fired storage water heaters to include powered anode rods. The updates to part prices as well as the other changes that DOE implemented increased the cost delta between noncondensing and condensing gas-fired storage water heaters from \$106.41 to \$120.65. Chapter 5 of the final rule TSD includes further detail on the exclusion of costs for non-efficiency-related features from DOE's MPC estimates.

The MPC estimates presented in this final rule and chapter 5 of the final rule TSD are market-shared weighted average MPCs, which will not necessarily be representative for every design pathway used by every manufacturer (i.e., they reflect the industry average cost). DOE research suggests that the absolute and incremental MPCs between baseline and condensing levels are higher for some manufacturers than others. Therefore, DOE included multiple design pathways that are used by a range of manufacturers and that represent the vast majority of models on the market in the market-share weighted average cost estimates, both in absolute as well as incremental terms. Similarly, in response to comments about its production volumes, DOE notes that its model incorporates different production volumes (which are also informed by manufacturer feedback) when developing the production cost estimates from different manufacturers. DOE then combined the resulting production cost estimates from different

manufacturers into its market-share weighted average cost estimates.

Finally, in response to PHCC's comment suggesting that publicly-available costs are much higher than DOE's MPCs, DOE notes that these MPCs do not account for any subsequent markups, such as from manufacturers, wholesalers, or mechanical contractors, that will increase the price for end consumers. Manufacturer markups are discussed in more detail in section IV.C.8 and other markups are discussed in section IV.D.

For the reasons summarized previously, DOE has concluded that its methodology for developing MPC estimates presented in the May 2022 CWH ECS NOPR is sound and has maintained a similar methodology for this final rule. Additionally, as discussed, DOE understands that many component prices have been increasing recently and DOE revised inputs to the development of MPC estimates based on updated information (including pricing for raw materials and purchased parts) received from manufacturers after the May 2022 CWH ECS NOPR. These changes resulted in increased MPCs. Depending on the specific product categories and efficiency levels, these changes increased MPCs by between 9 percent and 27 percent as compared to the May 2022 CWH ECS NOPR. Because prices continue to fluctuate, and the analyses for this final rule are in 2022\$ (thus reflecting average values in 2022), there may continue to be discrepancies between the MPCs and the current prices at the time of publication. Using 5-year averages for raw metals (as discussed in chapter 5 of this final rule TSD) is also expected to smooth out spikes in raw metal costs. Table IV.16, Table IV.17, and Table IV.18 of this document show the MPC for each combination of thermal efficiency and standby loss levels for each equipment category.

TABLE IV.16—MANUFACTURER PRODUCTION COSTS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS, 100-GALLON RATED STORAGE VOLUME, 199,000 BTU/H INPUT CAPACITY

Thermal efficiency level	Thermal efficiency	MPC 2022\$
E _t ELO	80	\$1,453.78
E _t EL1	82	1,489.43
E _t EL2	90	1,610.08
E _t EL3	92	1,629.39
E _t EL4	95	1,666.24
E _t EL5	99	1,733.86

TABLE IV.17—MANUFACTURER PRODUCTION COSTS FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS, 75-GALLON RATED STORAGE VOLUME, 76,000 BTU/H INPUT CAPACITY

Efficiency level	UEF (high draw pattern) *	MPC 2022\$
EL0	$0.6597 - (0.0009 \times Vr)$	\$403.91
EL1	$0.6797 - (0.0009 \times Vr)$	410.90
EL2	$0.7497 - (0.0009 \times Vr)$	512.22
EL3	$0.8397 - (0.0009 \times Vr)$	581.66
EL4	$0.9297 - (0.0009 \times Vr)$	770.60
EL5	$0.9997 - (0.0009 \times Vr)$	801.30

* UEF standards vary based on the test procedure draw pattern that is used to determine the UEF rating. For simplicity and because all residential-duty gas-fired storage water heaters on the market are in the high draw pattern, only the high draw pattern efficiency levels are shown.

TABLE IV.18—MANUFACTURER PRODUCTION COSTS FOR GAS-FIRED INSTANTANEOUS WATER HEATERS AND HOT WATER SUPPLY BOILERS

Thermal efficiency level	Thermal efficiency (%)	MPC 2022\$	
		Gas-fired tankless water heaters	Gas-fired circulating water heaters and hot water supply boilers
		250,000 Btu/h	399,000 Btu/h
E _t EL0	80	\$566.87	\$1,259.70
E _t EL1	82	575.83	1,270.95
E _t EL2	84	584.62	1,355.79
E _t EL3	92	686.29	3,146.59
E _t EL4	94	709.22	3,329.25
E _t EL5	96	741.13	3,511.91

8. Manufacturing Markups and Manufacturer Selling Price

To account for manufacturers’ non-production costs and profit margin, DOE applies a non-production cost multiplier (the manufacturer markup) to the full MPC. The resulting MSP is the price at which the manufacturer can recover all production and non-production costs and earn a profit. To calculate the manufacturer markups, DOE used data from 10-K reports⁴⁰ submitted to the U.S. Securities and Exchange Commission (“SEC”) by the three publicly-owned companies that manufacture CWH equipment. DOE averaged the financial figures spanning the years 2008 to 2013 in order to calculate the initial estimate of markups for CWH equipment for this rulemaking. During interviews conducted ahead of the withdrawn May 2016 CWH ECS NOPR, DOE discussed the manufacturer markup with manufacturers and used the feedback to modify the manufacturer markup calculated through review of SEC 10-K reports. DOE considers the manufacturer markup published in the May 2016 CWH ECS NOPR to be the best publicly available information. In

this final rule, DOE is maintaining the manufacturer markups used previously in the May 2016 CWH ECS NOPR, as DOE has not received any additional information or data to indicate that a change would be warranted.

To calculate the MSP for CWH equipment, DOE multiplied the calculated MPC at each efficiency level by the manufacturer markup. See chapter 12 of the final rule TSD for more details about the manufacturer markup calculation and the MSP calculations.

9. Shipping Costs

Manufacturers of CWH equipment typically pay for shipping to the first step in the distribution chain. Freight is not a manufacturing cost, but it is a substantial cost incurred by the manufacturer that is passed through to consumers. Therefore, DOE accounted for shipping costs of CWH equipment separately from other non-production costs.

DOE research suggests that trailers either cube-out (*i.e.*, run out of floor space or storage volume) or weigh-out (*i.e.*, reach their allowed weight limits). Because storage water heaters are filled with air during shipping and instantaneous water heaters and hot water supply boilers are typically lighter than commercial storage water heaters,

DOE research suggests that trailers filled with CWH equipment will typically cube-out before they weigh-out. Additionally, because the space above and around the CWH equipment can be filled with smaller and/or lighter products, DOE understands that trailers are typically filled in a way that maximizes the available storage space. As a result, changes to the cubic volume of the product are just as critical as changes to the footprint in determining the change to the shipping cost as unit size increases. DOE’s shipping cost analysis only includes estimates of the shipping costs for CWH equipment, not for other products that may be included in the same truckload, although CWH equipment is likely to be shipped alongside other products, presumably to make efficient use of the space in shipping trailers.

Therefore, in this rulemaking, shipping costs for all classes of CWH equipment were determined based on the cubic volume occupied by the representative units. DOE first calculated the cost per usable unit volume of a trailer, using the standard dimensions of a volume of a 53-foot trailer and an estimated 5-year average cost per shipping load that approximates the cost of shipping the equipment from the middle of the

⁴⁰ U.S. Securities and Exchange Commission, Annual 10-K Reports (Various Years) (Available at sec.gov).

country to either coast. Based on its experience with other rulemakings, DOE recognizes that trailers are rarely shipped completely full and, in calculating the cost per cubic foot, assumed that shipping loads would be optimized such that on average 80 percent of the volume of a shipping container would be filled with cargo. The calculated cost to ship each unit was the ratio of the unit's total volume (including packaging) divided by the volume of the shipping container expected to be filled with cargo and multiplied by the total cost of shipping the trailer. DOE recognizes that its shipping costs do not necessarily reflect how every unit of CWH equipment is shipped, that it is possible that units are shipped differently, and that the corresponding shipping costs may differ from DOE's estimates based on a variety of factors such as composition of the units in a given shipping load and the actual manufacturing location and shipment destination. However, DOE's analysis is intended to provide an estimate of the shipping cost that is representative of the cost to ship the majority of CWH equipment shipments and cannot feasibly account for the shipping costs of every individual unit shipped. Chapter 5 of the final rule TSD contains additional details about DOE's shipping cost assumptions and DOE's shipping cost estimates.

Rheem expressed support for DOE's method of calculating a representative shipping cost, and notes that a trailer volume of 80 percent is reasonably conservative. (Rheem, No. 24 at p. 8) However, Bradford White suggested that DOE's use of a 5-year average in shipping costs is not accurate due to dramatic increases in shipping costs in the past 2 to 3 years. (Bradford White, No. 23 at p. 6).

In response, for this final rule DOE used the most current shipping costs available at the time of the analysis to determine the per unit shipping cost, rather than a 5-year average. DOE agrees with Bradford White that this more accurately reflects current costs.

D. Markups Analysis

The markups analysis develops appropriate markups in the distribution chain (e.g., retailer markups, distributor markups, contractor markups, and sales taxes) to convert the estimates of manufacturer selling price derived in the engineering analysis to consumer prices, which are then used in the LCC and PBP analysis and in the manufacturer impact analysis. At each step in the distribution channel, companies mark up the price of the

product to cover business costs and profit margin.

DOE developed baseline and incremental markups for each actor in the distribution chain. DOE developed supply chain markups in the form of multipliers that represent increases above equipment purchase costs for key market participants, including CWH equipment wholesalers/distributors, retailers, and mechanical contractors and general contractors working on behalf of consumers. Baseline markups are applied to the price of products with baseline efficiency, while incremental markups are applied to the difference in price between baseline and higher-efficiency models (the incremental cost increase). The incremental markup is typically less than the baseline markup and is designed to maintain similar per-unit operating profit before and after new or amended standards.⁴¹

1. Distribution Channels

Four different markets exist for CWH equipment: (1) new construction in the residential buildings sector, (2) new construction in the commercial buildings sector, (3) replacements in the residential buildings sector, and (4) replacements in the commercial buildings sector. DOE developed eight distribution channels to address these four markets.

For the residential and commercial buildings sectors, DOE characterizes the replacement distribution channels as follows:

- Manufacturer → Wholesaler → Mechanical Contractor → Consumer
- Manufacturer → Manufacturer Representative → Mechanical Contractor → Consumer
- Manufacturer → Retailer → Mechanical Contractor → Consumer

DOE characterizes the new construction distribution channels for the residential and commercial buildings sectors as follows:

- Manufacturer → Wholesaler → Mechanical Contractor → General Contractor → Consumer
- Manufacturer → Manufacturer Representative → Mechanical Contractor → General Contractor → Consumer
- Manufacturer → Retailer → General Contractor → Consumer

⁴¹ Because the projected price of standards-compliant products is typically higher than the price of baseline products, using the same markup for the incremental cost and the baseline cost would result in higher per-unit operating profit. While such an outcome is possible, DOE maintains that in markets that are reasonably competitive it is unlikely that standards would lead to a sustainable increase in profitability in the long run.

In addition to these distribution channels, there are scenarios in which manufacturers sell CWH equipment directly to a consumer through a national account, or a consumer purchases the equipment directly from a retailer. These scenarios occur in both new construction and replacements markets and in both the residential and commercial sectors. In these instances, installation is typically accomplished by site personnel. These distribution channels are depicted as follows:

- Manufacturer → Consumer
- Manufacturer → Retailer → Consumer.

2. Comments on the May 2022 CWH ECS NOPR

Joint Gas Commenters note that while markups vary between new and replacement, there is very little difference between the values. (Joint Gas Commenters, No. 34 at p. 19) DOE relies on U.S. Census and other sources of data, some of which cannot be separated accurately into new and replacement segments, or when it can be separated the differences are small. When component pieces are combined to form markups, the new and replacement markup factors incorporate either the same inputs or inputs with small variations.

3. Markups Used in This Final Rule

Consistent with the May 2022 CWH ECS NOPR, to develop markups for this final rule, DOE utilized several sources, including the following: (1) The Heating, Air-Conditioning & Refrigeration Distributors International ("HARDI") 2013 Profit Report⁴² to develop wholesaler markups; (2) the 2020 ACCA Cool Insights document containing financial analysis for the heating, ventilation, air-conditioning, and refrigeration ("HVACR") contracting industry⁴³ to develop mechanical contractor markups; (3) the U.S. Census Bureau's 2017 Economic Census data⁴⁴ for the commercial and institutional building construction industry to develop mechanical and general contractor markups; and (4) the U.S. Census Bureau's 2017 Annual

⁴² Heating Air-conditioning & Refrigeration Distributors International. Heating, Air-Conditioning & Refrigeration Distributors International 2013 Profit Report.

⁴³ Air Conditioning Contractors of America (ACCA). Cool Insights 2020: ACCA's Contractor Financial & Operating Performance Report (Based on 2018 Operations). 2020.

⁴⁴ U.S. Census Bureau. 2017 Economic Census Data. 2020. Available at www.census.gov/programs-surveys/economic-census.html. The 2017 Economic Census is the most recent census available. The next census, the 2022 Economic Census, is scheduled to begin releasing results in 2024.

Retail Trade Survey⁴⁵ data to develop retail markups.

In addition to markups of distribution channel costs, DOE derived State and local taxes from data provided by the Sales Tax Clearinghouse.⁴⁶ Because both distribution channel costs and sales tax vary by State, DOE developed its markups to vary by State. Chapter 6 of the final rule TSD provides additional detail on markups.

E. Energy Use Analysis

The purpose of the energy use analysis is to assess the energy requirements (*i.e.*, annual energy consumption) of CWH equipment described in the engineering analysis for a representative sample of building types that utilize the equipment, and to assess the energy-savings potential of increased equipment efficiencies. The energy use analysis estimates the range of energy use of CWH equipment in the field (*i.e.*, as the equipment is actually used by consumers). The energy use analysis provides the basis for other analyses DOE performed, particularly assessments of the energy savings and the savings in consumer operating costs that could result from adoption of amended or new standards.

The energy use for commercial water heaters varies by type of commercial or residential building, by region, and by type and size of CWH equipment. As explained in more detail below, and in the NOPR, for this rulemaking, the energy use for water heaters is estimated by identifying the various commercial buildings or residential buildings in EIA's 2020 CBECS or 2009 RECS that utilize natural gas for water heating and, for these buildings, estimating the hot water used in gallons per day, taking into account the building type and the presence of specific building activities. At the same time, DOE identified from the same sample those buildings with estimated peak hot water loads large enough to need commercial water heaters of the type examined in this rulemaking. DOE's assessment of peak hot water loads considered characteristics of the individual building including occupancy, building type, floorspace, and other specific sampled data that are used in sizing water heating systems, *e.g.* number of rooms in hotel or dormitory, beds in a health care facility, seats in a restaurant, etc. When considering multifamily residential, only buildings that indicate the use of central hot water systems

servicing multiple apartments are considered candidates for commercial water heaters. For those buildings with large enough peak hot water demand, DOE used the estimated annual hot water usage (gallons/day) for each of the buildings within the sample, the incoming water temperatures, by month, derived for the location, and the expected hot water delivery temperature to calculate the annual hot water load (Btu/yr) for the building, including additional piping circulation energy losses where appropriate. DOE converts this to an average hot water load in (Btu/day).

For each type of commercial water heater, DOE calculates the output capacity of the representative size water heater at design conditions and at the baseline efficiency level, taking into account the usable storage volume, where applicable, and the length of the peak sizing period in hours based upon industry sizing guidance. Then for each of the above buildings, DOE divides the daily hot water load requirements by the hourly capacity of the water heater over the sizing period to get the daily average burner operating hours necessary to meet the above hot water load for the baseline unit at full output. Then for the remaining hours in the day, DOE uses the water heater hourly standby energy loss rate to calculate daily average standby loss energy consumption. The daily energy consumption at baseline efficiency is calculated as the operating hours to meet the building hot water load times the full load input of the water heater plus the daily energy consumed to meet the water heater standby loss. The average daily energy for the equipment is then multiplied by the number of days in a year to get annual energy consumption.

For the rulemaking, DOE is assessing the effect efficiency improvements have on energy consumption. For the representative equipment in each class, the burner operating hours to meet the building load requirements decreases with improved efficiency. DOE uses the decreased operating hours to calculate the annual energy consumption for the water heater at each higher efficiency level considered. Chapter 7, appendix 7A, and appendix 7B present further detail regarding the water sizing methodology and estimation of building hot water loads and corresponding energy consumption by efficiency level.

DOE estimated the annual energy consumption of CWH equipment at specified energy efficiency levels across a range of commercial and multifamily residential buildings in different climate zones, with different building characteristics, and including different

water heating applications. The annual energy consumption includes use of natural gas (or liquefied petroleum gas ("LPG")) as well as use of electricity for auxiliary components.

DOE developed representative hot water volumetric loads and water heating energy usage for the selected representative products for each equipment category and building type combination and efficiency level analyzed. This approach used by DOE captures the variability in CWH equipment use due to factors such as building activity, schedule, occupancy, tank losses, and distribution system piping losses.

CWH equipment analyzed in this rulemaking is used in commercial building applications and certain residential applications, particularly multifamily buildings. For commercial sector buildings, DOE used the daily load schedules and normalized peaks from the 2013 DOE Commercial Prototype Building Models⁴⁷ to develop gallons-per-day hot water loads for the analyzed commercial building types.⁴⁸ For this final rule, DOE assigned the corresponding hot water loads on a square-foot basis to associated commercial building records in the EIA's 2018 CBECS⁴⁹ in accordance with their detailed principal building activity subcategories. For residential building types, DOE used the hot water loads model developed by Lawrence Berkeley National Laboratory ("LBNL") for the 2010 rulemaking for "Energy Conservation Standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters."⁵⁰ For this final rule, DOE applied this model to the residential building records in the EIA's 2009 Residential Energy Consumption Survey ("RECS").⁵¹ For

⁴⁷ U.S. Department of Energy—Office of Energy Efficiency and Renewable Energy. Commercial Prototype Building Models. 2013. Available at www.energycodes.gov/prototype-building-models.

⁴⁸ Such commercial building types included the following: small office, medium office, large office, stand-alone retail, strip mall, primary school, secondary school, outpatient healthcare, hospital, small hotel, large hotel, warehouse, quick service restaurant, and full-service restaurant.

⁴⁹ U.S. Energy Information Administration (EIA). 2018 Commercial Building Energy Consumption Survey (CBECS) Data. 2018. Available at www.eia.gov/consumption/commercial/data/2018/.

⁵⁰ U.S. Department of Energy—Office of Energy Efficiency and Renewable Energy. Final Rule Technical Support Document: Energy Conservation Standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters. April 8, 2010. EERE-2006-STD-0129-0149. Available at www.regulations.gov/#/documentDetail;D=EERE-2006-STD-0129-0149.

⁵¹ U.S. Energy Information Administration (EIA). 2009 Residential Energy Consumption Survey (RECS) Data. 2009. Available at www.eia.gov/consumption/residential/data/2009/.

⁴⁵ U.S. Census Bureau. 2017 Annual Retail Trade Survey. 2019. Available at www.census.gov/retail/.

⁴⁶ *The Sales Tax Clearing House*. 2022. Available at www.thestc.com/STrates.stm. Last accessed December 4, 2022.

the May 2022 CWH ECS NOPR DOE decided not to use the 2015 RECS because it lacked information including the number of apartments and the number of floors in the building of apartment observations, and other information such as householder age distributions was less robust than in the 2009 RECS dataset. Because of the data issues with the 2015 RECS and because the 2020 RECS was not yet final at the time the final rule analysis was completed, DOE maintained use of the 2009 RECS. For RECS housing records in multi-family buildings, DOE focused only on apartment units that share water heaters with other units in the building. Since the LBNL model was developed in part to analyze individual apartment hot water loads, DOE had to modify it for the analysis of shared water heater/whole building loads. DOE established statistical average occupancy of RECS apartment unit records when determining the individual apartment unit's load. DOE also developed individual apartment loads as if each were equipped with a storage water heater in accordance with LBNL's methodology. Then, DOE multiplied the apartment unit's load by the number of representative units in the building to determine the building's total hot water load.

DOE converted daily volumetric hot water loads into daily Btu energy loads by using an equation that multiplies a building's gallons-per-day consumption of hot water by the density of water,⁵² specific heat of water,⁵³ and the hot water temperature rise. To calculate temperature rise, DOE developed monthly dry bulb temperature estimates for each U.S. State using typical mean year ("TMY") temperature data as captured in location files provided for use with the DOE EnergyPlus Energy Simulation Software.⁵⁴ Then, these dry bulb temperatures were used to develop inlet water temperatures using an equation and methodology developed by the National Renewable Energy Laboratory ("NREL").⁵⁵ DOE took the difference between the building's water heater set point temperature used in its energy analysis and the inlet temperature to determine temperature rise (see chapter 7 of the final rule TSD

for more details). In addition, DOE developed building-specific Btu load adders to account for the heat losses of building types that typically use recirculation loops to distribute hot water to end uses. DOE converted daily average hot water building loads (calculated for each month using monthly inlet water temperatures) to annual water heater loads for use in determining annual energy use for the representative water heaters at each efficiency level analyzed.

DOE developed a maximum hot water loads methodology for buildings for determining the number of representative equipment needed using the data and calculations from a major water heater manufacturer's sizing calculator.⁵⁶ DOE notes that the sizing calculator used was generally more comprehensive and transparent in its maximum hot water load calculations than other publicly available sizing calculators identified. For the final rule this methodology was applied to selected commercial building records in 2018 CBECS and residential building records in 2009 RECS to determine peak gallons-per-hour requirements, assuming a temperature rise specific to the building, for sizing of the water heater system. For buildings with sizing based greater than one hour sizing periods, the average gallons per hour requirement during the peak was developed. DOE divided these peak hourly hot water loads by the average hourly hot water delivery capability of the baseline representative model of each equipment category over the sizing period, including in the case of circulating water heaters and boilers the usable hot water storage of external storage tanks over that period, to determine the number of representative water heater units required to service the maximum load. For each representative unit of the CWH equipment analyzed for the final rule, DOE examined the individual CBECS and RECS building peak hot water loads to find those building observations whose loads indicated a need of at least 0.9 water heaters, based on the representative model analyzed, to fulfill their maximum load requirements. Due to the maximum input capacity and storage specifications of residential-duty commercial gas-fired storage water heaters, DOE limited the buildings sample of this equipment class to building records requiring four or fewer representative water heaters to fulfill maximum load since larger maximum

load requirements are more likely served by larger capacity equipment. For gas-fired tankless water heaters, a similar limit of four units per building was set. For the commercial gas-fired storage and the instantaneous water heaters and hot water supply boiler equipment classes, DOE set an upper limit at 40 units. DOE recognizes that these two equipment classes cover a wide range of capacities, and 40 units is equivalent to a much smaller of very large units in the same equipment classes. This limit had the effect of eliminating a small number of exceptionally large loads from consideration. In addition, for gas-fired tankless water heaters, an adjustment factor was applied to the first-hour capability to account for the shorter time duration for sizing this equipment, given its minimal stored water volume. DOE used the Modified Hunter's Curve method,⁵⁷ which estimates a maximum water demand of a building accounting for statistical probabilities for simultaneous fixture use for sizing of instantaneous water heaters to develop the adjustment factors for commercial gas-fired tankless water heaters. The applied adjustment factor modifies the first hour delivery capability calculations of commercial gas-fired tankless water heaters to account for the shorter time duration used to size for a very short "instantaneous" peak for this equipment, given the minimal volume of stored water to buffer meeting short duration peaks during the 1-hour maximum load period used for the first hour rating. Gas-fired circulating water heaters and hot water supply boilers as a class were teamed with unfired storage tanks to determine their first-hour capabilities since this is the predominant installation approach for this equipment. (See appendix 7B of the final rule TSD).

For each equipment type being examined, DOE sampled all RECS and CBECS buildings that were deemed suitable for the development of the representative loads for that equipment type using a Monte Carlo analysis in the LCC model; the Monte Carlo analysis randomly generates values for uncertain variables from expected distributions of these variables to simulate input variability in a model (see appendix 8B of the final rule TSD for a more detailed description). For each building sampled, DOE divided the buildings daily average hot water demand, in Btu, including pipe circulating losses, by the product

⁵² DOE used 8.29 gallons per pound.

⁵³ DOE used 1.000743 Btu per pound per degree Fahrenheit.

⁵⁴ U.S. Department of Energy—Office of Energy Efficiency and Renewable Energy. EnergyPlus Energy Simulation Software. TMY3 data.

⁵⁵ Hendron, R. *Building America Research Benchmark Definition, Updated December 15, 2006*. January 2007. National Renewable Energy Laboratory: Golden, CO. Report No. TP-550-40968. Available at www.nrel.gov/docs/fy07osti/40968.pdf.

⁵⁶ A.O. Smith. *Pro-Size Water Heater Sizing Program*. Available at www.hotwatersizing.com/. Last accessed in December 20, 2022.

⁵⁷ PVI Industries Inc. "Water Heater Sizing Guide for Engineers," Section X, pp. 18–19. Available at oldsizing.pvi.com/pv592%20sizing%20guide%202011-2011.pdf.

of the output hot water heating capability of the representative water heater unit examined and the total number of representative units required for the sampled building to provide estimate the average daily hours of full load operation to serve the building hot water needs for that representative unit. The remainder of the hours in the day represent hours of standby mode. For DOE's analysis, the number of water heaters allocated to a specific building was held constant at the baseline efficiency level, but as the heating output of each representative unit increases with thermal efficiency, a water heater's hours of operation decreased as its thermal efficiency improved. This decrease in operating hours, in combination with changes in standby hours and standby loss performance at each efficiency level, results in changes in energy consumption at each efficiency level above the baseline. In the case of residential-duty gas-fired storage water heaters, DOE estimated the thermal efficiency and standby loss levels for each UEF level developed in the Engineering Analysis using the same methodology as for the NOPR. This conversion is discussed in Chapter 7 of the final rule TSD. Section IV.C.4 of this final rule and chapter 5 of the final rule TSD include additional details on the thermal efficiency, standby loss, and UEF levels identified in the engineering analysis.

DOE received multiple comments on the use of CBECS and RECS data in its energy use analysis presented in the May 2022 CWH ECS NOPR. For the NOPR, DOE's analysis used the 2012 CBECS and 2009 RECS in developing building samples. Multiple stakeholders stated that DOE should use newer data, pointing specifically to the availability of CBECS 2018 and RECS 2020 data. (AHRI, No. 31 at p. 2; Joint Gas Commenters, No. 34 at p. 33; Rheem, No. 24 at p. 2) Patterson-Kelley stated that they reviewed the most current versions of RECS and CBECS with the understanding that these would be used in the final rule. (Patterson-Kelley, No. 26 at p. 4) CA IOUs indicated support for DOE's proposed minimum efficiency standards if DOE updated the analyses with newer data including specifically the more recent CBECS. (CA IOUs, No. 33 at p. 1) Similarly, the Joint Gas Commenters urged DOE to use the most current available data and stated DOE should halt the rulemaking until this data was appropriately evaluated. (Joint Gas Commenters, No. 34 at p. 33)

In response to comments that DOE should use the latest CBECS and RECS, for the final rule, DOE used the 2018

CBECS, but maintained use of the 2009 RECS data. The CBECS 2018 data is the most current CBECS dataset for which the commercial building characteristics data used by DOE is available. DOE considered using the RECS 2015 and 2020 datasets. Both datasets lack the number of floors and the number of apartments in apartment buildings, as well as some disaggregated data concerning the ages of building occupants, all of which are needed for the analysis and which were included in the 2009 RECS. Additionally, the 2020 RECS was not finalized when the final rule analysis was being completed, meaning that data could change after the final rule analysis was completed which could complicate third-party review of DOE's models and data after the final rule is published. Because both the 2015 RECS and 2020 RECS lack key data fields, and additionally because the 2020 RECS dataset was not yet finalized, DOE used 2009 RECS data for this final rule. It should be noted that the update to CBECS 2018 did not represent a change in the methodology or tools used to generate results. Rather, using the more recent CBECS data set is functionally little different than updating other data sets such as using 2022 RSMean labor rates rather than 2021 RSMean labor rates. DOE replaced the CBECS data in the LCC model with little difficulty given that all relevant data fields existed in the new CBECS data.

Patterson-Kelley questioned the use of RECS and CBECS given concerns about the appropriateness of the data. (Patterson-Kelley, No. 26 at p. 4) WM Technologies expressed certain concerns with the appropriateness of DOE's use of RECS and CBECS data sets in its analysis and provided several comments, particularly examining the 2015 RECS and 2018 CBECS data, which was the most recent available at that time. In particular they commented that (1) the RECS process normalized data toward the median values through a process referred to as minimum variance estimation and therefore the variation in the data was minimized, (2) RECS data do not agree with other surveys on energy use due to how questions were asked and data edited, and (3) that more than one half of the 2015 RECS square footage data were estimated using an imputation method, and the overall imputation rate of these data was 65.6 percent. WM Technologies further states that the documented variation in the published RECS data was not included in the LCC analysis, which is expected to become significant when the department

reviews subgroups and must be corrected to assure an accurate analysis. With respect to CBECS, WM Technologies stated that the primary sampling unit for major cities focused on areas with significant commercial activity while other primary sampling units were selected at random and that this biased building selection toward high revenue generating areas. The noted sampling rates for large buildings were higher than small buildings and thus overstates energy consumption for the LCC, that subgroups within CBECS with highly variable energy consumption were sampled at a higher rate than subgroups with less variable energy consumption, and finally the energy consumption from CBECS is an estimate at best and includes a category of end use as other, resulting in significant uncertainty in results. (WM Technologies, No. 25 at pp. 3–4)

DOE considered the comments from WM Technologies on the use of RECS and CBECS data sets; however, DOE disagrees with the WM Technologies conclusions with regard to DOE's analysis.

Regarding the discussion of the RECS use of minimum variance estimation, this is discussed in EIA's 2015 Consumption and Expenditures Technical Documentation Summary⁵⁸ when calibrating the end use estimates from modeling end uses for each household to the measured annual energy use totals that are collected by EIA in the development of RECS. It is not clear from the WM Technologies comment exactly what is the concern with EIA's use of this in calibration; however, DOE's use of RECS for this rulemaking is as a source for household characteristics data used for the generation of hot water loads. DOE is not using the 2015 RECS and does not use energy end use estimates from the 2015 RECS. Thus, DOE does not believe this discussion of minimum variance estimation is relevant to this rulemaking.

WM Technologies also notes that 2015 RECS data do not agree with other surveys on energy use due to how questions were asked and data edited, and cites EIA's web page for the discussion of this, although generally not providing detail on why this variation was considered problematic except expressing the concern with the high ratio of imputed data for household square footage. In response to these points, DOE notes that the 2015 RECS

⁵⁸ U.S. Energy Information Administration (EIA). 2015 Consumption and Expenditures Technical Documentation Summary. May 2018. Available at www.eia.gov/consumption/residential/reports/2015/methodology/pdf/2015C&EMethodology.pdf.

was not used in this final rule and to this extent the comments are not applicable to the final rule analysis. In reviewing the cited discussion from EIA, DOE notes that much of the discussion is focusing on end use estimation. In fact, in the discussion from EIA comparing against previous RECS analysis, EIA specifically notes that it believes the updated modeling and calibration method are an improvement over previous RECs estimation methods. However, other differences noted by EIA were that it was a smaller sample than the 2009 RECS and that it relied extensively on self-administered web and paper questionnaires to supplement the traditional, computer-assisted personal interview and indicated that where household data relied exclusively on web and paper inputs, all square footage estimates for homes were imputed. There is discussion provided by EIA comparing or contrasting RECS with other Federal studies that may provide insight into residential energy demand. In this discussion, EIA provides a very clear note that these studies are optimized to serve a different purpose from the RECS and so their results for similar items may vary from the RECS. The RECS study is designed specifically for the analysis of current U.S. household energy consumption, unlike the other studies it is contrasted with. With regard to the WM Technologies concern that CBECS and the building sampling are biased toward large buildings in commercial areas, resulting in overstating consumption in the LCC—there are several reasons why this is incorrect. First, CBECS samples are assigned weights where the assignment process uses data from other larger building data “frames” and sources so that the weight represents the building itself and other similar buildings within the U.S. population. As the samples are in fact weighted and DOE uses these weights when sampling within the LCC, the oversampling of large buildings does not translate to a bias in the final CBECS weighted sample. Second, DOE’s use of CBECS for this rulemaking is for the development of building characteristics data and not based on the end use energy estimates. In its review, DOE does not feel that the concerns expressed by WM technologies regarding RECS or CBECS are important or relevant to the use of these data sets in the final rule analysis.

DOE notes that the analysis accounts for recirculation loop losses in average daily hot water loads. In its final rule analysis, DOE assigned insulated supply, return, and riser recirculation

loop piping to sampled buildings with a year of construction of 1970 or later. For buildings constructed prior to 1970, DOE assigned uninsulated supply piping to 25 percent of sampled buildings and uninsulated return piping to 25 percent of sampled buildings. DOE acknowledges that its energy use analysis may not account for the extent of all possible heat losses such as from poor control of circulating system flow, uninsulated or poorly insulated piping, leaks or other higher than expected tap flows, and poor water heater performance due to aging. These issues may result in higher hot water energy use than predicted by DOE’s models. Due to the lack of field data on the magnitude of these energy losses across building applications, vintage, and location, DOE did not further attempt to include them into its analysis. DOE develops daily hot water loads for each building analyzed and normalizes building hot water loads to the hot water service capacity of the representative products using industry sizing tools and methodologies. DOE acknowledges that its approach for a given building loads treats multiple units for CWH equipment as equally sharing the hot water load.

To the extent that commenters may be concerned whether the analysis fairly represents individual water heater operation for water heaters in buildings in which multiple representative model units operate to meet the building’s load, DOE notes that this would be system and building specific and its analysis may not capture the extremes of hot water loading on an individual water heater in all applications but would capture the average hot water loads on the equipment in those buildings. DOE notes that its analysis examines maximum sizing hot water loads and average daily hot water loads of 17 commercial building applications and 4 residential building applications, with additional variability in terms of specific end uses where identified in the CBECS or RECS data including variability based on inputs such as occupants, water fixtures, clothes washers, dishwashers, and food service as well as water main inlet and outlet temperatures for estimating hot water loads. It also includes estimates of piping losses in circulating systems. Chapter 7 and appendix 7B in the final rule TSD describe the calculation of hot water loads in the building. Appendix 7B also provides a table of building types that DOE assumed to use recirculation loops, as well as the operation hours of the recirculation loops.

All of this variability is accounted for in the weighted results of the Monte Carlo analysis. While there may be further variability in hot water loads between multiple, individual water heaters operating in unison to meet a building’s hot water load, DOE’s analysis focuses on equipment operation over longer timeframes and developing representative loads for the equipment in the building. Equipment operated in unison in a building will experience, on average and over large populations represented, energy use reflecting the per-unit averaged building hot water load. As such, DOE did not directly account for the variability in operation of individual equipment when multiple units are installed and operated in tandem. DOE notes that with condensing equipment in particular, operation in parallel under part-load conditions can result in higher thermal efficiencies than those obtained under rated conditions, which reflect peak load thermal efficiencies. However, due to lack of detail of actual multiple water heaters installations exist the sampled buildings, DOE did not take this potential increase in field-efficiency into account.

DOE notes that its sizing methodology was based on industry sizing tools and guidelines and was used to establish peak water heat loads that would reflect the anticipated peak in the buildings based on those guidelines and known or estimated building characteristics. These peaks were then used to establish the number of representative units (by CWH type) that would be installed to meet the anticipated peak loads, with the hot water load apportioned across the estimated number of representative units needed. DOE notes that its sizing methodology was customized to the building application, size, and accounted for building size, occupancy, and specific end uses. For the hot water delivery capability of each equipment category, DOE uses representative equipment designs. The representative design of each equipment category has a specific input capacity and volume as shown in Table IV.5 of this document. These representative specifications are used in a calculation of hot water delivery capability. For each equipment category, DOE sampled CBECS and RECS building loads in need of at least 0.9 water heaters of the representative capacity, based on the representative model analyzed, to fulfill their maximum load requirements, and allows multiple representative units to serve the building load. As a result, DOE does not adjust input capacity and

volume of equipment for a given building application.

In addition, DOE assumed the circulating water heater equipment class is equipped with a storage tank since this is the predominant installation configuration for this equipment. For this equipment class and representative input capacity, the analysis used a variable storage tank size of 250 to 350 gallons in volume, based on a triangle distribution consistent with manufacturer literature guidance as to typical storage tanks for the representative equipment input rating. However, DOE recognizes that for this equipment class as well, further variation in the storage tank sized with the equipment might also occur based on each individual building owner's preferences. DOE retained this use of representative installation practices for the final rule analysis. Chapter 7 of the final rule TSD provides more information on the hot water delivery calculations for circulating water heaters.

DOE's energy use analysis used the A.O. Smith Pro Size Water Heating Sizing Program as a primary resource in determining the type, size, and number of water heaters needed to meet the hot water demand load applications. DOE did not identify a universal industry sizing methodology and reviewed a number of online sizing tools prior to its decision to use A.O. Smith's online sizing tool as the basis for its water heater sizing methodology. Based on DOE's initial review, the chosen sizing tool was most appropriate because of its transparency allowing it to be evaluated for fixture flow assumptions and other industry-accepted sizing methodologies. This tool provided peak-hour delivery in its sizing output, whereas several others manufacturing sizing tools reviewed provided equipment recommendations and/or equipment sizes only in their outputs. DOE reviewed the relationships between input data and outputs for this tool in detail for use in establishing the basis for its sizing calculations and made certain adjustments to improve the accuracy of its maximum load determinations, as shown in detail in appendix 7B.

DOE utilized the Modified Hunter's Curve approach for developing hot water delivery adjustment factors, or divisors, to adapt the sizing methodology for water heaters with storage to a methodology suitable for sizing water heaters without storage. DOE used the PVI Industries "Water Heater Sizing Guide for Engineers" which implements the Modified Hunter's Curve approach to develop the

adjustment factors for sizing tankless water heaters. DOE's research indicates that mechanical contractors and design engineers commonly rely on this general sizing methodology for determining appropriately-sized equipment to install in commercial and residential buildings, and the PVI tool captures the need and general industry methodology required to size tankless water heating equipment to address short-duration loads peaks. In addition, DOE consulted the *ASHRAE Handbook of HVAC Applications*,⁵⁹ which provides guidance for sizing tankless and instantaneous water heaters. While the ASHRAE guidance also illustrates the Modified Hunter's Curve methodology, it was not as clear in application as the guidance provided by PVI tool. In this area of CWH equipment selection, DOE research indicates that manufacturer sizing tools are more commonly used than ASHRAE handbooks. Because of the lack of storage and the need to meet instantaneous building loads at sub-hour intervals, the sizing strategy for instantaneous water heaters results in a lower hot water service and lower energy consumption per unit of input capacity than is the case for either storage water heaters, or equipment like circulating water heaters and hot water boilers where separate storage tanks are typically used.

To clarify how DOE developed the inlet water temperature, DOE conducted its energy use analysis using a Monte Carlo approach, selecting commercial building records from CBECS and residential building records from RECS in the development of maximum and daily hot water loads. Daily hot water loads were converted to energy use based on the equipment operation necessary to meet the load. Each building record's location is associated with geographic regions composed of one or multiple U.S. States in the case of RECS (referred to herein as "reportable domains"), and a Census Division in the case of CBECS. Using this location, DOE assigned an average monthly inlet temperature for the location the building resided in using monthly dry bulb temperature estimates for each location based on the TMY temperature data as captured in location files provided for use with the DOE EnergyPlus energy simulation software,⁶⁰ along with an equation and

methodology developed by NREL.⁶¹ Where CBECS data are used, DOE used weighted average data across the states within the division, with data being weighted by State population. Where RECS data are used, DOE used weighted average data across the states within the reportable domain, with data being weighted by State population. DOE then summed the daily hot water loads of each month to determine the monthly hot water loads. DOE then summed the monthly hot water loads to determine annual hot water loads. For a given hot water usage, as inlet temperature is colder, energy use increases, since the water heater must impart more heat to bring the inlet temperature to the set point temperature. Chapter 7 of the final rule TSD provides detailed information on how energy use was calculated using inlet water temperature.

As stated, DOE developed daily hot water loads for building applications using the building service water heating schedules in the 2013 DOE commercial prototype building models. While there may be greater variation of individual usage schedules in the general population even within a building type, DOE's use of these typical schedules and weighting by the relative frequency of the buildings in the general population is appropriate for the energy use analysis.

DOE notes that there is limited actual data on commercial hot water usage in the field. To the extent that stakeholders feel that DOE's analysis may under or overstate hot water usage, DOE notes that the analysis reflects both variation in direct hot water loads, inlet and outlet temperatures and piping/recirculation losses with a referenced estimating procedure. While DOE recognizes that additional energy losses can occur in the field, to the extent that these losses occur, it suggests that the results of DOE's energy use analysis are conservative. In this final rule, DOE used schedules and loads from ASHRAE prototype models with augmented data reflecting recent standards affecting water heater used by commercial appliances and equipment. The commercial building hot water loads based on the daily schedules and square footage from the scorecards of the 2013 DOE commercial prototype building

Energy Simulation Software. TMY3 data. Available at apps1.eere.energy.gov/buildings/energyplus/cfm/weather_data3.cfm/region=4_north_and_central_america_wmo_region_4/country=1_usa/cname=USA. Last accessed October 2014.

⁶¹ Hendron, R. *Building America Research Benchmark Definition, Updated December 15, 2006*. January 2007. National Renewable Energy Laboratory: Golden, CO. Report No. TP-550-40968. Available at www.nrel.gov/docs/fy07osti/40968.pdf.

⁵⁹ American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE). *ASHRAE Handbook of HVAC Applications: Chapter 51 (Service Water Heating)*. 2019. pp. 51.1-51.37. Available at www.ashrae.org/resources-publications/handbook.

⁶⁰ U.S. Department of Energy—Office of Energy Efficiency and Renewable Energy. EnergyPlus

models and corresponding normalized peak water heater loads from the DOE EnergyPlus energy simulation input decks for these prototypes were vetted by the ASHRAE 90.1 Committee. DOE developed residential building hot water loads using the hot water loads model created by the LBNL for the 2010 final rule for Energy Conservation Standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters. 75 FR 20112 (April 16, 2010). These data sources reflect expected hot water use at the time of their publication, including reductions of typical hot water use for certain appliances and commercial equipment based upon amended Federal standards and certain voluntary programs where those appliances are identified as part of the end use. DOE notes that its analysis and any eventual CWH standards are dominated by existing buildings and influenced by a lesser extent by shipments to new construction. Furthermore, DOE notes that to the extent that regulatory standards have or will reduce water loads, manufacturer sizing tools (as used in DOE's analysis for sizing water heaters in different applications) should also reflect the reduction in water usage for sizing purposes, thereby minimizing the impact of reduced hot water loads resulting from DOE regulation on the overall economic evaluation of higher standards.

With regards to the use of CWH equipment in residential buildings, DOE clarifies here that the only residential building type specifically excluded from the analysis of CWH equipment was manufactured housing,⁶² since DOE determined that manufactured housing is not suitable for any CWH equipment installation or use. A manufactured home would have hot water loads which require a commercial water heater. Otherwise, for all other residential and commercial building types, if the estimated maximum sizing load of a sampled building was not at least 90 percent of the hot water delivery capability of the baseline representative model for any analyzed equipment category, then the building

was not sampled since the building's maximum load is deemed not large enough to warrant the installation of the specific CWH equipment to service the load. Chapter 7 of the final rule TSD provides details of DOE's energy use analysis and sizing.

In response to the May 2022 CWH ECS NOPR, Bradford White noted that certain CWH equipment is designed to work within a limited delta T range (*i.e.*, temperature difference between the inlet and outlet of the water heater) in order to hit the rated efficiency and meet the needs of the application. Therefore, a 160 °F setpoint temperature will, in fact, decrease efficiency, as a limited delta T (*e.g.*, 20 °F) will keep the inlet to the water heater high enough that condensing will not occur. (Bradford White, No. 23 at p. 9) PHCC commented that to achieve condensing in practice, water temperatures must be below 140 °F and while this is easier to obtain in furnaces, with water products the storage temperature may be close to or exceed that temperature. Manufacturers of boilers will typically show an efficiency curve with return water temperature and show a transition between when a unit is condensing or not condensing. They further state that either way, if a consumer elects to have water temperatures of 140 °F or higher, the performance of the heater will not hit the 95 percent efficiency level. Perhaps the test method sets parameters that make 95 percent achievable but in the real world, that will not be the case. Furthermore, they note that a 140 °F consideration is very likely for kitchens and laundries. In addition, due to biofilm and legionella concerns, many facilities are moving toward higher storage temperatures to combat contaminants. (PHCC, No. 28 at p. 3)

In response to the comment by Bradford White, DOE is aware that certain instantaneous water heaters are designed as commercial booster water heaters and that some of these units may in fact be operated with high inlet water temperatures that would not allow condensing. While many booster water heaters are electric resistance units, DOE is aware that certain gas water heater products are on the market and examined several of these products. The units examined however appear to be capable of a wide range of temperature rise operation and not designed solely for low temperature rise applications. This appears to be more application specific choice on the part of the commercial user than a limitation of the water heater itself. Several of these units examined were rated as condensing water heaters. DOE understands that it is possible that in certain applications a

unit like this may not condense, but it does not appear that this is a limitation of the water heater. Further, DOE believes that such products represent a niche market in the general class of gas instantaneous water heaters.

DOE is unaware of equipment rated as instantaneous water heaters that are capable of operation only under low temperature rise (*e.g.*, 20 °F temperature rise) application. In general, hot water supply boilers, circulators, and volume water heaters designed to work with separate storage tanks also appear to be both tested according to the DOE test procedure and the available literature reviewed by DOE indicated were capable of operating at higher (*e.g.*, 70 °F) temperature differentials between inlet and outlet. As discussed previously, that such equipment could be placed in an application in which it would not condense is possible, however it also appears that in many cases piping arrangements in such an application could be designed such that when cold inlet water enters the system (occurring whenever hot water is removed from the system), mixing valves or mixing stations can ensure that water going to the water heater is low enough to provide for condensing to occur. Many volume water heaters already provide for condensing efficiencies.

DOE further notes that water heaters are generally different than hydronic, space heating boilers in that where hot water is removed from the circulating system, cold water at the water main temperature is introduced into the system. While PHCC has suggested that at 140 °F storage temperature or higher, the performance of the heater will not hit 95 percent efficiency, DOE notes that the DOE test procedure for commercial water heaters presumes a 140 °F leaving water temperature already (and therefore, a similar storage temperature) and models are tested at that temperature and at full rated input capacity and many achieve thermal efficiencies higher than 95 percent. While there may be some degradation in performance at higher leaving water temperatures, DOE believes that with modern water heater designs, entering water temperature is the primary limitation on whether condensation occurs, not leaving water temperature. Further DOE notes that many commercial water heaters are designed with modulating burners, which further lower the burner heat output and increase the equipment efficiency beyond what may be envisioned at full rated output as per the DOE test procedure.

⁶² A manufactured home is defined as "a structure, transportable in one or more sections, which in the traveling mode is 8 body feet or more in width or 40 body feet or more in length or which when erected on-site is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure. . . ." 24 CFR Subtitle B Chapter XX Part 3280. Available at www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280 (last accessed April 21, 2023).

DOE is aware of a variety of opinions on the handling of legionella, but again notes that cool water will need to be heated in any water heating system and notes that the heating of such water is the majority of the hot water load on the water heaters in DOE's analysis.

PHCC expressed concern that the estimated annual unit energy for commercial water heaters is understated. To perform a simple check on the estimates, PHCC divided unit energy by the input rating and the number of days per year, a calculation that yields the daily average hours of operation. PHCC notes that when these products are installed, restaurants, hotels, dormitories, hospitals, and such, it is hard to believe that these water heaters only operate for a few hours a day. PHCC believes that the basis for the energy use is understated for all categories of CWH products. (PHCC, No. 28 at p. 3)

In response, DOE notes that the primary inputs affecting the operating hours per day are the hot water load, including any circulation energy losses and the sizing of the water heater to meet the peak building needs. Standby losses from the water heater itself are also important but generally would result in only approximately 15–20 minutes of operation on a given day for a commercial gas storage or residential-duty water heater respectively even if the unit was in standby for the entire day. In addition, while restaurants, hotels, hospitals and dormitories would be expected to be high utilization end uses, commercial water heaters can also serve office and retail applications which might have comparatively small hot water loads per unit of water heater capacity. DOE's analysis has tried to incorporate both industry sizing tools (which potentially could be conservative) and estimates of hot water load across a wide variety of building applications, and represents relative frequency of use in these application through the use of CBECS and RECS sampling of buildings that could use the various classes of CWH equipment as described previously and in detail in the final rule TSD. DOE recognizes that in the end, however, operating hours, which provide a normalized representation of the energy consumption for a given size of purchased equipment, are a principle driver in the economics of DOE's life-cycle cost and other downstream analysis and to the extent that any class of commercial water heater operates on average more hours in a day than estimated by DOE, it would generally result in larger energy use and all else

the same, correspondingly larger energy savings than estimated by DOE.

PHCC noted that at the 2022 Emerging Water Technology Symposium, Dr. Janet Stout, a noted infectious disease microbiologist from the University of Pittsburgh, answered a question related to the setting of water heaters by saying 140 °F should be the minimum temperature. They state that if that is the case, the assumed 95 percent water heater may in reality be no better than 87 to 88 percent most of the time. It is unclear if the proposed rule makes any allowance for this situation, but it will have a large impact on the projected energy savings. (PHCC, No. 28 at p. 3)

NYSERDA supports DOE's analytical approaches for temperature settings and DOE's acknowledgement that in the real world multiple setpoints are used. (NYSERDA, No. 30 at p. 2)

Bradford White noted that in the analysis for circulating water heaters, DOE assumed a storage tank size of 250 to 350 gallons. While this overall size can be used, Bradford White noted that this is highly dependent on the application that the product is installed in. Also, if too much storage is used in the wrong application, it can lead to condensing where you do not want it. (Bradford White, No. 23 at p. 9). CA IOUs noted a water heating system is often composed of multiple hot water sources and separate hot water storage tanks. Separate hot water systems are usually needed to meet the primary make-up load, hot water load, and the secondary recirculating hot water loop load. Therefore, in future analysis, the CA IOUs recommend that DOE consider the interplay of these components when assessing heat pump water heaters. (CA IOUs, No. 33 at pp. 2–3)

In response to PHCC, DOE recognizes that there is debate over water heater set points and concern with legionella growth in hot water systems, and there have been different approaches in practice regarding set points and controls for CWH systems. DOE agrees with comments by NYSERDA that, in practice, there will be some range of set points used. DOE also reiterates that that the Federal test procedure for commercial gas storage water heaters and commercial gas instantaneous water heaters rates the thermal efficiency of these products at a flow rate that provides for essentially a 140 °F outlet temperature and to provide for that in practice, the setpoint is set approximately at that temperature.

While DOE is cognizant of the concerns raised by PHCC, DOE does not believe that a recommendation to use setpoints near but above 140 °F will result in the dramatic change in thermal efficiency

indicated by PHCC. As previously stated, DOE believes that, for current condensing water heater designs, it is inlet temperature that will have a bigger effect on efficiency and more attention may need to be paid to modulating heat capability and how inlet water is introduced to systems with recirculation. Regarding the Bradford White observation on storage tank sizing, DOE reviewed equipment manuals to try to establish a reasonable range of storage tank sizes that would be typical selections for the representative circulating water heaters and hot water supply boilers units input rate developed unit from the engineering analysis. The range of storage tank sizes was the same as was used in the withdrawn May 2016 CWH ECS NOPR and DOE did not receive comment on how it could improve this selection. DOE appreciates the comment that there may be engineering aspects to the use of larger storage tanks but believes that its selection of this size range was prudent for the representative equipment input rate based on manufacturer literature reviewed. In a similar vein, DOE appreciates the comment from CA IOUs in terms of their understanding of the use of multiple and types of CWH equipment in developing commercial hot water systems and their comment that DOE should consider the interplay among these components when assessing heat pump water heaters. DOE did not consider energy conservation standards for commercial heat pump water heaters in this final rule because of the limited number of units on the market. However, DOE may analyze standards for commercial heat pump water heaters in a future rulemaking, at which time DOE will consider how to address the interplay among these different components in evaluating standards including commercial heat pump water heaters.

F. Life-Cycle Cost and Payback Period Analysis

DOE conducted LCC and PBP analyses to evaluate the economic impacts on individual consumers of potential energy conservation standards for CWH equipment. The effect of new or amended energy conservation standards on individual consumers usually involves a reduction in operating cost and an increase in purchase cost. DOE used the following two metrics to measure consumer impacts:

- The LCC is the total consumer expense of equipment over the life of that equipment, consisting of total installed cost (manufacturer selling price, distribution chain markups, sales

tax, and installation costs) plus operating costs (expenses for energy use, maintenance, and repair). To compute the operating costs, DOE discounts future operating costs to the time of purchase and sums them over the lifetime of the equipment.

- The PBP is the estimated amount of time (in years) it takes consumers to recover the increased purchase cost (including installation) of a more-efficient type of equipment through lower operating costs. DOE calculates the PBP by dividing the change in purchase cost at higher efficiency levels by the change in annual operating cost for the year that amended or new standards are assumed to take effect.

For any given efficiency level, DOE measures the change in LCC relative to the LCC in the no-new-standards case, which reflects the estimated efficiency distribution of CWH equipment in the absence of new or amended energy conservation standards. In contrast, the PBP for a given efficiency level is measured relative to the baseline equipment.

DOE conducted the LCC and PBP analyses using a commercially available spreadsheet tool and a purpose-built spreadsheet model, available on DOE's website.⁶³ This spreadsheet model developed by DOE accounts for variability in energy use and prices, installation costs, repair and maintenance costs, and energy costs. As a result, the LCC results are also displayed as distributions of impacts compared to the no-new-standards-case (without amended standards) conditions. The results of DOE's LCC and PBP analysis are summarized in section V.B.1.a of this final rule and described in detail in chapter 8 of the final rule TSD.

As previously noted, DOE's LCC and PBP analyses generate values that calculate the PBP for consumers of potential energy conservation standards, which includes, but is not limited to, the 3-year PBP contemplated under the rebuttable presumption test. However, DOE routinely conducts a full economic analysis that considers the full range of impacts, including those to the consumer, manufacturer, Nation, and environment, as required under 42 U.S.C. 6313(a)(6)(ii). The results of this analysis serve as the basis for DOE to evaluate the economic justification for a potential standard level (thereby supporting or rebutting the results of

any preliminary determination of economic justification).

DOE expressed the LCC and PBP results for CWH equipment on a single, per-unit basis, and developed these results for each thermal efficiency and standby loss level, or UEF level, as appropriate. In addition, DOE reported the LCC results by the percentage of CWH equipment consumers experiencing negative economic impacts (*i.e.*, LCC savings of less than 0, indicating net cost).

DOE modeled uncertainty for specific inputs to the LCC and PBP analysis by using Monte Carlo simulation coupled with the corresponding probability distributions, including distributions describing efficiency of units shipped in the no-new-standards case. The Monte Carlo simulations randomly sample input values from the probability distributions and CWH equipment user samples. For this rulemaking, the Monte Carlo approach is implemented in MS Excel together with the Crystal Ball™ add-on.⁶⁴ Then, the model calculated the LCC and PBP for equipment at each efficiency level for the 10,000 simulations using the sampled inputs. More details on the incorporation of uncertainty and variability in the LCC are available in appendix 8B of the final rule TSD.

For the May 2022 CWH ECS NOPR, DOE analyzed the potential for variability by performing the LCC and PBP calculations on a nationally representative sample of individual commercial and residential buildings. This same general process was used for this final rule analysis, however, with updates to the data set. One update was switching to CBECs 2018 consistent with DOE's general practice of relying on updated data sources to the extent practicable and appropriate.⁶⁵ The CBECs 2018 microdata needed for its analysis were not available when DOE conducted the May 2022 CWH ECS NOPR analysis; hence, DOE used CBECs 2012 (the most recent available version at the time) for the 2022 CWH ECS NOPR analysis. In this final rule, DOE updated its LCC model to use EIA's CBECs 2018 microdata.

Following is a discussion of the development and validation of DOE's LCC model. Across its energy

conservation standards rulemakings, DOE incorporates tools that enable stakeholders to reproduce DOE's published rulemaking results. DOE routinely utilizes Monte Carlo simulations using Crystal Ball for LCC model simulation purposes. More specifically, utilizing a spreadsheet program with Crystal Ball enables DOE to test the combined variability in different input parameters on the final life-cycle performance of the equipment. The CWH LCC model specifically includes macros to run the standards analysis with default settings that enable stakeholders to download the LCC model, run it on their own computers, and reproduce results published in this final rule.⁶⁶ To validate models, DOE develops models with contractors familiar with Crystal Ball and Monte Carlo tools and other models generally, and regularly tests the models during development, both at average and atypical (extreme) conditions. DOE further notes that the LCC model using the Crystal Ball software can output the assumed values and results of each assumption and provide forecasted results for each iteration in the Monte Carlo simulation, if desired by stakeholders to review or trace the output. In addition, it is possible to directly modify the assumption cells in the model to examine impacts of changes to assumptions on the LCC, and, in fact, DOE relies on both of these techniques for model testing.⁶⁷ DOE additionally seeks expert validation by going through a comprehensive stakeholder review of the assumptions and making its models and TSD publicly available during the comment period during each phase of its regulatory proceedings. DOE uses the Monte Carlo models for predicting the impact of future standards, a use different than many other uses that are envisioned generally for Monte Carlo tools (like industrial process examination), so direct validation against data demonstrating the impact of future standards is not possible. With regard to specifying correlations between inputs as part of modeling practices, DOE notes that while one can specify correlation parameters between two variables where such correlation

⁶⁶ To reiterate, DOE's web page for CWH equipment is available at www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=36.

⁶⁷ The model being discussed in this section, the LCC, has no known locked cells and it is unprotected, meaning all cells are available for editing by users as stated in the text. DOE does in some cases lock cells and worksheets in order to protect proprietary data. Such is not the case with the LCC model used in this rulemaking, so users should be able to edit assumptions in this model.

⁶³ DOE's web page for CWH equipment is available at www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=36. Last accessed on December 15, 2022.

⁶⁴ Crystal Ball™ is commercially-available software tool to facilitate the creation of these types of models by generating probability distributions and summarizing results within Excel, available at www.oracle.com/middleware/technologies/crystalball/ (last accessed December 15, 2022).

⁶⁵ More information on the types of buildings considered is discussed later in this section. CBECs: www.eia.gov/consumption/commercial/data/2018/. Link last accessed on December 15, 2022.

and the data to provide for the level of correlation are known, specifying such correlations is not necessary to maintain the general integrity and accuracy of the analytical framework. Variable values may be selected based on other coding decisions unique to each iteration (e.g., correlation with building type or location or vintage) without specific reference to correlation variables, and DOE does this routinely. For instance, entering water temperature and fuel costs are effectively correlated based on data and the use of the geographic region, which impacts both through the available data or models. The use of explicit correlations between Crystal Ball variables, where data are available to determine or represent a degree of correlation, absent other influences, would be useful, but often, DOE's experience is that the data to express the degree of correlation are not available and are influenced by other factors already dealt with explicitly in the model framework.

DOE calculated the LCC and PBP for all consumers as if each would purchase a new CWH unit in the year that compliance with amended standards is required. As previously discussed, DOE is conducting this rulemaking pursuant to its 6-year-lookback authority under 42 U.S.C. 6313(a)(6)(C). At the time of preparation of the final rule analyses, the anticipated final rule publication date was 2023. Thus, for the purposes of the LCC modeling DOE relied on 2023 as the expected publication date of a final rule. EPCA states that amended standards prescribed under this subsection shall apply to equipment manufactured after a date that is the later of (I) the date that is 3 years after publication of the final rule establishing a new standard or (II) the date that is 6 years after the effective date of the current standard for a covered equipment. (42 U.S.C. 6313(a)(6)(C)(iv)) Therefore, for the purposes of its LCC analysis for this final rule, DOE used January 1, 2026 as the beginning of

compliance with potential amended standards for CWH equipment.

Recognizing that each consumer that uses CWH equipment is unique, DOE analyzed variability and uncertainty by performing the LCC and PBP calculations on a nationally representative stock of commercial and residential buildings. Commercial buildings can be categorized based on their specific activity, and DOE considered commercial buildings such as offices (small, medium, and large), stand-alone retail and strip-malls, schools (primary and secondary), hospitals and outpatient healthcare facilities, hotels (small and large), warehouses, restaurants (quick service and full service), assemblies, nursing homes, and dormitories. These encompass 93 percent of the total sample of commercial building stock in the United States. The residential buildings can be categorized based on the type of housing unit, and DOE considered single-family (attached and detached) and multi-family (with 2–4 units and 5+ units) buildings in its analysis. This encompassed 95.5 percent of the total sample of residential building stock in the United States, though not all of this sample would use CWH equipment. DOE developed financial data appropriate for the consumers in each business and building type. Each type of building has typical consumers who have different costs of financing because of the nature of the business. DOE derived the financing costs based on data from the Damodaran Online website.⁶⁸ For residential applications, the entire household population was categorized into six income bins, and DOE developed the probability distribution of real interest rates for each income bin by using data from the Federal Reserve Board's Survey of Consumer Finances.⁶⁹

The LCC analysis used the estimated annual energy use for each CWH equipment category described in section IV.C of this final rule. Aside from energy

use, other important factors influencing the LCC and PBP analyses are energy prices, installation costs, and equipment distribution markups. At the national level, the LCC spreadsheets explicitly model both the uncertainty and the variability in the model's inputs, using probability distribution functions.

As mentioned earlier, DOE generated LCC and PBP results for individual CWH consumers, using business type data aligned with building type and by geographic location, and DOE developed weighting factors to generate national average LCC savings and PBPs for each efficiency level. As there is a unique LCC and PBP for each calculated combination of building type and geographic location, the outcomes of the analysis can also be expressed as probability distributions with a range of LCC and PBP results. A distinct advantage of this type of approach is that DOE can identify the percentage of consumers achieving LCC savings or attaining certain PBP values due to an increased efficiency level, in addition to the average LCC savings or average PBP for that efficiency level.

DOE calculates energy savings for the LCC and PBP analysis using only onsite electricity and natural gas usage. For determination of consumer cost savings, the onsite electricity and natural gas usage are estimated separately with appropriate electricity and natural gas prices, or marginal prices, applied to each. Primary and FFC energy savings are not used in the LCC analysis.

For each efficiency level that DOE analyzed, the LCC analysis required input data for the total installed cost of the equipment, its operating cost, and the discount rate. Table IV.19 summarizes the inputs and key assumptions DOE used to calculate the consumer economic impacts of all energy efficiency levels analyzed in this rulemaking. A more detailed discussion of the inputs follows.

TABLE IV.19—SUMMARY OF INPUTS AND KEY ASSUMPTIONS USED IN THE LCC AND PBP ANALYSES

Inputs	Description
Affecting Installed Costs	
Product Cost	Derived by multiplying manufacturer sales price or MSP (calculated in the engineering analysis) by distribution channel markups, as needed, plus sales tax from the markups analysis.
Installation Cost	Installation cost includes installation labor, installer overhead, and any miscellaneous materials and parts, derived principally from RSMMeans 2018 through 2022 data books ^{A B C} and converted to 2022\$.

⁶⁸ Damodaran Online. Commercial Applications. Available at pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm. Last accessed on December 16, 2022.

⁶⁹ The real interest rates data for the six income groups (residential sector) were estimated using data from the Federal Reserve Board's Survey of Consumer Finances (1989, 1992, 1995, 1998, 2001,

2004, 2007, 2010, 2013, 2016, and 2019). Available at www.federalreserve.gov/pubs/oss/oss2/scfindex.html. Last accessed on December 16, 2022.

TABLE IV.19—SUMMARY OF INPUTS AND KEY ASSUMPTIONS USED IN THE LCC AND PBP ANALYSES—Continued

Inputs	Description
Affecting Operating Costs	
Annual Energy Use	Annual unit energy consumption for each class of equipment at each efficiency and standby loss level estimated at different locations and by building type using building-specific load models and a population-based mapping of climate locations. The geographic scale used for commercial and residential applications are Census Divisions and reportable domains respectively.
Electricity Prices, Natural Gas Prices.	DOE developed average residential and commercial electricity prices based on EIA Form 861M, using data for 2022. ^D Future electricity prices are projected based on <i>AEO2023</i> . DOE developed residential and commercial natural gas prices based on EIA State-level prices in EIA Natural Gas Navigator, using data for 2022. ^E Future natural gas prices are projected based on <i>AEO2023</i> .
Maintenance Cost	Annual maintenance cost did not vary as a function of efficiency.
Repair Cost	DOE determined that the materials portion of the repair costs for gas-fired equipment changes with the efficiency level for products. The different combustion systems varied among different efficiency levels, which eventually led to different repair costs.
Affecting Present Value of Annual Operating Cost Savings	
Product Lifetime	Table IV.21 provides lifetime estimates by equipment category. DOE estimated that the average CWH equipment lifetimes range between 10 and 25 years, with the average lifespan dependent on equipment category based on estimates cited in available literature. ^F
Discount Rate	Mean real discount rates (weighted) for all buildings range from 3.2% to 5.0%, for the six income bins relevant to residential applications. For commercial applications, DOE considered mean real discount rates (weighted) from 10 different commercial sectors, and the rates ranged between 3.2% and 7.2%.
Analysis Start Year	Start year for LCC is 2026, which would be the anticipated compliance year for adopted standards.
Analyzed Efficiency Levels	
Analyzed Efficiency Levels ..	DOE analyzed baseline efficiency levels and up to five higher thermal efficiency levels for commercial gas-fired storage water heaters, commercial gas-fired tankless water heaters, and commercial gas-fired instantaneous circulating water heaters and hot water supply boilers. For residential-duty gas-fired storage, DOE analyzed baseline and up to five higher UEF levels which combine thermal efficiency and standby loss improvements. See the engineering analysis for additional details on selections of efficiency levels and costs.

^A RSMMeans. 2017 through 2022 Plumbing Costs with RSMMeans Data. RSMMeans data available at www.rsmeans.com/products/books, though when last accessed, the 2022 books no longer appeared to be available.

^B RSMMeans. 2022 Facilities Maintenance & Repair Costs with RSMMeans Data. RSMMeans data available at www.rsmeans.com/products/books.

^C RSMMeans. Estimating Costs with RSMMeans Data, CostWorks CD, Mechanical Costs for 2021 and 2022, and 2018 through 2020 Mechanical Cost with RSMMeans Data. Available www.rsmeans.com/2022-mechanical-cost-data-cd. RSMMeans links last accessed on April 19, 2023.

^D U.S. Energy Information Administration (EIA). Average Retail Price of Electricity (Form EIA-861M). Available at www.eia.gov/electricity/data.php. Last accessed on March 31, 2023.

^E U.S. Energy Information Administration (EIA). Average Price of Natural Gas Sold to Commercial Consumers—by State. Available at www.eia.gov/dnav/ng/ng_pri_sum_a_EPG0_PCS_DMcf_a.htm. Prices for Residential Consumers are available at the same site using the Data Series menu. EIA data last updated March 31, 2023, and accessed on March 31, 2023.

^F American Society of Heating, Refrigerating, and Air-Conditioning Engineers. 2011 ASHRAE Handbook: Heating, Ventilating, and Air-Conditioning Applications. 2011. Available at www.ashrae.org/resources—publications. Last accessed on October 16, 2016.

In response to the May 2022 CWH ECS NOPR, DOE received numerous general comments related to the LCC and PBP analysis. Atmos Energy and Joint Gas Commenters state that DOE should break storage and instantaneous water heaters out separately for purposes of LCC and PBP analysis. (Atmos Energy, No. 36 at pp. 4–5; Joint Gas Commenters, No. 34 at p. 33) In section III.B.6, DOE discusses the determination that commercial gas-fired storage water heaters and storage-type gas-fired instantaneous water heaters would be treated jointly for purposes of the final rule. Because they are being treated jointly, modeling them separately in the LCC and PBP analysis was seen as confusing and unnecessary.

As noted in section IV.E, many commenters said DOE should update to more recent RECS and CBECS data. CA IOUs indicated support for DOE's proposed minimum efficiency standards

if DOE updated the analyses with newer data including specifically the more recent CBECS and RSMMeans data. AHRI stated their concern about DOE is using older CBECS and RECS data which they termed “outdated data,” and that this could cause DOE to underestimate the true impacts to consumers. AHRI recommended that DOE conduct updated analysis where existing data sources are out of date. (CA IOUs, No. 33 at p. 1; AHRI, No. 31 at p. 2) DOE acknowledges the CA IOUs and AHRI comments and notes that the LCC and PBP analysis has been updated to include the 2018 CBECS, but as discussed in section IV.E, DOE maintained use of the 2009 RECS.

PHCC believes that the economic analysis has several deficient factors and as a result it would be difficult to rely on the projected energy savings, cost of materials, labor costs and times presented by DOE to do certain aspects

of the work. PHCC encourages DOE to update the basic information in the LCC model to reflect current 2022 conditions in the marketplace. (PHCC, No. 28 at pp. 10–11) As discussed in the subsections below, DOE has updated a large number of the inputs used in the LCC and PBP analyses. Some inputs such as the U.S. Economic Census underlying the Markups Analysis cannot be updated because the 2017 census remains the most recent census.

Patterson-Kelley stated concerns that the methodology to generate the RECS and CBECS data sets marginalizes large portions of the country. (Patterson-Kelley, No. 26 at p. 2) WM Technologies expressed a similar concern adding the data exhibit a bias toward larger revenue generating areas and larger buildings. By doing so they believe CBECS exhibits an unrecognized bias against underserved communities and populations. Buildings and homes in rural and lower

revenue areas typically have less insulation while larger cities typically have more exacting building codes and enforcement. Therefore, the current CBECS approach also erroneously minimizes actual variation in the LCC results, with the largest errors in the impact to disadvantaged and underserved communities and small businesses. WM Technologies also called on DOE to provide the impact to the results from using different sources of information than RECS and CBECS and provide realistic modeling by accounting for documented uncertainties and variation to the inputs used in the analysis. (WM Technologies, No. 25, at pp. 4–5) Patterson-Kelley and WM Technologies stated that any LCC modeling must include the variation in the CBECS and RECS data sets, consistently relating to all references to the location-specific information of the home or building modeled as this will better utilize the variation and energy usage on average, identified in the national energy surveys noted in the 2015 RECS comparison with other studies. (Patterson-Kelley, No. 26, at pp. 2, 4; WM Technologies, No. 25 at p. 4–5) DOE disagrees with the conclusions reached in WM Technologies' and Patterson-Kelley's comments, as was pointed out in section III.E in which DOE addressed the majority of WM Technologies and Patterson-Kelley's comment. CBECS and RECS datasets are nationally representative datasets available for public use. Since the commenters did not suggest specific different sources of information when calling on DOE to provide the impacts from using different sources of information, this suggestion seems to not be feasible to DOE. DOE agrees that the EIA sampled major cities with certainty as stated by WM Technologies and Patterson-Kelley, but questions whether electing to not take the chance that a major commercial hub like Chicago would be excluded from CBECS samples due to pure random chance in the sampling selection represents bias as alleged in these comments. Regardless, at the end of the process EIA assigns weights to buildings. So, a large building in downtown New York City receives a low building weight because there are very few such buildings, while smaller buildings characteristic of rural areas get much higher weights because there are large numbers of them across the country.

The Joint Gas Commenters offered several reactions to DOE's discussion of LCC and claimed that they overall believe the standards are not economically justified nor supported by

clear and convincing evidence. Firstly, they stated that DOE's LCC results shows that consumers barely break even with LCC savings ranging from 0.58 to 1.25 percent of total LCC. They further offered their opinion that because DOE has addressed some variability of inputs in the model but has not addressed all uncertainties about the ranges and distributions of inputs to the model, the proposed standards could impose net costs, and that this does not provide the clear and convincing evidence needed to amend the standards. (Joint Gas Commenters, No. 34 at pp. 14–15) Additionally, they noted that DOE performed the analysis by building up to the price that consumers pay for products and their installation and related costs, rather than collecting "actual" data. They pointed to assumptions made and offered their opinion that DOE must locate suitable data, and lacking such, must resolve against amending the standards. (Joint Gas Commenters, No. 34 at pp. 16–17) In response, DOE addresses similar "clear and convincing evidence" comments in section III.A of this document.

DOE notes that the LCC savings presented in the 2022 CWH ECS NOPR represent an overall average, reflecting the fractions of consumers that are better off and that are worse off due to the proposed standard, as well as a significant percentage of consumers for whom the standard has no effect because they already purchase equipment that meet the standard. In this final rule, the LCC savings represent an average of the affected consumers only, excluding those for whom the standard has no effect. The LCC savings in the final rule also reflect changes DOE has made to address comments received on the NOPR. For example, given stakeholder comments on the withdrawn 2016 CWH ECS NOPR that there may be consumer with extraordinary installation costs, the 2022 CWH ECS NOPR introduced an extraordinary cost factor which resulted in increased installation costs by a factor from 200 to 300 percent for a small percentage of customers. For the 2022 CWH ECS NOPR that percentage of consumers was 2 percent, a figure that DOE retained in the final rule analysis. In the final rule analysis, DOE has increased the fraction of consumers that install condensate pumps and increased the fractions of consumers installing condensate neutralizers. In addition, DOE updated the installation costs and venting materials costs based on the most current available data. These

changes and other are discussed in IV.F.2 of this document.

DOE notes that while Joint Gas Commenters are correct that the relative LCC savings may be small, DOE considers other factors when assessing whether there is clear and convincing evidence that a standard is economically justified, such as PBP and the NIA. For example, a major reason for the small LCC savings is the cost of associated venting (discussed more in section IV.F.2 of this document). However, DOE believes it reasonable to assume that once the venting has been installed, it will also be usable in the future when the CWH equipment is replaced. This benefit is captured in the longer-term NIA, which includes replacement of water heaters as they reach the end of their useful life. However, DOE did not capture the residual value of the venting system in the LCC analysis as the LCC analysis ends at the end of the useful life of the CWH unit. Moreover, DOE notes that, for each equipment type, the simple payback period is shorter than the equipment life, particularly for the instantaneous products where the payback period is approximately half of the expected equipment lifetime. So, while Joint Gas Commenters are correct that the relative LCC savings may be small due to the standard, that fact alone is not the end of DOE's economic justification analysis. Further discussion of the results of all of DOE's economic analyses and DOE's conclusions may be found in section V of this document.

DOE disagrees that there are unresolved uncertainties, and has determined the issues raised in comments on the May 2022 CWH ECS NOPR have been sufficiently addressed to resolve any alleged uncertainties. As for whether "building up costs" is a reasonable approach, DOE relied primarily on data from RSMMeans and other nationally recognized sources to develop its cost analyses. These resources provided itemized data at each step of the process and in particular to the LCC discussions, on the installation and removal costs of both equipment and venting systems, as well as the installation costs of condensate drainage systems, electrical outlets, and chimney relining. The itemization of these costs was at the component level for both labor and material, and in both the commercial and residential sectors, which allowed DOE to develop an appropriate set of installation scenarios to factor into the lifecycle cost analysis. The use of these resources also provided DOE with a consistent evaluation of costs with a consistent set of location adjustments for each residential and

commercial region included in the analysis. For these reasons, DOE believes the sources relied upon were valid and appropriate for the development of installed equipment costs. Moreover, DOE notes that surveys of existing contractor quotes may not adequately separate equipment costs from installation costs since installing contractors would commonly be selling and marking up equipment as well as installation labor. DOE has observed that contractor quotes are often lump sum prices and getting contractors to disaggregate such prices has historically been difficult. Thus, use of surveys would not provide the level of detailed information needed to assess installation costs.

1. Equipment Cost

To calculate consumer equipment costs, DOE multiplied the MSCs developed in the engineering analysis by the markups described previously (along with sales taxes) in section IV.D of this document. DOE used different markups for baseline equipment and higher-efficiency equipment because DOE applies an incremental markup to the increase in MSP associated with higher-efficiency products. For each equipment category, the engineering analysis provided equipment costs for the baseline equipment and up to five higher equipment efficiencies. For the withdrawn 2016 CWH ECS NOPR, DOE examined whether available data suggested that equipment costs for CWH equipment would change over time in constant real dollar terms, indicating the potential for a “learning” or “experience” curve in equipment prices that might indicate further reductions in equipment price might be expected. In the data reviewed, DOE did not identify a clear long term historical price trend for CWH equipment. As DOE has seen no direct evidence to overturn that earlier decision, DOE used costs established in the engineering analysis directly for determining 2026 equipment costs and future equipment costs (equipment is purchased by the consumer during the first year in 2026 at the estimated equipment price, after which the equipment price remains constant in real dollars). See chapter 10 of the final rule TSD for more details.

The markup is the percentage increase in cost as the CWH equipment passes through distribution channels. As explained in section IV.D of this final rule, CWH equipment is assumed to be delivered by the manufacturer through a variety of distribution channels. There are several distribution pathways that involve different combinations of the costs and markups of CWH equipment.

The overall resulting markups in the LCC analysis are weighted averages of all of the relevant distribution channel markups.

2. Installation Cost

Installation cost includes labor, overhead, and any miscellaneous materials and parts needed to install the CWH equipment. Total installed cost includes the retail cost of the CWH equipment and its corresponding installation costs. Installation costs vary by efficiency level, primarily due to venting costs. For new construction installations, the installation cost is added to the equipment cost to arrive at a total installed cost. For replacement installations, the costs to remove the previous equipment (including venting when necessary) and the installation costs for new equipment, including venting and additional expenses, are added to the product cost to arrive at the total replacement installation cost.

DOE derived national average installation costs for commercial equipment from data provided in RSMMeans data books.⁷⁰ RSMMeans provides estimates for installation costs for CWH units by equipment capacity, as well as cost indices that reflect the variation in installation costs for 295 cities in the United States. The RSMMeans data identify several cities in each of the 50 States, as well as the District of Columbia. DOE incorporated location-based cost indices into the analysis to capture variation in installation costs, depending on the location of the consumer. Based upon the RSMMeans data, relationships were developed for each product subcategory to relate the amount of labor to the size of the product—either the storage volume or the input rate. Generally, the RSMMeans data were in agreement with other national sources, such as the Whitestone Facility Maintenance and Repair Cost Reference.⁷¹

DOE calculated venting costs for each building in the CBECS and RECS. A variety of installation parameters impact venting costs; among these, DOE simulated the type of installation (new construction or retrofit), water heater type, draft type (atmospheric venting or power venting), building vintage, number of stories, and presence of a chimney. A combination of Crystal Ball variable distributions and Microsoft

Excel macros and spreadsheet calculations are used to address the identified variables to determine the venting costs for each instance of equipment for each building within the Monte Carlo analysis. With regard to the venting material for condensing equipment, the primary assumptions used in this logic are listed as follows:

- 25 percent of commercial buildings built prior to 1980 were assumed to have a masonry chimney, and 25 percent of masonry chimneys required relining.
- Condensing equipment with vent diameters smaller than 5 inches were modeled using PVC (polyvinyl chloride) as the vent material.
- Condensing equipment with vent diameters of 8 inches or greater were assigned AL29–4C (superferritic stainless steel) as the vent material.
- Condensing equipment with vent diameters of 5 inches and up to 8 inches were assigned vent material based on a random selection process in which, on average, 50 percent of installations received PVC as the vent material and the remaining received AL29–4C.
- 5 percent of all condensing CWH equipment installations were modeled as direct vent installations. The intake air pipe material for condensing products was modeled as PVC.

Additional details of the venting logic sequence are found in chapter 8 and appendix 8D of the final rule TSD.

a. Data Sources

For this final rule analysis, DOE used the most recent datasets available at the time the analysis was conducted. DOE routinely updates data to the most recent datasets available at its various rulemaking stages and has updated the CWH equipment LCC model with the most recent data estimates available for this final rule, including use of the 2018 CBECS and 2022 RSMMeans data (including 2022 RSMMeans Plumbing Costs Data, 2022 RSMMeans Mechanical Cost Data, and 2022 RSMMeans Facility Maintenance and Repair Costs). In reviewing the 2022 RSMMeans cost books, DOE noted a rapid escalation of prices from 2021 to 2022 for installation materials including PVC pipes and related connectors and hangers, Type B venting and associated materials, and stainless steel. The 2022 escalation in these prices relative to 2021 exceeded the escalation seen in previous years' prices. DOE believes the 2022 escalation is related to the Covid-19 pandemic and the supply chain bottleneck arising during the pandemic. Because these input materials are generally undifferentiated between manufacturers and subject to supply and demand

⁷⁰ DOE notes that RSMMeans publishes data books in November or December for use the following year; hence, the 2022 data book has a 2021 copyright date.

⁷¹ Whitestone Research. The Whitestone Facility Maintenance and Repair Cost Reference 2012–2013 (17th Annual edition). 2012. Whitestone Research: Santa Barbara, CA.

forces much like other construction materials like lumber or commodities such as steel, DOE believes that prices will eventually revert to something akin to historical trends. To capture prices more consistent with long-term escalation trends, DOE used a 5-year average of prices for PVC and Type B venting and related components, and for Series 300 stainless steel venting materials derived from RSMMeans 2018 through 2022 data books. For AL29-4C stainless steel, DOE had access to 4 years of data from the source that DOE has used in this rulemaking, for the years 2018 and 2020 through 2022. For AL29-4C, DOE used an average of these 4 years. For the RSMMeans data and the AL29-4C data, all prices not originally denominated in 2022\$ were inflated to 2022\$ using the GDP Implicit Price Deflator.

Bradford White disagreed that installation or removal cost does not vary with thermal efficiency as more efficient products are typically heavier than their less efficient counterparts. They stated this translates into more people and/or equipment being required to position the new water heater, which will drive up installation costs. Bradford White also noted that condensate removal must be accounted for at condensing levels. Bradford White also suggested that equipment costs will influence installation costs, although that may not be detailed as such on the invoice. (Bradford White, No. 23 at p. 8)

DOE, in response to Bradford White's comments, notes that it did not explore relative weights between non-condensing and condensing equipment of the same capacity but notes that the data sources used by DOE indicated installation labor was a function of the input rating of the equipment which will in turn determine the size (dimensions) of the equipment. DOE based the labor assumption on the input rates of the representative models, and because the input rate does not change by EL, DOE's estimated labor also does not change by EL. Commercial water heaters are generally large and already require multiple persons during the installation, and DOE believes the size differences between ELs would generally be small enough to be unlikely to impact the number of people needed to install or remove equipment. DOE agrees that condensate disposal is a factor leading to differing installation costs, and addresses the cost of condensate removal in IV.F.2.b of this document. To the extent that a contractor bases the installation cost on equipment costs, the contractor is likely applying a markup to the equipment to recover their own costs. DOE does

include contractor markups in the determination of retail price as well as markups embedded in other inputs to the process such as the labor costs. Beyond that, DOE was not provided with sufficiently specific data for DOE to assess whether there is basis on which to account for such markups.

Bradford White stated the labor rate DOE used for the commercial sector used, at \$89 per hour, is in their opinion more representative of the top end of the residential sector labor rates, and commercial sector rates are in excess of \$125 per hour. They also stated DOE is correct that regional adjustments need to be made to this value, but the low end for North and South Carolina is too low at 0.59. (Bradford White, No. 23 at p. 8) PHCC also believes that the labor rates used by DOE are significantly understated. PHCC notes that the U.S. Department of Labor ("DOL") publishes information about prevailing wage rates for localities across the country, and the Biden Administration through DOL has made efforts to expand the use of such information in hopes of promoting fair and equitable employment opportunities. It would seem that using this information would align with the goals of the Biden Administration through DOE as well, PHCC stated. PHCC does express concern that the labor assumptions made by DOE are outdated, that the labor market has changed post COVID-19 with worker shortages driving up pay and benefits and that DOE should evaluate its assumptions. PHCC provided to DOE a sample table of commercial building plumber rates, with employer costs and markups for each State as an example to DOE, with a resulting average cost of \$106/hr. While the sample table PHCC provided used a random county in each State, PHCC notes that a weighted scheme should be incorporated to accurately gauge State averages as plumber rates in high population areas would apply to a greater fraction of the population or sales. (PHCC, No. 28 at p. 10) DOE acknowledges the information provided by Bradford White and PHCC, and notes that the data source used by DOE for labor rates and for the regional indexes is a nationally recognized source for labor rates. Using the regional adjustment factors for individual states, four states meet or exceed Bradford White's \$125 value. The State factors developed by DOE are a weighted average of individual city rates. Thus, depending on where Bradford White observed the rates they are citing, they are well within the range used by DOE. Additionally, DOE's regional multipliers for North and South Carolina are

consistent with other southern states. With respect to PHCC's suggestion about the prevailing wage, DOE uses the RSMMeans values because they are from a nationally recognized source, collected by surveys. With this in mind, DOE elected to continue to use RSMMeans data with the only change being to update to the current RSMMeans values available when the analysis was performed.

Joint Gas Commenters stated that labor costs for CWH replacements are typically not standard rates but are premium rates due to overnight hours. Joint Gas Commenters also stated DOE inadequately accounted for uncertainty about labor costs. (Joint Gas Commenters, No. 23, at pp. 14 and 18) In response, while Joint Gas Commenters suggested that labor costs for CWH replacements are typically not standard rates, they did not provide data to support this. DOE is aware that some businesses that rely on water heaters for production (e.g., food service) might opt for a night replacement. However, many other building types (offices, retail, schools) can and do readily make changes such as replacing water heaters during the day as the outage, while inconvenient, does not limit operations. Two other large users are hotels and health care facilities. All hotels and many health care facilities (e.g., hospitals) are already 24/7 facilities, and it is unclear that an over-night water heater replacement is an improvement over a day-time replacement from the viewpoint of providing for hot water. Many of these facilities rely on multiple water heater plants so hot water can be available at some level if problems arise with a given unit (as is pointed out later by the Joint Gas Commenters in their comments). DOE believes many larger food service business may do the same and where they do not use multiple water heaters, both non-condensing and condensing units may be replaced at night (i.e., efficiency of the units is not particularly relevant to timing of installation). Further, most food service buildings are relatively small low rise one or two-story buildings commonly with the water heater associated with the kitchen space and typically on a separate, outside portion from the dining space and with floor drains already in close proximity. This minimizes or eliminates factors potentially leading to difficult installations, namely, most food service buildings will not be many-storied buildings with difficult vertical venting installations and in fact many may be able to use less costly and simpler horizontal venting. In addition, where

water heaters are installed in commercial kitchen areas, floor drains will typically exist already for code and safety reasons. DOE believes that installation of condensing water heater venting may in fact be less difficult for food service buildings than in other buildings, meaning that the installation time will be more manageable. To the extent the replacement needs to take place at night, such would occur regardless of the efficiency of the equipment. Accordingly, for the final rule, DOE did not apply any factor to increase the labor costs above what was available in RSMears.

b. Condensate Removal and Disposal

In the May 2022 CWH ECS NOPR, DOE based assumptions concerning the need for condensate removal and disposal in part on DOE's understanding of the International Plumbing Code.⁷² The International Plumbing Code calls for temperature and pressure relief valves to be piped to drain, which means that non-condensing CWH equipment should already have an existing drainage system. An additional factor underlying DOE's assumptions is the fact that a condensate neutralizer is not required in certain jurisdictions, though it is good design practice.

In response to these underlying factors the May 2022 CWH ECS NOPR analysis assumed a condensate neutralizer was assigned to 12.5 percent of replacement installations (which was unchanged from the assumption used in the withdrawn May 2016 CWH ECS NOPR). The cost of heat tape was assigned to 10 percent of replacement installations, and the cost of an electrical outlet specifically for heat tape was added for 10 percent of instances in which heat tape was installed.

JJM Alkaline stated that DOE's assumption of 12.5 percent of water heater installations needing condensate neutralizers for condensing equipment is too low, noting that the U.S. Environmental Protection Agency ("EPA") and many municipalities have codes regarding acidic condensate discharge into public works and the acidic condensate from heating appliances is generally 2.9 to 4.0 pH, which is below the threshold of 5.0 pH. (JJM Alkaline, No. 10 at p. 1) Bradford White recommended increasing the percentage of installations that utilize a condensate neutralizer, stating that for installations that are over 200,000 Btu/

hr, the percentage is closer to 75 percent (because those installations are more likely to be inspected due to pressure vessel requirements) while for installations under 200,000 Btu/hr, the percentage is above the estimated 12.5 percent and growing. (Bradford White, No. 23 at p. 8)

Regarding the comments on the use of condensate neutralizers from JJM Alkaline and Bradford White, DOE reviewed the applicable IPC⁷³ and Uniform Plumbing Code ("UPC")⁷⁴ as the two most widely used model plumbing codes in the United States. Both documents have relevant sections. The IPC requirement (IPC 2019 section 803.2) is titled "Neutralizing device required for corrosive wastes" and is a more general requirement for "Corrosive liquids, spent acids or other harmful chemicals that destroy or injure drain, sewer, soil or waste piping, or create noxious or toxic fumes or interfere with sewage treatment processes." Where such harmful chemicals exist (as determined by the authority having jurisdiction), the IPC requires such corrosive wastes to be diluted or neutralized using an "approved" dilution or a neutralizing device. The UPC (UPC 2021 803.2) by contrast refers specifically to condensate from fuel burning condensing appliances, and where such condensate is discharged into a drain, the material in the drainage system must be cast-iron, galvanized iron, plastic, or other material approved for this use. DOE examination of these suggests that the IPC and similar local code requirements would be more likely to result in the use of condensate neutralizers, particularly in new construction. DOE evaluated the population weighting of States subject to the IPC or UPC and determined that approximately 73 percent of the U.S. population would be in States or jurisdictions that fall under the IPC or similar code requirements. DOE also reviewed available data on States that require ASME stamps and ASME-related inspections for water heating equipment and what thresholds are used but recognizes that such inspections are safety inspections of the equipment and would not generally address condensate disposal issues. Based on its analysis of the language of these requirements and discussions with others in the industry, DOE revised the estimate of equipment using condensate neutralizer upwards, using

an average for new construction of 60 percent and separately 30 percent for replacement equipment in the LCC analysis. Both the assumed prevalence of condensate neutralization equipment and the expected cost of such equipment are discussed in chapter 8 of the final rule TSD.

PHCC stated its members are concerned with the need for condensate disposal with higher efficiency equipment, noting DOE reduced the instances where additional work would be required assuming that the International Plumbing Code requires a floor drain. PHCC disagrees, stating section 502 of the code does not require a drain; instead, it requires the relief valve to discharge to a suitable location such as a floor, water heater drain pan, waste receptor, or outdoors. In addition, it requires that relief valves, as emergency devices, are allowed to discharge to the floor and in most cases that is what they do. Service personnel are directed to solve the problem. Condensate however is an ongoing discharge, and a method of disposal is required per section 314.1 of the International Plumbing Code ("IPC"). Further they note that while in some instances existing installation floor drains may be present, additional piping may be required to get to the drain location, and if that presents a trip hazard, owners may elect to have a pump installed regardless. They comment that this situation will impact more than 10 percent of installations and likely more than 50 percent. PHCC also noted that in a new installation without new standards, consumers currently do not have to purchase condensing products. (PHCC, No. 28 at pp. 6–7) PHCC agrees that many new installations opt for high efficiency products already, but perhaps 25 percent to 30 percent would not. As such, some allowance should be included in new installations for additional condensate disposal expenses. (PHCC, No. 28 at pp. 6–7) Joint Gas Commenters noted many commercial buildings with non-condensing equipment were not designed with plumbing systems to dispose of condensate. (Joint Gas Commenters, No. 34 at p. 4)

DOE interprets the comment from Joint Gas Commenters regarding existing buildings not designed with plumbing systems to dispose of condensate to refer to both condensate neutralization, which DOE addressed previously, and condensate disposal which is discussed here. With regard to the point raised by PHCC, DOE reviewed the language in the IPC and agrees with PHCC that the code does not require a floor drain be

⁷² See www.iccsafe.org/content/international-plumbing-code-ipc-home-page/. The model International Plumbing Code has been adopted 35 States for State or local plumbing codes.

⁷³ International Code Council. 2018 International Plumbing Code (IPC). Available from www.iccsafe.org.

⁷⁴ International Association of Plumbing & Mechanical Officials (IAPMO). 2021 Uniform Plumbing Code. Available from iapmo.org.

present in spaces where a water heater exists and allows for other means of dealing with discharge. In locations where drainage from the T&P valve could cause damage, it requires a pan and some method of disposal (either to the exterior of the building, a sump, or a floor drain). In a situation where discharge would not cause damage, water release could be handled as a maintenance call as noted by PHCC. DOE examined the UPC requirements for floor drains as well and notes the UPC does not appear to require floor drains for water heater temperature and pressure discharge valves explicitly. The UPC does have requirements for floor drains in certain areas, including what would be most commercial restrooms (see definition, commercial kitchens, commercial laundry spaces, and boiler rooms). The International Mechanical Code, part of the ICC series of building codes also requires floor drains. DOE examined other codes adoptions that occur at the municipal or State level, and requirements for drains in non-boiler mechanical rooms seem to occur through amendments in certain codes. For example, the New York City code 501.16 seems to require drains at the base of all chimneys and gas vents.⁷⁵ In addition, DOE notes that mechanical rooms that must deal with condensate from air handlers will typically require some method of condensate disposal. However not all such rooms will also be used for water heaters. In rooms that have pumps, it appears that some form of drain will be common for convenience to deal with replacement or leakage. DOE believes that in many locations where commercial water heaters are installed, it appears that drainage in the form of floor drains, trench drains, etc., will be provided for or will be close by in existing buildings and expects this to be more common in the case of new construction, in part due to the prevalence of condensing equipment. However, DOE does agree that the ability to gravity drain condensate may be limited in existing construction and in the NOPR included the 10 percent factor. While DOE agrees with PHCC that there may be factors at work such as avoiding a tripping hazard, it is speculative to DOE how this leads to a fraction as high as 50 percent as stated by PHCC. PHCC is speculating that there in as many as half or more cases there may be a floor drain present that building owners would choose not to use and instead pump

condensate to some other location. DOE believes this is a highly speculative statement that implies that even where a floor drain exists, in a majority of cases there is an alternative location in which to dispose of condensate and owners would choose to incur additional installation costs to reach that alternative drainage location. That said, because the tripping hazard is a possible concern not embodied in DOE's original 10 percent factor, DOE modified the LCC to increase the fraction of installations with condensate pumps to 15 percent.

For this final rule, DOE also conducted research on the appropriate condensate pump size and associated cost for each equipment category, which resulted in an update to the condensate pump assignment for residential-duty and commercial gas-fired storage water heaters. For the withdrawn May 2016 CWH ECS NOPR, DOE used one condensate pump for all equipment types while for the May 2022 CWH ECS NOPR and this final rule DOE used two sizes of condensate pumps to reflect difference in input rates between classes. Chapter 8 of the TSD contains more information on the methodology, raw costs, and sources for the installation cost for condensate removal.

c. Vent Replacement

In both the withdrawn May 2016 and the May 2022 CWH ECS NOPRs and in this final rule, DOE conducted its analysis under the assumption that condensing CWH equipment would commonly use the same, typically vertical, chase for the venting system as the non-condensing CWH equipment that it replaces. DOE recognizes that each venting situation may be unique and will depend on the location where the water heater is installed within the building, whether new construction or replacement, the height of the building and or distance to the outside wall. In new construction the latter two variables will in fact be influenced, in part, on the water heater and water heater efficiency levels selected. In an existing building that uses non-condensing water heaters, the most common path for exhaust is expected to be a vertical chase and flue or chimney, which formed the basis of DOE's analysis, although DOE recognizes that other existing building flue scenarios may exist including horizontal power venting of non-condensing equipment, vertical power venting of non-condensing equipment, and exterior. For this final rule, DOE maintained its venting methodology and associated venting costs for scenarios in which non-condensing CWH equipment is

replaced by condensing CWH equipment.

DOE incorporated the sleeving of existing vent systems in its May 2022 CWH ECS NOPR analysis. For existing buildings with natural draft (Type B) venting systems that have no elbows and possess vent lengths less than or equal to 30 feet, DOE assigned sleeving of the existing vent with PVC venting to 50 percent of replacement scenarios. DOE's NOPR and final rule analysis provides for using an existing vent as a sleeve only for those installations meeting the criteria defined previously.

For this final rule DOE's analysis accounts for installation costs in the commercial and residential sectors for both replacement and new construction markets, along with an appropriate set of installation scenarios within each market and sector combination. Equipment installation and removal costs are separate from venting system installation and removal costs. The equipment installation labor hours for representative CWH models ranged from 4 to 22.4 hours, depending on the equipment category. The labor hours to remove CWH equipment in replacement situations were determined to be an additional 37.5 percent of the installation labor hours on average, meaning they ranged from an additional 1.5 to 8.4 hours depending on the equipment category. These labor hour calculations were based on a linear regression formula using data from the RSMeans Facilities Construction Cost Data, ENR Mechanical Cost book, and Whitestone Facility Maintenance and Repair Cost Reference. This formula escalated equipment installation labor hours based on the input capacity and/or volume of the CWH equipment, as expressed in the sources that DOE relied upon. DOE has found no information that suggests basic CWH equipment installation or removal cost varies based on thermal efficiency rather than input capacity and/or volume. DOE accepts the methodologies of its sources that the activities required to install minimum-efficiency and high-efficiency equipment are inherently similar. This approach to developing costs for CWH equipment installation or removal was not changed from the withdrawn May 2016 CWH ECS NOPR.

In addition to equipment installation and removal, DOE accounted for the labor hours to install and remove venting, scaled to the vent length in linear feet and/or the number of components (e.g., elbows) in the venting system. These hours differed based on the vent material and vent size involved in the installation and were developed

⁷⁵ See www.nyc.gov/assets/buildings/apps/pdf_viewer/viewer.html?file=2022FGC_Chapter5_ChimneysVentsWB.pdf§ion=conscod_2022_p.7.

using data from RSMMeans.⁷⁶ The labor rates in DOE's analysis depended on the crew type conducting the installation, region in which the installation occurred, and whether venting was installed in residential or commercial buildings. For the installation of Type-B venting for non-condensing CWH equipment, average labor rates (including overhead and profit) ranged from \$65 per hour in the residential sector to \$89 per hour in the commercial sector.⁷⁷ For the installation of PVC venting for condensing CWH equipment, average labor rates used by DOE (including overhead and profit) ranged from \$66 per hour in the residential sector to \$89 per hour in the commercial sector.⁷⁸ Regional adjustments to these labor rates called for multipliers ranging from 0.51 (Arkansas) to 1.64 (New York).⁷⁹ For this final rule, DOE did not further adjust labor rates for venting except to use the most up-to-date source data.

In addition to accounting for equipment installation and removal, and venting installation and removal, DOE also incorporated an appropriate set of installation cost additions and subtractions, which included labor and material, arising from unique circumstances in replacement scenarios. These installation costs included reusing existing vent systems (when replacing non-condensing CWH equipment with similar non-condensing CWH equipment), relining of chimneys, installing condensate drainage, and sleeving of existing vent systems with certain replacement venting systems, introduced in this final rule analysis. DOE did not incorporate the costs of sealing off chases and roof vents or moving mechanical rooms because it is logical that condensing CWH equipment would reside in the same location and use the same chase as the non-condensing CWH equipment it replaced.

In response to the May 2022 CWH ECS NOPR, Joint Advocates suggested that DOE thoroughly analyzed the cost of installing new venting systems, and that the analysis is comprehensive and reasonable. (Joint Advocates, No. 29 at pp. 2–3)

The Joint Gas Commenters stated that EIA data show that “more than half of all commercial buildings were constructed before condensing commercial water heaters were introduced to the market” and stated

that condensing products are incompatible with millions of these existing commercial buildings. They further added that the modifications required to alter these existing buildings to accommodate the use of condensing products are far more complicated, extensive, and burdensome than DOE's analysis assumes. (Joint Gas Commenters, No. 34 at p. 3)

DOE agrees that many commercial buildings were constructed before condensing water heaters were introduced to the market, but does not agree that millions of commercial buildings are thus by definition incompatible with condensing water heaters. This statement implies that such water heaters cannot be used in older buildings. Evidence strongly suggests otherwise. Since the mid-1990s, the condensing water heater market has grown rapidly. That growth has been substantially faster than the growth of commercial building stock. The implication is that condensing water heaters have been installed in preexisting commercial buildings, which supports the conclusion that older buildings are not incompatible with condensing water heater installations. DOE acknowledges and addressed that in many existing buildings the venting systems would need to be replaced and, as discussed in Appendix 8D, DOE included costs for items such as vent removal, whether a condensing vent can be sleeved into an existing non-condensing vent, and whether an existing chimney needs to be relined. The percentage of water heaters that potentially require vent modifications is identified in Table IV.29. DOE's analysis considers the cost of these building vent modifications, but the need to modify the building vent system does not make the building incompatible. However, this could mean that there are additional installation costs to be considered. DOE's analysis has accounted for the possibility that certain installations—including some, for example, in certain older commercial buildings—may incur exceptional costs. To the extent that unusually high costs may be incurred, DOE has included significant exceptional cost adders in 2 percent of buildings in its analysis of venting costs. This is discussed in section IV.F.2.d of this document and in TSD chapter 8.

The Joint Gas Commenters also noted that condensing water heaters are generally either power vent or direct vent products. They note that power vented water heaters are typically vented horizontally and require positive pressure venting—generally through a horizontal conduit, powered by a fan or

other additional electronic device—to generate sufficient pressure and flow to vent the combustion gases. Further, they stated such installations require plumbing drains to dispose of the condensate developed in the operation of the appliance. They also stated that direct vent water heaters use special coaxial venting with separate chambers for intake and exhaust in a single vent pipe. Joint Gas Commenters stated that these are vented through the side wall and noted several additional factors about power vented equipment including the cost of interior renovations, the need to have electricity available to operate fans and condensate pumps, restrictions on sidewall venting in some urban areas, the need for on lower floors for terminations to be located 7 feet or more over public sidewalks or above the snow level, and other factors. (Joint Gas Commenters, No. 34 at pp. 4–5, 7–9) Joint Gas Commenters further stated multi-story buildings in urban centers cannot use horizontal venting because it is impossible to install and service vent terminations. In addition, they stated that wall penetrations could compromise the structural integrity of buildings in many cases. (Joint Gas Commenters, No. 34 at p. 5) Bradford White noted limitations to vertical venting may exist as a water heater in a basement/ground floor mechanical room may not be certified with a long enough vent length to vent vertically through a building's roof. Additionally, it may not be able to vent horizontally due to jurisdictions prohibiting side wall venting in these applications. (Bradford White, No. 23 at p. 4)

DOE disagrees with the Joint Gas Commenters that direct vent water heaters necessarily use coaxial venting. This is an option for direct vent systems and will have some advantages in certain situations, though is not a necessary part of direct vent design as coaxial vent solutions are relatively new. Two pipe direct vent solutions, such as mentioned by PHCC, have been around longer. Further, coaxial venting is used for both horizontal and vertical vents based on manufacturers' literature.

Regarding the availability of electrical power, DOE believes that it is generally available in most commercial situations where a commercial water heater is situated, and provides for costs to bring electricity close to the water heater location in cases where it may not be nearby. A review of the market shows that non-condensing storage commercial water heaters commonly utilize technology including electronic ignition, electronic flue dampers, and

⁷⁶ RSMMeans. Estimating Costs with RSMMeans Data, CostWorks CD, Mechanical Costs 2022.

⁷⁷ RSMMeans. Estimating Costs with RSMMeans Data, CostWorks CD, Mechanical Costs 2022.

⁷⁸ *Id.*

⁷⁹ *Id.*

commonly electronic controls. In addition, many are power vented. While the baseline efficiency model developed for this rulemaking were simplified in this respect, the actual market is quite varied. Further, even in equipment that does not use electric power, much of the equipment may be installed in spaces like mechanical rooms where electric power is readily available. For instances where this is not the case, DOE has provided for electric power to be included in the installation costs. DOE received no comment that the estimated cost to bring electric power in these instances was inadequate. As noted previously, DOE modified its assessment of the need for condensate pumps in the final rule analysis to reflect higher anticipated usage needs, particularly in existing buildings.

Regarding interior renovations, it is not clear what interior renovations may be envisioned outside of those associated with flue replacement costs. DOE agrees that in some dense urban areas there may be restrictions on how sidewall venting is achieved, including the appropriate considerations for sidewalks immediately adjacent to buildings, and more generally those vents need to exhaust above the snow level. However, these are requirements so that sidewall venting, when used, is implemented in a safe manner. Other safety requirements are that exhaust vents are not located near operable windows or air intakes and these latter requirements are also found when exhausts are used for non-condensing equipment. These restrictions also apply to sidewall venting of non-condensing equipment, but do not imply that non-condensing equipment cannot be used. DOE's analysis did not assume sidewall venting and DOE and other commenters (see *e.g.*, PHCC, No. 28 at p. 7) note sidewall venting may in fact be less expensive than vertical venting.

DOE is not clear what is being implied regarding structural integrity. DOE believes that the structural integrity of a building is an engineering consideration to ensure that the building is operable and structurally safe for its occupants. Competent contractor assistance may be required to select the appropriate areas of a wall to drill, to perform the drilling safely, and to ensure that the resulting vent does not allow water to enter the wall, but there is nothing in this process that inherently damages building integrity. Joint Gas Commenters have provided no evidence that the structural strength of building will be compromised by the addition of a horizontal exhaust vent.

PHCC stated that they took issue with the phrase that "Condensing CWH

equipment is not required to sidewall vent exclusively and presents no special limitations restricting vertical vent scenarios," noting that all manufacturers have vent length limits, and that the "effective vent length" needs to consider fittings, usually elbows, and that in tall buildings, the vent length of the equipment can be exceeded and the installation cannot be made in that location, and perhaps this becomes an impossible location. (PHCC, No. 28 at p. 7) Joint Gas Commenters noted in discussing vertical venting, manufacturers place limits on the length of vertical vents. (Joint Gas Commenters, No. 34 at p. 12)

Regarding the PHCC comment about no special considerations for vertical venting, DOE's language did not mean to imply that vent length is not an issue; rather, that in the context of whether the vent is vertical or horizontal, the distance that a power vented condensing water heater can vent is generally the same as a non-condensing product. DOE notes that the distance a power vented product will vent is largely a function of fan size and vent diameter used. DOE understands that consideration of pipe elbows and bends must be considered due to pressure losses through these components but notes that the market is already moving to make longer vent length products more available in condensing equipment. Condensing commercial water heaters with maximum vent length of over 200 ft are available on the market today as standard products without significant increases in vent diameter for a given combustion air throughput. DOE also notes that natural draft vent tables in the National Fuel Gas Code only go to 100 ft vent height and that where the actual height of a vent exceeds these tables, recognized engineering methods must be used to establish vent capacities for such systems. DOE statements here do not imply that such very long natural draft vents do not exist, but that they are already in the realm of professionally engineered systems. DOE also notes that draft inducers for combustion equipment already exist on the market and that these might be used to address combustion air from condensing equipment in very long vent lengths.

PHCC commented that DOE asserts there would be sufficient space in an existing chase to install plastic vents and stated that it depends, and every installation is unique. Typically chase sizes are built to a minimum dimension to maximize building floor space. If the existing vent is large, the new vent may fit. PHCC stated that most high efficiency systems (particularly 95

percent or better) will use two pipes to achieve maximum efficiency. Depending on the vent length, whether upsizing is required, and if using two pipes, the existing chase may well be too small. PHCC added that in the real world this may not matter because there will be significant work to open the chase, install and support the piping, firestop the floor and ceiling penetrations, and close the chase such that making it somewhat larger will be trivial. PHCC questioned whether DOE accurately accounts for this additional work because the May 2022 CWH ECS NOPR suggests this will be an easy solution. When it is suggested that existing chases be used, PHCC assumed that existing venting materials would be removed, and the piping placed in the same vertical building compartment. The chases would need to be opened throughout the path of the vent, existing piping removed, new piping and supports installed and the chases closed up. Typically, chases are fire rated construction, and particular care must be used to ensure the integrity of these spaces. (PHCC, No. 28 at p. 8) Joint Gas Commenters asserted that based on interviews with installers, condensing water heaters are not installed using the existing chase. Impediments include that the venting for the new water heater cannot be suspended in a vertical chase; it requires support at frequent intervals and that requires sufficient space in the chase for vent hangers and often requires physical access to the chase for installation. (Joint Gas Commenters, No. 34 at p. 12)

PHCC noted that in the discussion of sleeving and using the same chase when changing vent systems, both of these options also present problems. Although the systems may tend to be of plastic material, those materials have weight that must be accounted for. Systems must be supported to hold the weight and prevent seismic movement, two issues that could cause failures in the vent system. Typical manufacturer instructions direct installers to support the pipe every 5 feet vertically and every 5 feet horizontally. It is unclear how this support spacing would be affected in a sleeved scenario. Some contractors have made efforts to install plastic vent piping in existing large masonry chimneys, and complicated hangar arrangements must be devised for this. Pipe joints must be made prior to placement in the chimney and the vent installed as a unit, which PHCC noted is cumbersome and costly. (PHCC, No. 28 at p. 7)

In response to PHCC concern regarding sufficient space in existing chases, DOE notes that in cases where

an existing chase is used with Category I venting, the cross-sectional area of the existing Category I or Type B vents, designed as they are to vent flue gasses through natural draft, will generally be substantially larger than that required for venting condensing products. This is true for two main reasons. First, the flue path in a Category I vent operates only on the natural draft pressure. The flue path is therefore typically larger in diameter than that of a typical Category IV where combustion products are pushed through the vent with a fan. For example, per ANSI Z223.1–2015 (National Fuel Gas Code), when considering a vent stack height of 30 feet, a lateral distance of 10 feet, and a 199,000 Btu/h input rate requires a 6-inch inside diameter vent flue path. A strictly vertical vent with no lateral flow in the system could use a 5-inch vent. By contrast, a similar input rated condensing water heater venting over the same distances would commonly be vented with a 3-inch flue diameter vent. When considering longer vent height (50 feet), a 5-inch Category I vent could be used with up to 5-foot lateral distance, but otherwise a 6-inch Type B vent would be required. However, for the Category IV, condensing water heater of the same input a 4-inch vent pipe could be used. Characteristically, the vent pipe diameter for a condensing water heater will typically be smaller, sometimes considerably smaller, than for a natural draft water heater. Therefore, DOE does not believe this issue is as significant as PHCC states.

In addition, because it is venting higher temperature flue gases, the Type B vent must have at minimum an additional clearance of at least 1 inch from any combustibles in the flue path. Because of the need for larger diameter vent pipe and the additional need for clearance, the cross-sectional area that would be required for a single flue chase for a Category I vent is typically much larger than for the exhaust vent for the same input rating for a Category IV vent such as would be used for a condensing water heater product. In addition, because of the higher efficiency for the condensing product and the greater hot water output for a given input rating, it may be possible to downsize the water heater input rating with possible further reductions in vent size in some situations.

DOE acknowledges that in the case where direct vent products (using a separate inlet and exhaust pipe or two-pipe as referred to by PHCC) are selected for the condensing equipment, adding a direct vent inlet pipe to an existing chase may not always be possible. A direct vent is generally a

separate optional feature that becomes prevalent with the use of non-natural draft water heaters, but not a requirement in such an equipment replacement. Inspection of CWH product literature shows most condensing equipment allows for direct vent as an alternative to the standard “power exhaust” vent configuration. Both direct vent and standard, “power exhaust” water heater designs require ventilation air for proper and safe operation. In a replacement situation, the space where a similar sized Category I water heater is already located should have this sufficient air supply for safe operation. A direct vent water heater allows the intake air to be taken from another location, typically outside of the building envelope. Where a direct piped vent is used to bring air in from outside, it will typically reduce overall building infiltration and provide for additional efficiency benefits to the building not accounted for in DOE’s analysis, providing for an overall building efficiency improvement. A direct vent configuration is not a requirement for a 95 percent thermal efficiency rating per the DOE test procedure. Further, even where used, the inlet air may not have to follow the same path as the exhaust flue. In some cases, a coaxial-two pipe vent may also be an option with an overall pipe diameter not significantly different from the original Type B vent and without the additional clearance-to-combustibles requirement. The Joint Gas Commenters state that a direct vent water heater uses special coaxial venting that has separate chambers for intake air and exhaust in a single assembled vent piece. (Joint Gas Commenters, No. 34 at p. 4) DOE disagrees with the implication by the Joint Gas Comments that a direct vent implies or necessarily (or even commonly) requires use of a coaxial vent in most applications. DOE acknowledges that in some cases coaxial vent systems can be an option during installation of condensing equipment and may reduce installation costs or provides other benefit, but they are not required in all applications.

With regards to supporting vents installed vertically, multiple options may be available. Where PVC plastic vents pipes are used, they are solvent glued together forming a permanent bond where the PVC at the bond becomes continuous and joints are of similar strength as the pipe itself, which allows for longer sections of vent piping without supports. This is unlike Type B vent sections that lock together upon twisting and must be supported section by section. Horizontal PVC flue sections

can be supported similar to water piping, where the pipe supports are installed periodically along the flue length as noted by PHCC; however, the weight of PVC/CPVC is much less as a flue than as a water pipe and piping supports can be of lighter construction. However, it is important in a condensing product application that flues are sloped properly for condensate drainage, and horizontal flues need to have enough supports to prevent sagging. Vertical flue sections will also require support, but unlike Type B vents that may require support at each section, the continuous nature of the joined PVC pipe can allow longer spans of vertical flue sections where required as long as the weight is adequately supported.

Further, when polypropylene vent connections are considered, these are typically much lighter (manufacturer literature notes up to one third of the weight of PVC). The individual polypropylene vent sections are clamp connected. Not only can rigid polypropylene vents be supported using greater spacing between supports, flexible polypropylene vent products are available that can be readily used to allow for the lining of a chimney, Type B vents, and other existing chases, and that is supported primarily from the top where simple spacers may be used to provide some lateral centering. Note that thermal expansion in length may need to be accommodated for with PVC/CPVC flue systems; however, based on manufacturer literature, the expansion of ridged polypropylene vent systems is accommodated for at the joints between pipe sections.

Regarding support in a sleeved vent, DOE’s analysis uses only a restricted set of sleeved vent scenarios as outlined previously. Further, while cognizant that using straight PVC pipe may be cumbersome for the reasons indicated by PHCC, DOE recognizes that with different venting systems, particularly polypropylene or stainless flexible venting, additional sleeving options are possible. DOE notes that manufacturers of polypropylene vent products make components that are designed specifically to allow the use of sleeving in existing Type B vents. Regardless DOE’s NOPR and final rule analysis provides for using an existing vent as a sleeve only for those installations meeting the criteria defined previously and does not believe that it has overstated the possible use of this technique.

In response to DOE’s discussion of the selection of vertical venting in the May 2022 NOPR analysis, PHCC agreed that there may be sidewall venting issues for

some buildings but noted that should sidewall venting be possible; in some cases, it could be more cost effective than vertical venting. (PHCC, No. 28 at p. 7).

Atmos Energy stated that DOE should collect actual product and installation costs rather than relying on assumptions and inadequate data. (Atmos Energy, No. 36 at pp. 2, 4)

DOE does not agree with Atmos Energy that the collection of contracted or retail costs for equipment today provides a more accurate representation of future equipment costs under a standards scenario than what can be provided for in DOE's engineering and markup analyses. In DOE's experience reviewing such information, cost estimates provided by contractors vary widely in terms of information provided, from a total single price inclusive of everything including the equipment, to considerably detailed estimates. Even if detailed installation costs from a large enough statistically valid sample were made available from individual contactors, collecting and using such information would be highly impractical and could potentially require making as many or more assumptions as DOE's current analysis to which Atmos Energy is objecting. As to the installation costs, particularly in replacement situations, DOE's is not aware of an extensive source of national data on new or replacement installation of higher efficiency, condensing, CWH equipment installation. DOE has estimated costs considering publicly available sources, considered variation in vent length and diameter in its venting model and provided for variation in venting and material and labor costs using a national construction data source. DOE agrees with PHCC that in many cases horizontal venting may often be less expensive than a vertical vent solution. A good example of this is where the mechanical room, commercial kitchen, or other space where a water heater is located has an exterior wall on one or more sides. DOE believes this is a common, but not ubiquitous, occurrence. Because of the complexity of many larger commercial buildings, the location of the water heater within the building is not always assured, but when replacing a Category I type water heater, there will generally be a vertical vent path.

d. Extraordinary Venting Cost Adder

In response to the withdrawn May 2016 CWH ECS NOPR, some stakeholders argued that some venting installations can be physically impossible and/or prohibitively expensive to install condensing vents.

In the May 2022 CWH ECS NOPR, DOE acknowledged the possibility that its analysis of installation costs may not capture outlier installation scenarios that involve uncommon building conditions that may further reduce or increase installation costs. DOE expects that these situations would be small in number and that it has captured an appropriate set of installation scenarios that are typical of residential and commercial buildings. For the May 2022 CWH ECS NOPR and this final rule, DOE researched the question of the prevalence and cost of extraordinarily costly installations. The one source identified that could be used to quantify extraordinary vent costs was the report submitted by NEEA in DOE Docket EERE-2018-BT-STD-0018.⁸⁰ Using this as a reference, DOE implemented an extraordinary venting cost adder, which was included in the May 2022 CWH ECS NOPR LCC model as a feature of the main case. DOE used data from the NEEA report for both the May 2022 CWH ECS NOPR and this final rule to capture extraordinary venting costs.

In the NEEA report it was stated that due to vent configurations, between 1 and 2 percent of replacements might experience extraordinary costs between 100 and 200 percent above the average installation cost. Because there is no clear linkage between specific situations and extraordinary costs, DOE implemented this by adding for each equipment category two additional variables. One is a probability of occurrence and the second is the multiplier. For 2 percent of cases, DOE assumes a multiplier between 200 percent and 300 percent. In all cases, the LCC model estimates the total installation cost, and multiplies it by the multiplier. In 98 percent of cases, the multiplier is equal to 1.00, or 100 percent. When the LCC model selects the extraordinary installation cost case, it also selects a multiplier between 200 and 300 percent to multiply the estimated installation cost. In the May 2022 CWH ECS NOPR, DOE asked for comments on this adder.

AHRI estimated that a small business or property owner could have \$1k to \$10k in additional installation costs to convert from a non-condensing unit to a condensing unit. AHRI noted that several factors (including region, size of

load, municipal restrictions, historic building designation/protections, available materials and labor costs) can all factor into affixing a level of extraordinary venting costs. Rheem agreed with the AHRI comments. (AHRI, No. 31 at p. 4; Rheem, No. 24 at p. 5) A.O. Smith made a similar comment noting that venting costs in retrofit or replacement cases might be significant or cost-prohibitive due to a combination of tight mechanical rooms, insufficient clearance between buildings for sidewall venting, and common venting. A.O. Smith does not have an estimate of the number of installations that may face extraordinary installation costs but recommends that DOE evaluate the number and type of buildings in metropolitan areas. As an example of extraordinary installation costs, A.O. Smith estimated that installing stainless steel venting materials in a typical NYC 5-story building for a commercial water heater or boiler in the basement could cost \$32,500. (A.O. Smith, No. 22 at pp. 6-7) In reviewing the A.O. Smith comment, DOE is unclear which product classes or vent sizes were being considered in their estimation because the comment did not specify labor beyond an estimate of 1.5 times material costs, and presumed material costs of \$200/lineal foot, which are higher than the costs identified by DOE for stainless AL29/4C vent in diameters needed for the representative condensing equipment sizes analyzed. With respect to AHRI's and A.O. Smith's list of factors, DOE agrees with these as potential issues that may impact real world costs.

AHRI also pointed to the venting analysis used in commercial packaged boilers that appears to be more exacting, and AHRI stated it provides a better representation and encouraged its use in the CWH analysis. (AHRI, No. 31 at p. 4) APGA noted that it appears that DOE is treating venting in commercial water heaters differently than for other gas fired appliances. (APGA, Public Meeting Transcript, No. 13 at p. 57) Joint Gas Commenters criticize the use of one representative model which results in one vent size and contrasted this to the 2016 Commercial Packaged Boiler (CPB) TSD that provided an equation for the relationship between product input rate and vent diameter. (Joint Gas Commenters, No. 34 at p. 18)

The venting logic used in DOE's boiler analysis was essentially the same as used in the CWH analysis. The general methodology and assumptions for determining the size and type of venting material based on input rate was essentially the same as well as the decision methodology for when a vent

⁸⁰NEEA, Northeast Energy Efficiency Partnerships, Pacific Gas & Electric, and National Grid. Joint comment response to the Notice of Petition for Rulemaking; request for comment (report attached—Memo: Investigation of Installation Barriers and Costs for Condensing Gas Appliances). Docket EERE-2018-BT-STD-0018, document number 62. www.regulations.gov/comment/EERE-2018-BT-STD-0018-0062. Last accessed July 8, 2021.

could be reused or would need to be replaced. A difference in approach was largely the result of the CWH engineering analysis approach which looked at one representative unit size for each category of equipment analyzed whereas, in the CPB engineering analysis approach, two size classes (commercial packaged boiler with rated input between $\geq 300,000$ and $\leq 2,500,000$ Btu/h and commercial packaged boilers with rated input $> 2,500,000$ Btu/h) were already defined as DOE classes for each output type of CPB equipment (*i.e.*, hot water or steam) and for each fuel (*i.e.*, gas or oil) and one representative equipment size was selected to be representative of each size class in that engineering analysis. Because of the way cost data was collected for the CPB engineering analysis, curves representing the cost variation by size within the equipment classes were developed and it was possible to use these data, along with additional data on sizing equipment to peak building loads for the CBECS and RECS buildings and assumptions on the typical number of boilers in buildings by peak building load, to provide greater variability in boiler sizes analyzed in the CPB LCC. The lack of data on variation in cost with equipment size from the CWH engineering analysis, the greater complexity in sizing to building water heater loads, and the lack of data on characterizing the number of water heaters within a size class that would be installed in buildings made such an approach practically impossible for the CWH LCC model. Further, while there is variation in equipment size in water heaters, DOE believes that the variation in size for the CPB is significantly greater than for the CWH equipment in this rule, at least for the vast majority of shipments. DOE does recognize that for all but residential duty water heaters, larger equipment than represented in the engineering analysis are sold into the market, but DOE believes its equipment selections are representative of the majority of units shipped. See section IV.C.3 for further discussion about DOE's decision to use representative equipment sizes in this analysis.

Joint Gas Commenters and Bradford White criticized the use of the NEEA report on extreme installation costs. Bradford White was concerned that the report was based on interviewing 15 different parties in 10 states, which they believe is too small of a sample size. Bradford White continued to add that all but one of the states are not a fair representation of where extraordinary venting cost adders will occur. These

cost adders are likely to occur in larger, older cities (*e.g.*, Chicago, New York, Philadelphia). Bradford White recommends that a larger sample size is taken to understand these venting installation costs. (Bradford White, No. 23 at p. 4) The Joint Gas Commenters stated that DOE's economic analysis underestimated the costs imposed by condensing-only standards and suggested that the problems associated with condensing standards are common rather than uncommon scenarios. Joint Gas Commenters noted that DOE was basing the adder on one of the four identified categories of venting issues. Joint Gas Commenters further stated that through their own interviews of individuals with substantial experience replacing CWH equipment, they determined that DOE underestimates the percentage of difficult installations and the cost of such installations. (Joint Gas Commenters, No. 34 at pp. 12–14) Joint Gas Commenters point also to the distribution DOE applied to the extraordinary vent cost adder, calling it arbitrary, and stating that a lognormal distribution changes small net LCC savings to small net LCC costs, and the Joint Gas Commenters use this as evidence to support their position that DOE should collect data through field work. (Joint Gas Commenters, No. 34 at pp. 19–22).

In response, DOE notes that DOE researched the issue of extraordinary vent installation costs for CWH and was only able to identify the NEEA survey. Neither Bradford White nor the Joint Gas Commenters provided any data to support their comments, nor did they point to any alternative data or studies for DOE to examine for the purposes of reviewing extraordinary venting costs. Regarding the Joint Gas Commenters comment on the choice of a uniform distribution in DOE's analysis, DOE notes that the data that it used from the NEEA survey specifically defined the range of extraordinary costs as adding 100 percent to 200 percent to the typical cost and, lacking further details, DOE used a uniform distribution in this range. While DOE recognizes that a different distribution and range could exist, DOE received no data to characterize this from stakeholders. Specifically, with respect to the Joint Gas Commenters comment about using a lognormal rather than a normal (or uniform) distribution DOE notes that the data received from NEEA was cost adjustment data stated as a range, and DOE implemented the adder in such a way as to make use of this range in a manner that seemed most consistent with what was presented by NEEA. DOE

notes that Joint Gas Commenters provided their example of the lognormal distribution as illustrative of what a lognormal distribution could look like but did not link this back to actual data, nor did they say their presented distribution was in fact the correct distribution for use in this analysis. For these reasons, DOE maintained the use of a uniform distribution for the final rule.

WM Technologies and Patterson-Kelley stated they understand that the CWH analysis uses a low probability multiplier that models difficult venting considerations and would prefer DOE make a more exacting representation of this detail. They maintained that local requirements will prohibit some locations from installing condensing gas fired products based on building structure, orientation, or location and that this percentage will vary significantly across the nation, noting that 1940s multifamily units in certain densely populated regions (*e.g.*, New York, Chicago and Boston) would find all condensing efficiency regulation cost prohibitive. WM Technologies noted that this is why the Northeast continues to have a majority of atmospherically vented products while the West Coast typically has a higher rate of adapting to condensing products. (WM Technologies, No. 25 at p. 7; Patterson-Kelley, No. 26 at p. 5) Patterson-Kelley believes the percentage of the population incurring excessive costs when replacing a non-condensing appliance with a condensing product is more than five percent. (Patterson-Kelley, No. 26 at p. 5)

PHCC had concerns related to installations with venting installation issues and noted the recognition of this by DOE in the May 2022 CWH ECS NOPR. Although PHCC cannot provide lists of locations where these issues may occur, PHCC disagreed with DOE, stating that more than 1 percent to 2 percent of installations will be affected. PHCC asserts that problem installations would likely be tall buildings, perhaps 10 stories or more, in metropolitan areas. PHCC stated that the extraordinary cost adder lacks a foundational basis, that it is unclear how the adjustment is applied, and that in many cases it is understated. PHCC maintains that there are significant venting issues awaiting the implementation of this rule. (PHCC, No. 28 at pp. 7–8)

Conversely, NEEA supports DOE's conclusions on flue gas venting and its analysis method thereof, which aligns with the findings of independent research previously submitted to DOE. NEEA stated that condensing gas-fired

water heaters can be installed in all commercial building applications and said that DOE's analysis appropriately accounts for the rare cases in which the solution bears increased cost. (NEEA, No. 35 at p. 1) DOE acknowledges NEEA's input.

For the final rule, DOE has considered both the data provided from NEEA and the comments received from the various stakeholders regarding the fraction of consumers who would be characterized in the extraordinary venting cost grouping. Numerous stakeholders suggested that 2 percent was not representative. As noted by Joint Gas Commenters, DOE based the 2 percent adder on the frequency of vent installation issues noted in the NEEA report. DOE acknowledges that there were other potential installation cost issues noted by NEEA, and the high level summary statement was that fewer than 5 percent of installations were encumbered by any of the significant installation challenges identified. The other challenges noted by NEEA were, however, less costly than the 100 to 200 percent cost adder, and/or were already being addressed in the LCC model estimation of installation costs (masonry chimneys). While recognizing the range of comment on this issue, DOE believes that the data provided by NEEA through the survey of contractors provides an appropriate estimate for the fraction of the installations that might be considered to have extraordinary costs, and has continued to include this figure in its final rule analysis, along with the range of extraordinary cost multipliers established in the NEEA survey.

e. Common Venting

Certain CWH equipment installations can feasibly be commonly vented in certain building applications, where multiple individual equipment units are connected to a single, non-pressurized, combustion air vent, suitable for use with Category I equipment. However, as described more in the ensuing paragraphs, in these instances, DOE believes that CWH equipment typically is not commonly vented with other, disparate gas-fired equipment (like furnaces). Commonly venting disparate gas-fired equipment with significantly different capacities (such as a water heater and a boiler in a building) complicates the design and sizing of the common vent, since it needs to accommodate exhaust of a wide range of flue gas volume due to the different operating profiles and flue capacities required for disparate equipment as well as the seasonal variation of load. However, DOE understands that multiple, similar units of CWH

equipment may be more frequently commonly vented together since the CWH equipment typically operates in unison, calling for a specific vent size. When multiple units of CWH equipment are commonly vented, building engineers design the common-vent system to suit a total input rating of all gas-fired equipment collectively as well as the input ratings of individual units. In the May 2022 CWH ECS NOPR, DOE stated its understanding that the installation of these units typically occurs all at one time. As a result, each unit should have the similar expected lifetime and replacement cycle. Therefore, when one unit fails and requires replacement, the other units sharing the common vent should also be nearing the end of their lifetimes. Thus, the stranded cost of any naturally-drafted, non-condensing CWH equipment due to amended standards would have limited residual value, which may have been relinquished regardless of amended standards if a consumer opts to replace the older, but still functioning unit at the same time. As discussed more in this section, based on stakeholder feedback, DOE performed a sensitivity analysis regarding these assumptions and determined residual values from replaced equipment, which DOE has incorporated into its LCC analysis.

AHRI disagreed with DOE's characterization of their statement related to the withdrawn 2016 CWH ECS NOPR relating to customers handling common-vented equipment by replacing all equipment at the same time. (AHRI, No. 31 at p. 1) PHCC commented that it believes DOE misinterpreted other stakeholder statements regarding replacement of individual devices in common venting situation. (PHCC, No. 28 at pp. 8–9) While DOE captured the AHRI comment as stated in the withdrawn 2016 CWH ECS NOPR public meeting, AHRI clarifies that what they intended to illustrate was a misalignment of timing leading to the premature retirement of functioning equipment. While DOE did not receive data on the frequency of common venting of equipment, for the final rule DOE examined through sensitivity analysis a potential cost impact on the LCC that could occur due to premature replacement of equipment, as discussed later in this section.

Joint Gas Commenters assert that common venting of CWH equipment and space heating equipment was common practice for over 100 years, and is still very common. Joint Gas Commenters stated that non-condensing appliances have the ability to share a common vent with other non-

condensing appliances, and removing one or more units would disrupt the venting system of the other locations. (Joint Gas Commenters, No. 34 at pp. 4–5, 12–13) WM Technologies and Patterson-Kelley expressed concern with the prevalence of common venting disparate gas-fired equipment, stating it is so common that both the International Fuel Gas Code and National Fuel Gas Code have appendices devoted to the sizing of such venting systems. (WM Technologies, No. 25 at p. 5; Patterson-Kelley, No. 26 at pp. 1–2)

In response to the comments on common venting disparate equipment, DOE notes that for the 2016 commercial packaged boiler rule, DOE asked for input on common venting of disparate gas heating equipment. Comments on the frequency of common venting were inconsistent; however, in response to the commercial packaged boiler NOPR, AHRI stated that they believed that common venting of commercial boilers and commercial water heaters may in fact be relatively rare given the size mismatch between commercial boilers and commercial water heaters, such that common venting would be more than problematic because the common vent size would be so large that when the boiler wasn't firing there would be venting problems on the water heater. (See EERE–2013–BT–STD–0030; 81 FR 15870)

Based on this input from AHRI, DOE determined that common venting with water heaters would be negligible for large CPB equipment and would be uncommon for small CPB equipment. See 85 FR 1630. Based on this input DOE believes that to the extent common venting exists in a commercial setting it is most likely to be multiple water heaters as opposed to a water heater and another type of equipment.

With respect to the comment about the International Fuel Gas Code and National Fuel Gas Code, the codes provide for installations in residential setting as well as in commercial settings. In a residence, typically there are 2 major gas-fired appliances to be vented, a space heating appliance, *e.g.*, furnace or boiler, and a water heater. Thus, common venting when it does occur almost always is indicative of disparate gas-fired equipment. In addition, this equipment will typically be of sufficiently similar input rates to be common vented even where their usage profiles may be disparate. This is a situation which would not necessarily be the case in many commercial settings where there may be greater variation in the input ratings of the equipment serving the space heating and water heating needs of the building as well as

more commonly the use of multiple individual equipment to satisfy either the space heat or the water heating needs. Thus, while these fuel gas safety codes provide for requirements for when common venting of disparate equipment is used, these codes do not tell anything about the frequency of these types of common venting applications, particularly in commercial settings. DOE also notes that while most residential gas-fired heating equipment is installed indoors, a substantial fraction of the commercial floorspace is heated using packaged rooftop equipment, a fact that further reduces the possibility of venting of disparate equipment.

Joint Gas Commenters state DOE does not include costs for redesign necessary to address common venting. (Joint Gas Commenters, No. 34 at p. 18) However, Joint Gas Commenters provided no evidence of what such redesign might cost. Because consumers have multiple paths they could take to deal with upgrading common-vented equipment, without detailed knowledge of individual installations it would be extremely difficult to estimate the incremental cost of redesign of replacements of individual components of the common-vented system. DOE did not receive input on the frequency of common vented systems. Further, DOE did not receive input on the frequency with which redesign of a common-vented system would be significant and not already a part of the expected installation cost. DOE notes that when considering the consumers incurring extraordinary vent costs, the cost of redesign is part of what results in extraordinary costs, and as such it is subsumed in the doubling or tripling of the venting costs for such installations.

AHRI, Bradford White and Joint Gas Commenters stated that DOE recognizes that product lifetimes vary and used a probability distribution to describe lifetime here and in other DOE rulemakings. They noted that modeling common vented equipment as if it is all replaced at the same time can lead to consumers forgoing useful equipment lifetime and modeling it if the other equipment is retained can lead to increased venting cost as consumers have to vent condensing and orphaned non-condensing equipment separately. (AHRI, No. 31 at p. 2; Bradford White, No. 23 at p. 3; Joint Gas Commenters, No. 34 at p. 13) Joint Gas Commenters add that one reason for having multiple units is to have a primary and a backup so there will be no loss of service when a water heater needs to be replaced, and that purpose would be defeated if both

units are replaced at the same time (Joint Gas Commenters, No. 34 at p. 13)

Bradford White, WM Technologies, Patterson-Kelley, and Joint Gas Commenters noted that DOE assumes that all commonly vented appliances will be replaced at the same time if only one water heater fails and found the approach to product lifetime for common vented equipment concerning as DOE recognizes that products lifetimes vary and uses a probability distribution in numerous other standards' rulemaking as in the CWH LCC workbook. (Bradford White, No. 23 at p. 3; WM Technologies, No. 25 at p. 5; Patterson-Kelley, No. 26 at pp. 1–2) PHCC and Bradford White noted that while it is possible that multiple units that are commonly vented are replaced at the same time, they rarely see this occur, nor do they commonly see proactive replacement. As referenced previously, equipment lifetimes will vary unit to unit, even of the same model. If one unit happens to fail earlier in its life (e.g., in year 3), it is highly unlikely that a building owner would replace multiple other units at the same time. (Bradford White, No. 23 at p. 4; PHCC, No. 28 at pp. 8–9)

WM Technologies and Patterson-Kelley both state that stranded water heaters are a fact in the industry and the impact on such installations should be taken into account in the LCC analysis. (WM Technologies, No. 25 at p. 5; Patterson-Kelley, No. 26 at p. 2)

In response to the comments, DOE elected to perform a sensitivity analysis related to common venting. To the extent that the loss of value of a second water heater on a common vent takes place, the cost is an up-front cost and can be treated as such. To analyze the issue DOE used the lifetime distributions by equipment class referenced in several comments to model what happens when you have two independent pieces of equipment operating at the same time. DOE modeled multiple permutations to address two key questions: (1) What happens if they are installed at the same time?; and (2) Is the answer different after one equipment lifetime than it is after multiple (e.g., 3) equipment lifetimes? With respect to the second question, certain issues make the answer less than useful, namely, equipment today is different than it was 20 or more years ago and venting systems may have changed. While Joint Gas Commenters may be correct that equipment has been commonly vented for 100 years, consumers likely cannot vent today's hot water supply boilers with a boiler from 50 years ago because of changes in the technology. The result

of this modeling showed that on average in commercial gas storage equipment a second water heater on a common vent would lose approximately 3 years of useful life; a second hot water supply boiler about 4 years; and residential duty gas-fired storage about 3 years. DOE did not analyze tankless units because they represent a newer technology and most of the equipment available today is forced air combustion and not suitable for venting with category I equipment. See chapter 3 of the final rule TSD for discussion of forced combustion in tankless CWH equipment.

Next DOE translated lost equipment life into an estimate of monetary value. Commenters have not provided data on the frequency of common venting, other than that it exists. For its sensitivity analysis, DOE modeled a scenario of 20% of non-condensing replacement water heaters might be common vented for each of the above categories where common venting was considered. The average value of the lost life of the second water heater assumed to be common vented was taken as a loss against the average equipment class LCC savings as calculated in this final rule for the pair of new water heaters that were installed in their place in the common venting replacement scenario. Based on this sensitivity analysis, DOE determined that the overall impact of the residual values was approximately \$39 for commercial gas-fired storage; \$22 for residential duty gas-fired storage; and \$5 for instantaneous water heaters and hot water supply boilers. The LCC savings as calculated for the final rule could potentially be lowered via account for an analysis of this nature. However, the lack of information on the fraction of installations in which common venting has been utilized and the complexity of dealing with these historical installations and how remaining life may be correlated between CWH units are issues that did not support its incorporation in the base analysis. DOE presents it as illustrative of the fact that including this would reduce but not eliminate the economic benefits of the rule to consumers. DOE's sensitivity case is discussed in TSD chapter 8.

Bradford White disagreed with DOE's assertion that water heaters will be able to vent vertically in the case of common venting with other Category I water heaters as it will not be able to use the existing chimney as a chase as combustion products from existing water heaters will compromise non-metallic venting used by the new water heater. They further seek clarification on how polypropylene common vent

kits can be used to vent both non-condensing, existing water heaters with a newly installed condensing water heater. They also commented that regarding horizontal vent replacement, that DOE noted “to the extent that horizontal natural draft venting is used at a job site, it is indicative that horizontal venting is allowed by the jurisdiction.” and acknowledged that while that may be true, [and that there are] power venter kits that are used to horizontally vent natural draft water heaters, it is our experience that this is rarely done in the field. Therefore, this cannot be used as a good indicator of what local jurisdictions’ codes permit. (Bradford White, No. 23 at p. 4)

DOE believes Bradford White has misunderstood DOE’s point. DOE meant with the discussion in the May 2022 CWH ECS NOPR that there may be other options to both water heaters using the vertical chase when replacing the water heaters on the common vent. To the extent that a separate flue path may exist such as a horizontal venting from a mechanical room with an exterior wall, installers could very likely choose a simple horizontal vent option for the replacement water heater, and leave a functional non-condensing water heater in place, taking into account the relative size of the remaining Category I vent and the remaining water heater(s) input rate. Another option which may be present is the use of specified common venting procedures using multiple condensing water heaters (in a case where all units are replaced). In addition, DOE is aware of the Duravent FNS 80/90 vent solution, which allows for the use of an existing category I flue in conjunction with a condensing flue system which may be used in certain applications where replacement of the non-condensing water heater would be far out in time. However, in the case where an alternate path does not exist, DOE notes that multiple water heaters may have to be replaced.

f. Vent Sizing/Material Cost

Bradford White stated DOE’s analysis of installation costs does not appropriately account for State level restrictions on the application of PVC venting. In New Hampshire, PVC venting is not permitted for exhausting combustion gases. In Massachusetts, only CPVC, polypropylene, and other piping approved by the Plumbing Board are acceptable. These codes do not disallow PVC based on size, as other commenters stated. (Bradford White, No. 23 at p. 3) Bradford White also asked DOE to elaborate on why they believe polypropylene venting will become a more viable, cost-competitive

alternative by 2026. (Bradford White, No. 23 at p. 4)

After reviewing the comments from Bradford White and the requirements with regard to venting materials in New Hampshire and Massachusetts, DOE determined that in the case of New Hampshire, NFPA 54 was amended to require that a venting material would only be allowed to be used if the maximum set point temperature of the water heater does not exceed the safe operating temperature of the venting material selected. In the case of PVC vent material, the maximum storage temperature for use with PVC venting would be around 149 °F (based on the use of listed PVC vent products available that are rated to UL 1738). DOE agrees that this effectively does not allow PVC venting for the vast majority of products regulated under this rule. DOE also reviewed the requirements surrounding plastic venting materials for Massachusetts. Massachusetts requires that all venting products must be approved by the Plumbing Board. After consultation with a manufacturer of venting materials and review of the Massachusetts Consumer Affairs and Business Regulation website,⁸¹ DOE confirmed that at least one manufacturer’s product line of PVC vent piping that is currently listed to UL 1738 is allowed as a venting material according to the Massachusetts Plumbing Board. Based on this review, and the relative population of New Hampshire to the US total, DOE determined that the effect of restrictions imposed on PVC venting in New Hampshire would be de minimis for DOE’s venting cost analysis.

With response to possible growth in the use of polypropylene vent materials, DOE does not have data on the relative use of different plastic venting materials and historic changes over time. DOE’s intent in the May 2022 CWH ECS NOPR was only to note polypropylene venting as a relatively new option compared to other venting materials on the U.S. market that appears to have growth potential. Importantly, DOE did not modify its analysis for the May 2022 CWH ECS NOPR or this final rule to explicitly include polypropylene venting.

g. Masonry Chimney/Chimney Relining

In the May 2022 CWH ECS NOPR, DOE assumed that 25 percent of pre-1980 buildings have masonry chimneys and that 25 percent need relining. DOE

also used these assumptions in the withdrawn May 2016 CWH ECS NOPR and asked for input. DOE did not receive further information or data on the percentage of buildings built prior to 1980 with a masonry chimney or the percentage of those chimneys that require relining in response. For this final rule DOE maintained these same assumptions to characterize masonry chimneys; which DOE used in the logic underlying the calculation of venting costs.

PHCC noted that with regard to the fraction of existing buildings with masonry chimneys, it cannot provide data, but suggests that the Department may want to break its pre-1980 assumption down into more discrete year bins and also encouraged DOE to review possible data from the General Services Administration (“GSA”), the largest occupier of offices in the country. It encouraged DOE to make further examination of available information and to refrain from making random assumptions regarding building stock. (PHCC, No. 28 at p. 8)

DOE appreciates PHCC’s input on this topic. DOE reviewed GSA data and found it did not include information that provided insight into the fraction of existing buildings with masonry chimney venting or to develop more detailed estimates of this variable by finer year bins. Consequently, DOE did not update its methodology in this area for the final rule.

h. Downtime During Replacement

Joint Gas Commenters state that many CWH replacements occur on an emergency basis or “on an unplanned basis.” For this reason, Joint Gas Commenters criticize DOE’s statement that some businesses are able to plan ahead for CWH replacements. They further state that DOE failed to take into account additional down-time required for condensing CWH installations in buildings previously served by non-condensing equipment and the potential for lost business during the downtime. (Joint Gas Commenters, No. 12 at p. 14) Similarly, Joint Gas Commenters pointed out that DOE did not take into account lost business operations during replacement of heat exchangers. (Joint Gas Commenters, No. 34 at p. 19) DOE has no mechanism for determining what if any impact there would be on a consumer’s business. As noted above, consumers have several avenues to avoid downtime, whether due to a replacement or due to a repair. DOE agrees with Joint Gas Commenters that a water heater failure can happen at any time. However, DOE assumes that many consumers would have contingency

⁸¹ Accepted Plumbing Products Online System of the Massachusetts Board of Registration of Plumbers and Gas Fitters. licensing.reg.state.ma.us/public/pl_products/pb_pre_form.asp (Last accessed Dec 20, 2022).

plans to cope with such emergencies and limit business losses, including potentially having insurance policies which include coverage of business loss due equipment failures or similar business impacting events. Because avenues exist for consumers to minimize or eliminate lost business, DOE continues to assume there is no need to add in costs for lost business.

DOE acknowledges that currently a wide range of industries are experiencing supply chain bottlenecks, and that could, in today's climate, add to the time required to replace water heaters. The standard established by this final rule however would not take effect for three years and DOE believes that these supply chain bottlenecks should be resolved by that time.

3. Annual Energy Consumption

For each sampled building, DOE determined the energy consumption for CWH equipment at different efficiency levels using the approach described previously in section IV.C.4 of this document.

4. Energy Prices

Electricity and natural gas prices are used to convert changes in the energy consumption from higher-efficiency equipment into energy cost savings. It is important to consider regional differences in electricity and natural gas prices because the variation in those prices can impact electricity and natural gas consumption savings and equipment costs across the country. In the May 2022 CWH ECS NOPR, DOE determined average effective commercial electricity prices⁸² and commercial natural gas prices⁸³ at the State level from EIA data for calendar year 2019.

In response to the May 2022 CWH ECS NOPR, Joint Gas Commenters were critical of DOE's use of 2019 historical energy price data despite newer data being available "before the last update on March 25, 2022," and questioned why DOE did not update historical price data and marginal prices to match other base year costs. (Joint Gas Commenters, No. 34 at p. 23) In response, DOE chose 2019 as the base year in the May 2022 CWH ECS NOPR because it was the last calendar year for which complete natural gas and electricity data were available (*i.e.*, there were no missing

data in the Natural Gas Navigator dataset), and at the time the United States had not begun to recognize that the Nation was in a period of rapid price inflation. For the final rule, DOE agrees with the Joint Gas Commenters that it is important to have fuel prices that are fully contemporaneous with the other base-year prices used in the analysis, such as the prices for stainless steel venting. For the final rule, DOE is using a 12-month period ending with December 2022.

For the final rule DOE again used data from EIA's Form 861⁸⁴ to calculate commercial and residential sector electricity prices, and EIA's Natural Gas Navigator to calculate commercial and residential sector natural gas prices.⁸⁵ Future energy prices were projected using trends from the EIA's *AEO2023*.⁸⁶ This approach captured a wide range of commercial electricity and natural gas prices across the United States.

CBECs and RECS report data based on different geographic scales. The various States in the United States are aggregated into different geographic scales such as Census Divisions (for CBECs) and Reportable Domains (for RECS). For both the commercial and residential sectors, DOE continued to use population in each State and the cumulative population in the States that comprise each Census Division and Reportable Domain for developing natural gas prices. See appendix 8C of the final rule TSD for further details.

The electricity and natural gas price trends provide the relative change in electricity and natural gas costs for future years. DOE used the *AEO2023* Reference case to provide the default electricity and natural gas price forecast scenarios. This is an update from the May 2022 CWH ECS NOPR that relied on the *AEO2021*. DOE extrapolated the trend in values at the Census Division level to establish prices beyond 2050.

Joint Gas Commenters criticized the use of AEO forecasts, claiming they have systematically overstated future energy costs, and presented a comparison of historical residential and commercial gas prices to AEO forecasts going back to 2010 to support their claim. (Joint Gas Commenters, No. 34 at

pp. 19–23) DOE uses the AEO forecast because it is the most widely available, widely reviewed and robust forecasting process available to DOE. As Joint Gas Commenters did not propose any alternative, let alone one as widely reviewed and robust as the AEO, DOE determined that the appropriate alternative at this point is to continue to use the AEO for future energy price trends, consistent with its practice in energy conservation standards rulemakings, with the only change made from the May 2022 CWH ECS NOPR being to update from the *AEO2021* to the *AEO2023*.

DOE developed the LCC analysis using a marginal fuel price approach to convert fuel savings into corresponding financial benefits for the different equipment categories. This approach was based on the development of marginal price factors for gas and electric fuels based on historical data relating monthly expenditures and consumption. For details of DOE's marginal fuel price approach, see chapter 8 of the final rule TSD.

Regarding the usage of EIA data for development of marginal energy costs and comparisons to tariff data, DOE emphasizes that the EIA data provide complete coverage of all utilities and all customers, including larger commercial and industrial utility customers that may have discounted energy prices. The actual rates paid by individual customers are captured and reflected in the EIA data and are averaged over all customers in a State. DOE has previously compared these two approaches for determining marginal energy price factors in the residential sector. In a September 2016 SNOPIR for residential furnaces, DOE compared its marginal natural gas price approach using EIA data with marginal natural gas price factors determined from residential tariffs submitted by stakeholders. 81 FR 65719, 65784 (Sept. 23, 2016). The submitted tariffs represented only a small subset of utilities and States and were not nationally representative, but DOE found that its marginal price factors were generally comparable to those computed from the tariff data (averaging across rate tiers).⁸⁷ DOE noted that a full tariff-based analysis would require information on each household's total baseline gas consumption (to establish which rate tier is applicable) and how many customers are served by a utility

⁸² U.S. Energy Information Administration (EIA). Form EIA-861M monthly electric utility Sales and Revenue Data (aggregated: 1990–current). Available at www.eia.gov/electricity/data/eia861m/. Last accessed on March 31, 2023.

⁸³ U.S. Energy Information Administration (EIA). Natural Gas Prices. Available at www.eia.gov/dnav/ng/ng_pri_sum_a_EPGO_PCS_DMcf_a.htm. Last accessed on March 31, 2023.

⁸⁴ U.S. Energy Information Administration (EIA). Uses prices presented in the Sales and Revenue report, by sector by State. The EIA-861M detailed data was the March 27, 2023 updated historical data containing data from 2010 through January 2023.

⁸⁵ U.S. Energy Information Administration (EIA). Natural Gas Navigator. Available at www.eia.gov/dnav/ng/ng_pri_sum_a_EPGO_PRS_DMcf_a.htm. Last accessed March 31, 2023.

⁸⁶ U.S. Energy Information Administration (EIA). Annual Energy Outlook 2023 with Projections to 2050: Narrative. March 2023. Available at www.eia.gov/outlooks/aeo/.

⁸⁷ See appendix 8E of the TSD for the 2016 supplemental notice of proposed rulemaking for residential furnaces for a direct comparison, available at: www.regulations.gov/document/EERE-2014-BT-STD-0031-0217 (Last accessed January 25, 2022).

on a given tariff. These data were not available in the public domain. By relying on EIA data, DOE noted, its marginal price factors represented all utilities and all States, averaging over all customers, and was therefore “more representative of a large group of consumers with diverse baseline gas usage levels than an approach that uses only tariffs.” 81 FR 65719, 65784. While the above comparative analysis was conducted for residential consumers, the general conclusions regarding the accuracy of EIA data relative to tariff data remain the same for commercial consumers. DOE uses EIA data for determining both residential and commercial electricity prices and the nature of the data is the same for both sectors. DOE further notes that not all operators of CWH equipment are larger load utility customers. As reflected in the building sample derived from CBECS 2018 and RECS 2009 data, there is a range of buildings with varying characteristics, including multi-family residential buildings, that operate CWH equipment. The buildings in the LCC sample have varying hot water heating load, square footage, and water heater capacity. Operators of CWH equipment are varied, some large and some smaller, and thus the determination of the applicable marginal energy price should reflect the average CWH equipment operator.

DOE’s approach is based on the largest, most comprehensive, most granular national data sets on commercial energy prices that are publicly available from EIA. The data from EIA are the highest quality energy price data available to DOE. The resulting estimated marginal energy prices represent an average across all commercial customers in a given region (reportable domain for RECS, census division for CBECS). Some customers may have a lower marginal energy price, while others may have a higher marginal energy price. With respect to large customers who may pay a lower energy price, no tariffs were submitted to DOE during the rulemaking for analysis. Tariffs for individual non-residential customers can be very complex and generally depend on both total energy use and peak demand (especially for electricity). These tariffs vary significantly from one utility to another. While DOE was unable to identify data to provide a basis for

determining a potentially lower price for larger commercial and industrial utility customers, either on a state-by-state basis or in a nationally representative manner, the historic data on which DOE did rely include such discounts. The EIA data include both large non-residential customers with a potentially lower rate as well as more typical non-residential customers with a potentially higher rate. Thus, to the extent larger consumers of energy pay lower marginal rates, those lower rates are already incorporated into the EIA data, which would drive down EIA’s marginal rates for all consumers. If DOE were to adjust downward the marginal energy price for a small subset of individual customers in the LCC Monte Carlo, it would also have to adjust upward the marginal energy price for all other customers in the sample to maintain the same marginal energy price averaged over all customers. Even assuming DOE could accomplish those adjustments in a reliable or accurate way, this upward adjustment in marginal energy price would affect the majority of buildings in the LCC sample. Operational cost savings would therefore both decrease and increase for different buildings in the LCC sample, yielding substantially the same overall average LCC savings result as DOE’s current estimate.

In summary, DOE’s current approach utilizes an estimate of marginal energy prices and captures the impact of actual utility rates paid by all customers in a State, including those that enjoy lower marginal rates for whatever reason, in an aggregated fashion. Adjustments to this methodology are unlikely to change the average LCC results.

DOE uses EIA’s forecasted energy prices to compute future energy prices indices (for this final rule, DOE updated forecasts from data published in the *AEO2023* Reference case), and combines those indices with monthly historical energy prices and seasonal marginal price factors in calculating future energy costs in the LCC analysis. For this final rule, DOE used 2022 EIA energy price data as a starting point. EIA historical price trends and calculated indices are developed in a reasonable manner using the best available data and models, and DOE uses these trends consistently across its regulatory analyses. DOE points out that this final rule analyzes potential new standards for gas-fired

equipment, and that electricity usage for such commercial equipment occurs both during standby and during firing periods (depending on equipment design) and can occur during periods of utility peak usage. While electricity usage and resultant expenditures are significantly lower than fuel (gas)-related expenditures, they do impact the LCC analysis and have been included, using the calculated marginal electricity costs. DOE’s use of marginal cost factors for electricity in this analysis, which is based on overall electric expenditures, including those associated with electricity demand, may result in somewhat higher electricity costs than cost figures that omit the impact of demand costs; however, this is appropriate for the current analysis, barring other information on commercial load profiles and demand-peak windows. After careful consideration during the preparation of this final rule, DOE concluded that it is appropriate to use its existing approach to the development of electric and fuel costs for the LCC and PBP analysis that (1) considers marginal electric and natural gas costs in its economic analysis, (2) reflects seasonal variation in marginal costs, and (3) uses EIA-recommended future energy price escalation rates. DOE maintained this approach for this final rule.

5. Maintenance and Repair Costs

Maintenance costs are the routine costs to the consumer of maintaining the operation of equipment. Repair costs are the cost to the consumer of replacing or repairing components that have failed in the CWH equipment.

a. Maintenance Costs

DOE utilized The Whitestone Facility Maintenance and Repair Cost Reference 2012–2013^{88 89} to determine the amount of labor and material costs required for maintenance of each of the relevant CWH equipment subcategories. Maintenance costs include services such as cleaning the burner and flue and changing anode rods. DOE estimated average annual routine maintenance costs for each class of CWH equipment based on equipment groupings. Table IV.20 presents various maintenance services identified and the amount of labor required to service the equipment covered in the final rule analysis.

⁸⁸ Whitestone Research. The Whitestone Facility Maintenance and Repair Cost Reference 2012–2013 (17th Annual edition). 2012. Whitestone Research: Santa Barbara, CA.

⁸⁹ The Whitestone Research report is the most recent available from this source. The report was used in the determination of labor hours for maintenance, and DOE has found no evidence

indicating that maintenance tasks and labor hours have changed except as addressed in subsequent sections of this final rule.

TABLE IV.20—SUMMARY OF MAINTENANCE LABOR HOURS AND SCHEDULE USED IN THE LCC AND PBP ANALYSES

Equipment	Description	Labor hours	Frequency (years)
Commercial gas-fired storage water heaters; Residential-duty gas-fired storage water heaters.	Clean (Volume ≤ 275 gallons)	2.67	1
	Clean (Volume > 275 gallons)	8	2
	Overhaul	1.84	5
Gas-fired instantaneous tankless water heaters	Service	0.75	1
Gas-fired instantaneous circulating water heaters and hot water supply boilers.	Service	7.12	1

Because data were not available to indicate how maintenance costs vary with equipment efficiency, DOE used preventive maintenance costs that remain constant as equipment efficiency increases. Additional information relating to maintenance of CWH equipment can be found in chapter 8 of the final rule TSD.

For the May 2022 CWH ECS NOPR, DOE did make revisions to some of the original Whitestone schedule of labor hour in response to comments on the withdrawn ECS NOPR. DOE added an additional 0.0833 labor hours per year⁹⁰ for checking condensate neutralizers during annual maintenance work, and \$10 per year⁹¹ for replacing the material within the neutralizers. In addition, DOE increased the labor hours for annual tankless water heater maintenance from 0.33 hours to 0.75 hours. DOE also conducted research on the maintenance labor activities and associated hours needed to maintain commercial gas-fired instantaneous circulating water heaters and hot water supply boilers. This research involved reviewing guidance in manufacturer product manuals in combination with the estimates in the Whitestone Facility Maintenance and Repair Cost Reference and the RSMMeans Facilities

⁹⁰ U.S. Department of Energy, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Commercial Warm Air Furnaces. 2015. Docket No. EERE-2013-BT-STD-0021. The Commercial Warm Air Furnaces NOPR TSD assumed 0.078 hours for replacing neutralizer filler every 3 years. For this final rule, DOE used 5 minutes per year for checking and/or refilling neutralizers.

⁹¹ A condensate neutralizer is used to buffer or neutralize the acidic content of flue gas condensate before disposal. The condensate neutralizer DOE included in DOE's installation costs weighs approximately 5 pounds. It is essentially a plastic tube with water inlet and outlet, and filled with calcium carbonate pellets (neutralizer media), and DOE estimates the pellets comprise 3.5 to 4 pounds of the total. DOE found prices ranging from \$0.25 per pound (phoenixphysique.com/ism-root-pvlsc/91da02-marble-chips-for-condensate-neutralizer) up to \$3 per pound in smaller purpose products. DOE estimates \$10 per year would be sufficient to cover replacement of the pellets.

Maintenance and Repair Cost Data.⁹² Using these references, DOE updated the maintenance labor hours from 0.33 to 7.12 for this equipment category. Appendix 8E of the final rule TSD provides more detail on maintenance labor hours assigned to each equipment category of commercial water heaters.

In response to the May 2022 CWH ECS NOPR, Bradford White stated that DOE assumed that annual maintenance costs do not vary as a function of efficiency and recommended that this assumption be updated as burner maintenance costs increase as a function of efficiency. (Bradford White, No. 23 at p. 8) In response to this comment, DOE downloaded Bradford White and Lochinvar installation and operation manuals for commercial gas-fired condensing and non-condensing water heaters. DOE compared the language for maintenance for burners. While clearly the burners appeared different in the pictures in the manuals, the language for this step was identical. Because DOE could not discern where additional steps needed to be taken involving additional time, and because Bradford White did not volunteer this information in their comment, DOE did not add additional labor hours in response to this comment.

In another comment on the May 2022 CWH ECS NOPR, JJM Alkaline noted the costs to replace neutralizers (\$10/year) is below prevailing market costs. (JJM Alkaline, No. 10 at p. 1) DOE reviewed the cost assumptions and inputs used in the modeling of condensate management solutions. DOE reviewed costs for condensate neutralizer material (based on retail prices available for different purchase quantities), condensate neutralizers, as well as considerations for labor. DOE also considered how consumption of neutralizer media would change between different water heating equipment by input capacity, full load operating hours as evidenced in its LCC analysis and subsequent overall condensate production. DOE's revised

⁹² RSMMeans Company. Facilities Maintenance and Repair Cost Data 2022. 29th Annual Edition. Available at www.rsmmeans.com/products/books/.

analysis resulted in increased costs overall, but more specifically made overall condensate management costs a function of each representative equipment type in DOE's analysis. Labor cost was doubled from 5 minutes to 10 minutes per year, and is assumed to take place at the time of a normal maintenance cycle. Both the assumed prevalence of condensate neutralization equipment and the expected cost of such equipment are discussed in chapter 7 of the final rule TSD.

b. Repair Costs

DOE calculated CWH repair costs based on an assumed typical failure rate for key CWH subsystems. DOE assumed a failure rate of 0.5 percent per year for combustion systems, 1 percent per year for controls, and 2 percent per year for high efficiency controls applied with condensing equipment. This probability of repair is assumed to extend through the life of the equipment, but only one major repair in the life of the equipment was considered.

The labor required to repair a subsystem was estimated as 2 hours for combustion systems and 1 hour for combustion controls. Labor costs are based upon servicing by one plumber with overhead and profit included and are based on RSMMeans data.⁹³ Because a repair may not require the complete subsystem replacement, but rather separate components, DOE estimated a typical repair would have material costs of one-half the subsystem total cost, but would require the equivalent labor hours for total subsystem replacement. DOE calculated a cost for repair over the life of a CWH unit with these assumptions, and used that cost or repair in the analysis. A repair year was selected at random over the life for each unit selected in the LCC and the repair cost occurring in that year was discounted to present value for the LCC analysis.

Heat exchanger failure is a unique repair scenario for certain commercial gas-fired instantaneous circulating water

⁹³ RSMMeans. RSMMeans Mechanical Costs Book 2022. Available at www.rsmmeans.com/products/books/.

heaters and hot water supply boilers and was included in DOE's repair cost analysis. The use of condensing or non-condensing technology determines the rate and timing of heat exchanger failure as well as the cost of repair with an approximately three times greater probability of repair for condensing equipment. DOE's assumptions for the frequency of failure and the mean year of heat exchanger failure were based on a report from the Gas Research Institute ("GRI") for boilers.⁹⁴ The cost of heat exchanger replacement is assumed to be a third of the total water heater replacement cost.

In the October 2014 RFI, DOE asked if repair costs vary as a function of equipment efficiency. 79 FR 62899, 62908 (Oct. 21, 2014). Four stakeholders commented on the relationship between equipment efficiency and repair costs, with emphasis that higher-efficiency equipment incorporates additional components and more complex controls. (Bradford White, No. 3 at p. 3; A.O. Smith, No. 2 at p.4; AHRI, No. 5 at p. 5; Rheem, No. 10 at p.7) DOE considered the feedback from the stakeholders and undertook further research to identify components and subsystems commonly replaced in order to evaluate differences in repair costs relative to efficiency levels.

As a result of its research, DOE learned that the combustion systems and controls used in gas-fired CWH equipment have different costs related to the efficiency levels of these products, a finding in agreement with comments provided on the RFI. For the combustion systems, these differences relate predominately to atmospheric combustion, powered atmospheric combustion, and pre-mixed modulating combustion systems used on baseline-efficiency, moderate-efficiency, and high-efficiency products respectively. The control systems employed on atmospheric combustion systems were found to be significantly less expensive than the controller used on powered combustion systems, which was observed to include a microprocessor in some products.

Where similar component parts and costs were identified that reflected the equipment category and efficiency, DOE's component cost was estimated as the average cost of those replacement

components identified. This cost was applied at the frequency identified earlier in this section. DOE understands that this approach may conservatively estimate the total cost of repair for purposes of DOE's analysis, but the percentage of total repair cost remains small compared to the consumer cost and the total installation cost. Additionally, DOE prefers to use this component-level approach to understand the incremental repair cost difference between efficiency levels of equipment. Additional details of this analysis and source references for the subsystem and component costs are found in chapter 8 of the final rule TSD and appendix 8E of the final rule TSD. DOE's incorporation and approach to repair costs in the LCC did not change from the NOPR implementation.

Bradford White recommended DOE investigate other sources of more recent data on heat exchanger failure, noting that DOE bases its assumptions on heat exchanger failure based on a Gas Research Institute report on boilers, not water heaters, and it is from 1994. (Bradford White, No. 23 at p. 8) DOE understands Bradford White's concerns about this source document, and DOE invested a considerable amount of time investigating whether alternative information sources existed, and none could be identified. Thus for this final rule, DOE continues to rely upon this as the best available information.

Joint Gas Commenters note DOE, without reference or logic, assumes the cost of heat exchanger replacement, where possible, is one third of the total water heater replacement cost. They also state it is just as likely that heat exchanger failure will cause a need for complete replacement of the water heating equipment, but the added negative economic impact of more frequent equipment outages on the business's operation is not considered. (Joint Gas Commenter, No. 34 at p. 19) DOE notes that appendix 8E in both the May 2022 CWH ECS NOPR and the final rule TSDs outlines heat exchanger replacement assumptions. The estimated cost equivalent to one-third of the hot water supply boiler cost was based on manufacturer literature. Based on the aforementioned Gas Research Institute report, DOE assumes that as many as 50 percent of condensing heat exchangers will need to be replaced with an average year of failure of 15 years. Note that for hot water supply boilers and other instantaneous water heaters, DOE assumes a 25 year lifetime. DOE also assumes 17 percent of non-condensing heat exchangers in those units will need to be replaced with a mean year of failure of 20 years, again

for equipment with an expected 25 year lifetime. Thus, on average, a non-condensing heat exchanger failure could lead to more premature circulating water heaters and hot water supply boiler replacements because, on average, the heat exchanger replacement would occur closer to the expected end of life of the hot water supply boiler and consumers' repair professionals would make them aware of how much expected life would be available after the repair. DOE also notes that economically rational consumers are not going to replace a serviceable and repairable condensing hot water supply boiler that costs in excess of \$7,100 if the heat exchanger fails at year 15. They would only do such if the water heater is otherwise compromised. As for the impact on a consumer's business, DOE has no mechanism for determining what if any impact there would be on a consumer's business. As discussed in IV.F.2.h, consumers have many alternatives for minimizing or mitigating downtime. While DOE is basing the assumptions of heat exchanger replacement on the best available data, Bradford White is correct in noting the Gas Research Institute report is from 1994, and DOE would assume that in normal situations, manufacturers would have made progress in reducing the failure rate since that date. When viewed in this light, the inclusion of this higher failure rate might be a conservative assumption.

6. Product Lifetime

For CWH equipment, DOE used lifetime estimates derived through a review of numerous sources. Product lifetime is the age when a unit of CWH equipment is retired from service. For the May 2022 CWH ECS NOPR and for this final rule, DOE used a distribution of lifetimes, with the weighted averages ranging between 10 years and 25 years as shown in Table IV.21, which are based on a review of CWH equipment lifetime estimates found in published studies and online documents. These sources used by DOE in the review of lifetime include documents from prior DOE efficiency standards rulemaking processes, LBNL, NREL, the EIA, Federal Energy Management Program, Building Owner and Managers Association, Gas Foodservice Equipment Network, San Francisco Apartment Association, and National Grid.⁹⁵ Specific document titles and references are provided in appendix 8F of the final rule TSD. DOE applied a

⁹⁵ DOE attempted to only include only unique sources, as opposed to documents citing other sources already included in DOE's reference list.

⁹⁴ Jakob, F.E., J.J. Crisafulli, J.R. Menkedick, R.D. Fischer, D.B. Phillips, R.L. Osbone, J.C. Cross, G.R. Whitacre, J.G. Murray, W.J. Sheppard, D.W. DeWirth, and W.H. Thrasher. *Assessment of Technology for Improving the Efficiency of Residential Gas Furnaces and Boilers*. Volume I and II—Appendices. September 1994, 1994. Gas Research Institute. AGA Laboratories: Chicago, IL. Report No. GRI-94/0175.

distribution to all classes of CWH equipment analyzed. Chapter 8 of the final rule TSD contains a detailed discussion of CWH equipment lifetimes.

TABLE IV.21—AVERAGE CWH LIFETIME USED IN FINAL RULE ANALYSES

CWH equipment	Average lifetime (years)
Commercial gas-fired storage water heaters and storage-type instantaneous	10
Residential-duty gas-fired storage water heaters	12
Gas-fired instantaneous water heaters and hot water supply boilers	
Tankless water heaters	17
Circulating water heaters and hot water supply boilers	25

DOE notes that the average lifetime of all equipment covered by this rulemaking is the same for baseline and max-tech thermal efficiency levels. The lifetime selected for each simulation run varies, but the weighted-average lifetime is the same across all thermal efficiency levels.

In response to the May 2022 CWH ECS NOPR, DOE received several comments concerning the estimated lifetime of equipment. AHRI stated that 10 years for commercial gas storage and 25 years for Instantaneous Water Heaters and Hot Water Supply Boilers seem more characteristic of residential applications than commercial. Higher water temperatures and faster duty cycles decrease expected lifetimes. (AHRI, No. 31 at p. 1) Rheem supported this AHRI comment. (Rheem, No. 24 at p. 2) Similarly, Bradford White stated that DOE’s assumed 10-year life for commercial gas-fired storage and 25-year life for gas-fired instantaneous and hot water supply boilers are almost the same (in the case of gas-fired storage), or more than, their consumer (*i.e.*, residential) counterparts. Bradford White also reiterated the point AHRI made about temperatures and duty cycles. Bradford White further noted that in appendix 8F, DOE cited experts stating commercial water heaters are expected to have shorter lives than residential water heaters. They expressed concern that DOE referenced several sources more than 10 years old. (Bradford White, No. 23 at pp. 2 and 5) PHCC also stated DOE’s lifetimes are too long, and DOE’s listed lifetimes would be the maximum age for products, not the average age. PHCC notes that their members do not have a complied database for these products to verify life and that DOE should reengage with the product manufacturers and other stakeholders to see if additional data can be developed. (PHCC, No. 28 at p. 6) Joint Gas Commenters noted DOE assumes that the lifetime distribution for a class of CWH unit is the same within an equipment category, across all efficiency levels, then points to the

replacement of boiler heat exchangers implying that lower reliability of heat exchangers in condensing units compared to non-condensing units should imply shorter life. (Joint Gas Commenters, No. 34 at page 19)

In response, DOE notes that the residential (*i.e.*, consumer) gas water heaters are estimated to have a 14.5 year life, which exceeds both the commercial gas storage water heaters lifetime (10 years) and residential-duty gas-fired storage water heater lifetime (12 years).⁹⁶ Consumer boilers are estimated to have a 26.6 year lifetime, or 1.6 years longer than the lifetime for hot water supply boilers and circulating water heaters assumed by DOE.⁹⁷ Thus, DOE’s estimated equipment lifetimes for commercial water heaters are shorter than the residential counter-parts. DOE notes that the commercial gas-fired storage water heater lifetime is approximately 30 percent shorter than its residential counterpart while the commercial hot water supply boiler lifetime is 6 percent shorter than its residential boiler counterpart. Bradford White, AHRI and Rheem did not provide DOE with sufficient numerical data concerning CWH equipment lifetimes to justify a significantly greater disparity in the lifetimes between these CWH and residential equipment. In response to the age of the documents cited in DOE’s review of research on CWH equipment lifetimes, DOE undertook an additional literature search to determine if newer information was available. The search turned up newer documents with information about CWH equipment lifetime, but virtually all such documents refer to the sources cited in the NOPR for the lifetimes that they state. Thus, while the NOPR list of citations includes many older

⁹⁶ Based on the average lifetime included in DOE’s ongoing consumer water heater rulemaking EERE–2017–BT–STD–0019.

⁹⁷ Based on the average lifetime included in DOE’s ongoing consumer boiler rulemaking, Preliminary Technical Support Document, from www.regulations.gov/document/EERE-2019-BT-STD-0036-0021.

documents, updating this literature review did not provide evidence leading DOE to conclude that a change was needed in any of the estimated lifetimes.

In response to the Joint Gas Commenters, DOE does not have data to suggest that the lifetime of condensing CWH equipment is lower than that of non-condensing equipment; rather, all available data suggests that the lifetime of condensing CWH equipment is substantially the same as noncondensing CWH equipment. DOE does have and has incorporated data regarding increased repair costs for individual component failures that may occur in higher-efficiency equipment, as discussed in section IV.F.5.b of this document. However, the increased repair costs are largely related to the increased component cost and even in the case of heat exchangers where DOE cites a higher failure rate, such does not translate directly to decreased product life. While Joint Gas Commenters remark about heat exchanger failure leading to early replacement of the entire water heater, DOE would note that CWH equipment has a rather high total installed cost and it would not be in consumers economic best interest to replace an otherwise serviceable and repairable water heater. As noted in both the May 2022 CWH ECS NOPR and the Final Rule TSD appendix 8E, DOE assumes a mean failure year of 15 years for condensing heat exchangers which, when combined with the original warranty period, means there is no reason to expect the heat exchanger repair work to automatically result in a shorter lifetime.

7. Discount Rates

In the calculation of LCC, DOE applies appropriate discount rates to estimate the present value of future operating costs. DOE determined the discount rate by estimating the cost of capital for purchasers of CWH equipment. Most purchasers use both debt and equity capital to fund investments. Therefore, for most purchasers, the discount rate is the

weighted-average cost of debt and equity financing, or the weighted-average cost of capital (“WACC”), less the expected inflation.

For residential consumer purchase of CWH equipment, DOE applies weighted average discount rates calculated from consumer debt and asset data, rather than marginal or implicit discount rates.⁹⁸ DOE notes that the LCC does not analyze the equipment purchase decision, so the implicit discount rate is not relevant in this model. The LCC estimates net present value over the lifetime of the equipment, so the appropriate discount rate will reflect the general opportunity cost of household funds, taking this time scale into account. Given the long time horizon modeled in the LCC, the application of a marginal interest rate associated with an initial source of funds is inaccurate. Regardless of the method of purchase, consumers are expected to continue to rebalance their debt and asset holdings over the LCC analysis period, based on the restrictions consumers face in their debt payment requirements and the relative size of the interest rates available on debts and assets. DOE estimates the aggregate impact of this rebalancing using the historical distribution of debts and assets.

For commercial purchasers, to estimate the WACC DOE used a sample of detailed business sub-sector statistics, drawn from the database of U.S. companies presented on the Damodaran Online website.⁹⁹ This database includes most of the publicly-traded companies in the United States. Using this database, Damodaran developed a historical series of sub-sector-level annual statistics for 100+ business sub-sectors. Using data for 1998–2021, inclusive, DOE developed sub-sector average WACC estimates, which were then assigned to aggregate categories. For commercial water heaters, the applicable aggregate categories include retail and service, property/real-estate investment trust (“REIT”), medical facilities, industrial, hotel, food service, office, education, and other. The WACC approach for determining discount rates accounts for the applicable tax rates for

⁹⁸ The implicit discount rate is inferred from a consumer purchase decision between two otherwise identical goods with different first cost and operating cost. It is the interest rate that equates the increment of first cost to the difference in net present value of lifetime operating cost, incorporating the influence of several factors: transaction costs; risk premiums and response to uncertainty; time preferences; interest rates at which a consumer is able to borrow or lend.

⁹⁹ *Damodaran Online*. Damodaran financial data used for determining cost of capital. Available at pages.stern.nyu.edu/~adamodar/. Last accessed on December 20, 2022.

each category. DOE did not evaluate the marginal effects of increased costs, and, thus, depreciation due to more expensive equipment, on the overall tax status.

DOE used the sample of business sub-sectors to represent purchasers of CWH equipment. For each observation in the sample, DOE derived the cost of debt, percentage of debt financing, and cost of equity from industry-level data on the Damodaran Online website, from long-term nominal S&P 500 returns also developed by Damodaran, and risk-free interest rates based on nominal long-term Federal government bond rates. DOE then determined the weighted-average values for the cost of capital, and the range and distribution of values of WACC for each of the sample business sectors. Deducting expected inflation from the cost of capital provided estimates of the real discount rate by ownership category.

For most educational buildings and a portion of the office buildings occupied by public schools, universities, and State and local government agencies, DOE estimated the cost of capital based on a 40-year geometric mean of an index of long-term tax-exempt municipal bonds (>20 years).¹⁰⁰ Federal office space was assumed to use the Federal bond rate, derived as the 40-year geometric average of long-term (>10 years) U.S. government securities.¹⁰²

Based on this database, DOE calculated the weighted-average, after-tax discount rate for CWH equipment purchases, adjusted for inflation, made by commercial users of the equipment.

To establish residential discount rates for the LCC analysis, DOE identified all relevant household debt or asset classes in order to approximate a consumer’s opportunity cost of funds related to appliance energy cost savings. It estimated the average percentage shares of the various types of debt and equity by household income group using data from the Federal Reserve Board’s Survey of Consumer Finances (“SCF”) ¹⁰³ for

¹⁰⁰ Federal Reserve Bank of St. Louis. State and Local Bonds—Bond Buyer Go 20-Bond Municipal Bond Index. Data available through 2015 at research.stlouisfed.org/fred2/series/MSLB20/downloaddata?cid=32995. Last accessed April 3, 2020.

¹⁰¹ Bartel Associates, LLC. *Ba 2019–12–31 20 Year AA Municipal Bond Rates*. Averaged quarterly municipal bond rates to develop annual averages for 2016–2020. bartel-associates.com/resources/select-gasb-67-68-discount-rate-indices. Last accessed on June 23, 2022.

¹⁰² Rate calculated with rolling 40-year data series for the years 1992–2021. Data source: U.S. Federal Reserve. Available at www.federalreserve.gov/releases/h15/data.htm. Last accessed on July 12, 2022.

¹⁰³ Board of Governors of the Federal Reserve System. Survey of Consumer Finances. Available at

1995, 1998, 2001, 2004, 2007, 2010, 2013, 2016, and 2019. Using the SCF and other sources, DOE developed a distribution of rates for each type of debt and asset by income group to represent the rates that may apply in the year in which amended standards would take effect. In the Crystal Ball™ analyses, when an LCC model selects a residential observation, the model selects an income group and then selects a discount rate from the distribution for that group. Chapter 8 of the final rule TSD contains the detailed calculations related to discount rates.

Use of discount rates in each section of the analysis is specific to the affected parties and the impacts being examined (e.g., LCC: consumers, MIA: manufacturers; NIA: national impacts using OMB-specified discount rates), consistent with the general need to examine these impacts independently. In addition, where factors indicate that a range or variability in discount rates is an important consideration and can be or is provided, DOE uses a range of discount rates in its various analyses.

For this final rule, DOE examined its established process for development and use of discount rates and has concluded that it sufficiently characterizes the discount rate facing consumers.

Patterson-Kelley suggested that both State and local consumers and small businesses need to be better included in the analysis. (Patterson-Kelley, No. 26 at p. 2) DOE notes that CBECS is a nationally representative sample of activity in buildings used for commercial activities, and for activities of State and local governments and government enterprises such as local school districts or State colleges or universities. In the CBECS 2018 database, 1,407 of 6,436 buildings are coded as either State government ownership or local government owned buildings. Because there is no data field in CBECS that indicates “small business,” there is no reliable way to identify a specific building as being small business. However, the CBECS dataset includes representative numbers of buildings in business sectors commonly thought of as small businesses, such as “mom and pop” restaurants, retail establishments or motels, and other buildings that could be considered small business according to the U.S. Small Business Administration. Accordingly, DOE believes its analysis sufficiently includes State and local consumers and small businesses.

8. Energy Efficiency Distribution in the No-New-Standards Case

To accurately estimate the share of consumers that would be affected by a potential energy conservation standard at a particular efficiency level, DOE's LCC analysis considered the projected distribution (market shares) of product efficiencies under the no-new-standards case (*i.e.*, the case without amended or new energy conservation standards).

To estimate the energy efficiency distribution of CWH equipment for 2026, DOE developed the no-new-standards distribution of equipment using data from DOE's Compliance Certification database and data submitted by AHRI regarding condensing versus non-condensing equipment.

Each building in the sample was then assigned a water heater efficiency sampled from the no-new-standards-case efficiency distribution for the appropriate equipment class, shown at the end of this section. DOE was not able to assign a CWH efficiency to a building in the no-new-standards case based on building characteristics, since CBECS 2018 and RECS 2009 did not provide enough information to distinguish installed water heaters disaggregated by efficiency. The efficiency of a CWH was assigned based on the forecasted efficiency distribution (which is constrained by the shipment and model data collected by DOE and submitted by AHRI) and accounts for consumers that are already purchasing efficient CWHs.

Joint Advocates stated DOE's use of the assignment of efficiency levels in the no-new-standards case is sufficiently representative of consumer behavior. Joint Advocates noted the examples of market failures such as misaligned incentives in landowner-renter situations, and these market failures result in under-investment in energy efficiency and consumers not making decisions that result in the highest net present value in their specific situations. Joint Advocates stated that DOE's assignment of efficiency levels in the no-new-standards case reasonably reflects actual consumer behavior. Joint Advocates disagreed with Barton Day Law's comment during the Public Meeting regarding random assignment (discussed later in this section). Joint Advocates stated that market failures in commercial and industrial sectors add complexity to the decision-making process and result in an under-investment in energy efficiency. (Joint Advocates, No. 29 at p.3) CA IOUs supported DOE's robust analysis of the

no-new-standards case and the consumer choice model. Like many utilities across the country, the CA IOUs implement a statewide energy efficiency program for commercial water heating to manage these [market] barriers directly. The CA IOUs stated DOE's review of failures in the commercial market presented in the May 2022 CWH ECS NOPR is consistent with their understanding. They stated DOE's analysis is thoughtful, robust, and well within its regulatory discretion. (CA IOUs, No. 33 at p. 5) NYSEERDA supported DOE's estimates of efficiency levels in the no-new-standards case and stated that DOE's estimates are well-reasoned and based on the most relevant data. In particular, NYSEERDA stated that DOE's use of Compliance Certification Database and AHRI data is a thorough analysis that provides a well-founded estimate. NYSEERDA indicated that market data do not reflect the assumption that purchasers of CWH equipment are only basing their decisions on economics. NYSEERDA stated they implement a wide variety of programs to help spur market transformation, and these efforts seek to address the specific types of market failures that DOE addresses in its analysis. (NYSEERDA, No. 30 at pp. 2–3) DOE acknowledges these comments and the references to market failures being addressed by market transformation programs. As a reminder the list of market failures discussed in the May 2022 CWH ECS NOPR is included in this section after the comments are addressed.

Joint Gas Commenters criticized DOE's use of random assignments of baseline efficiency, stating that consumers who find condensing to be cost effective have already installed it and for those who have not installed it, it is likely not cost effective. Joint Gas Commenters went on to state that the random assignment of efficiencies assumes that purchasers of commercial water heaters never consider the economics of their purchases. Joint Gas Commenters went on to state that DOE's use of random assignment is most unreasonable when it results in large LCC savings. (Joint Gas Commenters, No. 34 at pp. 21–22 and 23–25) Barton Day Law asked about the distribution of extreme outcomes resulting from random assignment, stating that extreme outcomes have a disproportionate impact on the average LCC results. Barton Day Law offered the opinion that DOE should look at the impact of the extreme outcomes, and random assignment of outcomes where the more efficient product is the low-cost option

should be in the base case for the analysis. (Barton Day Law, Public Meeting Transcript, No. 13 at pp. 51–55) Joint Gas Commenters pointed to the National Academy of Sciences 2021 review of DOE's standards process and to the D.C. Circuit's opinion in *APGA v. DOE* (22 F.4th 1018 to 1027) to support their comments. They further referred to the literature cited in the May 2022 CWH ECS NOPR discussing market failure and offer their opinion that such information provides no basis to conclude that purchasers are not acting in their economic interest when they make a decision to purchase or not purchase condensing equipment. (Joint Gas Commenters, No. 34 at p. 30) Similarly, Atmos Energy stated DOE's analysis does not consider key consumer decision-making aspects such as hot water demand, building design impacts on installation costs, and "realistic" maintenance and repair costs, as well as rebate costs. They noted that DOE does not use a "discrete choice model" or rely on "sufficient collected data on consumer behavior." (Atmos Energy, No. 36 at p. 4)

DOE first notes that, with respect to the National Academy of Sciences report, the recommendations will be evaluated in a separate proceeding. With respect to the D.C. Circuit's opinion in *APGA v. DOE*, 22 F.4th 1018 (*APGA I*), DOE notes that the random assignment issue raised in that litigation was further addressed by DOE through the final rule for the commercial packaged boiler ("CPB") ECS rulemaking (EERE-2013-BT-STD-0030),¹⁰⁴ and while the court in *APGA v. DOE*, No. 22-1107, 2023 WL 4377914 (D.C. Cir. July 7, 2023) (*APGA II*) vacated the rule on other grounds, it did not address the merits of arguments on random assignment raised by petitioner. In developing the May 2022 CWH ECS NOPR and ultimately this final rule, DOE took into account all of the available data concerning the market implementation of condensing natural gas-fired CWH equipment. As shown in the table at the end of this section (Table IV.22), using actual data from AHRI for a period ending 2015, S-curves developed from the AHRI data, CCMS and other data, DOE projected CWH shipments by efficiency level over the analysis period. DOE then determined that, based on the presence of well-understood market failures and a

¹⁰⁴ See Energy Conservation Program: Energy Conservation Standards for Commercial Packaged Boilers; Response to United States Court of Appeals for the District of Columbia Circuit Remand in *American Public Gas Association v. United States Department of Energy*, www.govinfo.gov/content/pkg/FR-2022-04-20/pdf/2022-08427.pdf.

corresponding lack of data showing a correlation between CWH efficiency and building hot water load, a random assignment of efficiencies best accounts for consumer behavior in the CWH market.

Further, DOE strongly disagrees with the statement from Joint Gas Commenters that this methodology assumes that purchasers of CWHs never consider the economics of their investments. Rather, as explained in the remainder of this section, DOE is aware of multiple market failures that prevent the purely economic decision making hypothesized by the Joint Gas Commenters. That being said, DOE uses a random assignment because it does reflect the full range of consumer behaviors, including those consumers who make purely economic decisions, found in the CWH market. As reflected in the LCC analysis, a significant portion (63 to 69 percent depending on product class) of buildings with large hot water loads were assigned more efficient CWHs.

DOE also finds Joint Gas Commenters and Barton Day Law's focus on trial cases with large LCC savings to be misguided. Commenters cite these cases as evidence that random assignment results in unreasonable results that disproportionately affect DOE's analysis. But as mentioned previously and discussed in more detail below, DOE used a random assignment because of well-understood market failures. Commenters seem to be suggesting that these market failures should not apply to situations where purchasing decisions have larger economic impacts. DOE does not agree. For example, one well-understood market failure is where a building owner purchases the CWH, but the tenant pays the utility bills. DOE sees no reason to assume that this market failure does not occur, or is less likely to occur, when the building has a larger hot water load, *i.e.*, the economic impacts are larger.

As stated previously, DOE believes that, based on the presence of well-understood market failures and a corresponding lack of data showing a correlation between CWH efficiency and building hot water load, a random assignment of efficiencies best accounts for consumer behavior in the CWH. For these reasons, DOE rejects the approach recommended by Barton Day Law, Joint Gas Commenters, and Atmos Energy, and DOE continues to use the approach for selecting the baseline efficiency level that was used for the May 2022 CWH ECS NOPR.

While DOE acknowledges that economic factors play a role when building owners or builders decide on

what type of CWH to install, assignment of CWH efficiency for a given installation, based solely on economic measures such as LCC or simple PBP, most likely would not fully and accurately reflect actual real-world installations. There are a number of commercial sector market failures discussed in the economics literature, including a number of case studies, that illustrate how purchasing decisions with respect to energy efficiency are likely to not be completely correlated with energy use, as described next.

There are several market failures or barriers that affect energy decisions generally. Some of those that affect the commercial sector specifically are detailed below. However, more generally, there are several behavioral factors that can influence the purchasing decisions of complicated multi-attribute products, such as water heaters. For example, consumers (or decision makers in an organization) are highly influenced by choice architecture, defined as the framing of the decision, the surrounding circumstances of the purchase, the alternatives available, and how these are presented for any given choice scenario.¹⁰⁵ The same consumer or decision maker may make different choices depending on the characteristics of the decision context (*e.g.*, the timing of the purchase, competing demands for funds), which have nothing to do with the characteristics of the alternatives themselves or their prices. Consumers or decision makers also face a variety of other behavioral phenomena including loss aversion, sensitivity to information salience, and other forms of bounded rationality.¹⁰⁶ Thaler, who won the Nobel Prize in Economics in 2017 for his contributions to behavioral economics, and Sunstein point out that these behavioral factors are strongest when the decisions are complex and infrequent, when feedback on the decision is muted and slow, and when there is a high degree of information asymmetry.¹⁰⁷ These characteristics describe almost all purchasing situations of appliances and equipment,

including commercial water heaters. The installation of a new or replacement CWH in a commercial building is a complex, technical decision involving many actors and is done very infrequently, as evidenced by the CWH mean lifetime of up to 25 years.¹⁰⁸ Additionally, it would take multiple billing cycles for any impacts on operating costs to be fully apparent. Further, if the purchaser of the commercial water heater is not the entity paying the energy costs (*e.g.*, a building owner and tenant), there may be little to no feedback on the purchase. These behavioral factors are in addition to the more specific market failures described as follows.

It is often assumed that because commercial and industrial customers are businesses that have trained or experienced individuals making decisions regarding investments in cost-saving measures, some of the commonly observed market failures present in the general population of residential customers should not be as prevalent in a commercial setting. However, there are many characteristics of organizational structure and historic circumstance in commercial settings that can lead to underinvestment in energy efficiency.

First, a recognized problem in commercial settings is the principal-agent problem, where the building owner (or building developer) selects the equipment and the tenant (or subsequent building owner) pays for energy costs.^{109 110} Indeed, a substantial fraction of commercial buildings with a commercial water heater in the CBECS 2018 sample are occupied at least in part by a tenant, not the building owner (indicating that, in DOE's experience, the building owner likely is not responsible for paying energy costs). Additionally, some commercial buildings have multiple tenants. There are other similar misaligned incentives embedded in the organizational structure within a given firm or business that can impact the choice of a

¹⁰⁸ American Society of Heating, Refrigerating, and Air-Conditioning Engineers. 2011 *ASHRAE Handbook: Heating, Ventilating, and Air-Conditioning Applications*. 2011. Available at www.ashrae.org/resources—publications. Last accessed on October 16, 2016.

¹⁰⁹ Vernon, D., and Meier, A. (2012). "Identification and quantification of principal-agent problems affecting energy efficiency investments and use decisions in the trucking industry," *Energy Policy*, 49, 266–273.

¹¹⁰ Blum, H. and Sathaye, J. (2010). "Quantitative Analysis of the Principal-Agent Problem in Commercial Buildings in the U.S.: Focus on Central Space Heating and Cooling," Lawrence Berkeley National Laboratory, LBNL–3557E. (Available at: escholarship.org/uc/item/6p1525mg) (Last accessed January 20, 2022).

¹⁰⁵ Thaler, R.H., Sunstein, C.R., and Balz, J.P. (2014). "Choice Architecture" in *The Behavioral Foundations of Public Policy*, Eldar Shafir (ed).

¹⁰⁶ Thaler, R.H., and Bernartzi, S. (2004). "Save More Tomorrow: Using Behavioral Economics to Increase Employee Savings," *Journal of Political Economy* 112(1), S164–S187. See also Klemick, H., et al. (2015) "Heavy-Duty Trucking and the Energy Efficiency Paradox: Evidence from Focus Groups and Interviews," *Transportation Research Part A: Policy & Practice*, 77, 154–166 (providing evidence that loss aversion and other market failures can affect otherwise profit-maximizing firms).

¹⁰⁷ Thaler, R.H., and Sunstein, C.R. (2008). *Nudge: Improving Decisions on Health, Wealth, and Happiness*. New Haven, CT: Yale University Press.

commercial water heater. For example, if one department or individual within an organization is responsible for capital expenditures (and therefore equipment selection) while a separate department or individual is responsible for paying the energy bills, a market failure similar to the principal-agent problem can result.¹¹¹ Additionally, managers may have other responsibilities and often have other incentives besides operating cost minimization, such as satisfying shareholder expectations, which can sometimes be focused on short-term returns.¹¹² Decision-making related to commercial buildings is highly complex and involves gathering information from and for a variety of different market actors. It is common to see conflicting goals across various actors within the same organization as well as information asymmetries between market actors in the energy efficiency context in commercial building construction.¹¹³

Second, the nature of the organizational structure and design can influence priorities for capital budgeting, resulting in choices that do not necessarily maximize profitability.¹¹⁴ Even factors as simple as unmotivated staff or lack of priority-setting and/or a lack of a long-term energy strategy can have a sizable effect on the likelihood that an energy efficient investment will be undertaken.¹¹⁵ U.S. tax rules for

commercial buildings may incentivize lower capital expenditures, since capital costs must be depreciated over many years, whereas operating costs can be fully deducted from taxable income or passed through directly to building tenants.¹¹⁶

Third, there are asymmetric information and other potential market failures in financial markets in general, which can affect decisions by firms with regard to their choice among alternative investment options, with energy efficiency being one such option.¹¹⁷ Asymmetric information in financial markets is particularly pronounced with regard to energy efficiency investments.¹¹⁸ There is a dearth of information about risk and volatility

related to energy efficiency investments, and energy efficiency investment metrics may not be as visible to investment managers,¹¹⁹ which can bias firms toward more certain or familiar options. This market failure results not because the returns from energy efficiency as an investment are inherently riskier, but because information about the risk itself tends not to be available in the same way it is for other types of investment, like stocks or bonds. In some cases energy efficiency is not a formal investment category used by financial managers, and if there is a formal category for energy efficiency within the investment portfolio options assessed by financial managers, they are seen as weakly strategic and not seen as likely to increase competitive advantage.¹²⁰ This information asymmetry extends to commercial investors, lenders, and real-estate financing, which is biased against new and perhaps unfamiliar technology (even though it may be economically beneficial).¹²¹ Another market failure known as the first-mover disadvantage can exacerbate this bias against adopting new technologies, as the successful integration of new technology in a particular context by one actor generates information about cost-savings, and other actors in the market can then benefit from that information by following suit; yet because the first to adopt a new technology bears the risk but cannot keep to themselves all the informational benefits, firms may inefficiently underinvest in new technologies.¹²²

In sum, the commercial and industrial sectors face many market failures that can result in an under-investment in energy efficiency. This means that discount rates implied by hurdle

¹¹¹ Prindle, B., Sathaye, J., Murtishaw, S., Crossley, D., Watt, G., Hughes, J., and de Visser, E. (2007). "Quantifying the effects of market failures in the end-use of energy," Final Draft Report Prepared for International Energy Agency. (Available from International Energy Agency, Head of Publications Service, 9 rue de la Federation, 75739 Paris, Cedex 15 France).

¹¹² Bushee, B.J. (1998). "The influence of institutional investors on myopic R&D investment behavior," *Accounting Review*, 305–333. DeCanio, S.J. (1993). "Barriers Within Firms to Energy Efficient Investments," *Energy Policy*, 21(9), 906–914. (explaining the connection between short-termism and underinvestment in energy efficiency).

¹¹³ International Energy Agency (IEA). (2007). *Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency*. OECD Pub. (Available at: www.iea.org/reports/mind-the-gap) (Last accessed January 20, 2022).

¹¹⁴ DeCanio, S.J. (1994). "Agency and control problems in US corporations: the case of energy-efficient investment projects," *Journal of the Economics of Business*, 1(1), 105–124. Stole, L.A., and Zwiebel, J. (1996). "Organizational design and technology choice under intrafirm bargaining," *The American Economic Review*, 195–222.

¹¹⁵ Rohdin, P., and Thollander, P. (2006). "Barriers to and driving forces for energy efficiency in the non-energy intensive manufacturing industry in Sweden," *Energy*, 31(12), 1836–1844.

Takahashi, M. and Asano, H. (2007). "Energy Use Affected by Principal-Agent Problem in Japanese Commercial Office Space Leasing," In *Quantifying the Effects of Market Failures in the End-Use of Energy*. American Council for an Energy-Efficient Economy. February 2007.

Visser, E. and Harmelink, M. (2007). "The Case of Energy Use in Commercial Offices in the Netherlands," In *Quantifying the Effects of Market Failures in the End-Use of Energy*. American Council for an Energy-Efficient Economy. February 2007.

Bjorndalen, J. and Bugge, J. (2007). "Market Barriers Related to Commercial Office Space Leasing in Norway," In *Quantifying the Effects of Market Failures in the End-Use of Energy*. American Council for an Energy-Efficient Economy. February 2007.

Schleich, J. (2009). "Barriers to energy efficiency: A comparison across the German commercial and services sector," *Ecological Economics*, 68(7), 2150–2159.

Muthulingam, S., et al. (2013). "Energy Efficiency in Small and Medium-Sized Manufacturing Firms," *Manufacturing & Service Operations Management*, 15(4), 596–612. (Finding that manager inattention contributed to the non-adoption of energy efficiency initiatives).

Boyd, G.A., Curtis, E.M. (2014). "Evidence of an 'energy management gap' in US manufacturing: Spillovers from firm management practices to energy efficiency," *Journal of Environmental Economics and Management*, 68(3), 463–479.

¹¹⁶ Lovins, A. (1992). *Energy-Efficient Buildings: Institutional Barriers and Opportunities*. (Available at: rmi.org/insight/energy-efficient-buildings-institutional-barriers-and-opportunities/) (Last accessed December 19, 2022).

¹¹⁷ Fazzari, S.M., Hubbard, R.G., Petersen, B.C., Blinder, A.S., and Poterba, J.M. (1988). "Financing constraints and corporate investment," *Brookings Papers on Economic Activity*, 1988(1), 141–206.

Cummins, J.G., Hassett, K.A., Hubbard, R.G., Hall, R.E., and Caballero, R. J. (1994). "A reconsideration of investment behavior using tax reforms as natural experiments," *Brookings Papers on Economic Activity*, 1994(2), 1–74.

DeCanio, S.J., and Watkins, W.E. (1998).

"Investment in energy efficiency: do the characteristics of firms matter?" *Review of Economics and Statistics*, 80(1), 95–107.

Hubbard R.G. and Kashyap A. (1992). "Internal Net Worth and the Investment Process: An Application to U.S. Agriculture," *Journal of Political Economy*, 100, 506–534.

¹¹⁸ Mills, E., Kromer, S., Weiss, G., and Mathew, P.A. (2006). "From volatility to value: analyzing and managing financial and performance risk in energy savings projects," *Energy Policy*, 34(2), 188–199.

Jollands, N., Waide, P., Ellis, M., Onoda, T., Laustsen, J., Tanaka, K., and Meier, A. (2010). "The 25 IEA energy efficiency policy recommendations to the G8 Gleneagles Plan of Action," *Energy Policy*, 38(11), 6409–6418.

¹¹⁹ Reed, J.H., Johnson, K., Riggert, J., and Oh, A.D. (2004). "Who plays and who decides: The structure and operation of the commercial building market," U.S. Department of Energy Office of Building Technology, State and Community Programs. (Available at: www1.eere.energy.gov/buildings/publications/pdfs/commercial_initiative/who_plays_who_decides.pdf) (Last accessed December 19, 2022).

¹²⁰ Cooremans, C. (2012). "Investment in energy efficiency: do the characteristics of investments matter?" *Energy Efficiency*, 5(4), 497–518.

¹²¹ Lovins 1992, op. cit. The Atmospheric Fund. (2017). Money on the table: Why investors miss out on the energy efficiency market. (Available at: taf.ca/publications/money-table-investors-energy-efficiency-market/) (Last accessed December 19, 2022).

¹²² Blumstein, C. and Taylor, M. (2013). *Rethinking the Energy-Efficiency Gap: Producers, Intermediaries, and Innovation*. Energy Institute at Haas Working Paper 243. (Available at: haas.berkeley.edu/wp-content/uploads/WP243.pdf) (Last accessed December 19, 2022).

rates¹²³ and required PBPs of many firms are higher than the appropriate cost of capital for the investment.¹²⁴ The preceding arguments for the existence of market failures in the commercial and industrial sectors are corroborated by empirical evidence. One study in particular showed evidence of substantial gains in energy efficiency that could have been achieved without negative repercussions on profitability, but the investments had not been undertaken by firms.¹²⁵ The study found that multiple organizational and institutional factors caused firms to require shorter PBPs and higher returns than the cost of capital for alternative investments of similar risk. Another study demonstrated similar results with firms requiring very short PBPs of 1–2 years in order to adopt energy-saving projects, implying hurdle rates of 50 to 100 percent, despite the potential economic benefits.¹²⁶ A number of other case studies similarly demonstrate the existence of market failures preventing the adoption of energy-efficient technologies in a variety of commercial sectors around the world, including office buildings,¹²⁷ supermarkets,¹²⁸ and the electric motor market.¹²⁹

The existence of market failures in the commercial and industrial sectors is well supported by the economics literature and by a number of case studies. If DOE developed an efficiency distribution that assigned commercial water efficiency in the no-new-standards case solely according to energy use or economic considerations such as LCC or PBP, the resulting

distribution of efficiencies within the building sample would not reflect any of the market failures or behavioral factors above. DOE thus concludes such a distribution would not be representative of the CWH market. Further, even if a specific building/organization is not subject to the market failures above, the purchasing decision of CWH efficiency can be highly complex and influenced by a number of factors not captured by the building characteristics available in the CBECS or RECS samples. These factors can lead to building owners choosing a CWH efficiency that deviates from the efficiency predicted using only energy use or economic considerations such as LCC or PBP (as calculated using the information from CBECS 2018 or RECS 2009).

DOE notes that EIA's¹³⁰ AEO is another energy use model that implicitly includes market failures in the commercial sector. In particular, the commercial demand module¹³¹ includes behavioral rules regarding capital purchases such that in replacement and retrofit decisions, there is a strong bias in favor of equipment of the same technology (e.g., water heater efficiency) despite the potential economic benefit of choosing other technology options. Additionally, the module assumes a distribution of time preferences regarding current versus future expenditures. Approximately half of the total commercial floorspace is assigned one of the two highest time preference premiums. This translates into very high discount rates (and hurdle rates) and represents floorspace for which equipment with the lowest capital cost will almost always be purchased without consideration of operating costs. DOE's assumptions regarding market failures are therefore consistent with other prominent energy consumption models.

Joint Gas Commenters also criticized DOE for failing to respond to the comments provided in the withdrawn 2016 CWH ECS NOPR on random assignment, referring to such as a violation of DOE's Basic Notice and Comment Obligations. (Joint Gas Commenters, No. 34 at p. 28) Joint Gas Commenters stated that DOE cannot release a final rule without addressing the random assignment issues and cannot address them without giving stakeholders an opportunity to refute DOE's response during the rulemaking

process—citing *Owner-Operator Indep. Drivers Ass'n v. FMCSA*, 494 F.3d 188, 202 (D.C. Cir. 2007). (Joint Gas Commenters, No. 34 at p. 31) As a threshold matter, DOE notes that nothing in EPCA or the Administrative Procedure Act (5 U.S.C. 551 *et seq.*) requires an agency to provide additional notice and comment on a withdrawn NOPR, or additional notice and comment before a final rule to allow commenters to refute the Department's responses to comments on a NOPR. As noted previously, DOE withdrew the 2016 CWH ECS NOPR and reissued a proposed rule for commercial water heaters in the May 2022 CWH ECS NOPR. In the May 2022 CWH ECS NOPR, DOE did address comments on the May 2016 CWH ECS NOPR, which caused DOE to materially change the analyses (beyond simply updating inputs) from the analyses performed for the withdrawn 2016 CWH ECS NOPR. In the May 2022 CWH ECS NOPR, DOE also addressed the fact that a considerable number of market failures could occur causing the strict economic decision making hypothesized by the Joint Gas Commenters to not be the sole guiding determinant of efficiency choices. DOE further addressed the Joint Gas Commenters comments about random assignments by explaining how DOE modeled the efficiency distributions and the data sources used in the NOPR. Additionally, in doing so, DOE provided stakeholders with a track record that could be followed to understand the differences in the 2016 and the 2022 LCC models. Notably, the model used for efficiency distribution in the no-new standards case in the May 2022 CWH ECS NOPR was substantially the same as the model used for the withdrawn May 2016 CWH ECS NOPR, and is substantially the same in this final rule.

Stakeholders have been provided with adequate notice and opportunity to comment on DOE's proposed rule. That DOE did not make the changes recommended by the commenter does not negate the adequacy of notice and comment. Stakeholders have been provided the same notice and opportunity to comment as they would have had DOE issued a final rule subsequent to the May 2016 CWH ECS NOPR. Nothing in EPCA or the Administrative Procedure Act (5 U.S.C. 551 *et seq.*) requires DOE to provide additional notice and comment before the final rule for its responses to comments on a NOPR.¹³²

¹²³ A hurdle rate is the minimum rate of return on a project or investment required by an organization or investor. It is determined by assessing capital costs, operating costs, and an estimate of risks and opportunities.

¹²⁴ DeCanio 1994, *op. cit.*

¹²⁵ DeCanio, S.J. (1998). "The Efficiency Paradox: Bureaucratic and Organizational Barriers to Profitable Energy-Saving Investments," *Energy Policy*, 26(5), 441–454.

¹²⁶ Andersen, S.T., and Newell, R.G. (2004). "Information programs for technology adoption: the case of energy-efficiency audits," *Resource and Energy Economics*, 26, 27–50.

¹²⁷ Prindle 2007, *op. cit.* Howarth, R.B., Haddad, B.M., and Paton, B. (2000). "The economics of energy efficiency: insights from voluntary participation programs," *Energy Policy*, 28, 477–486.

¹²⁸ Klemick, H., Kopits, E., Wolverton, A. (2017). "Potential Barriers to Improving Energy Efficiency in Commercial Buildings: The Case of Supermarket Refrigeration," *Journal of Benefit-Cost Analysis*, 8(1), 115–145.

¹²⁹ de Almeida, E.L.F. (1998). "Energy efficiency and the limits of market forces: The example of the electric motor market in France", *Energy Policy*, 26(8), 643–653. Xenergy, Inc. (1998). United States Industrial Electric Motor Systems Market Opportunity Assessment. (Available at: www.energy.gov/sites/default/files/2014/04/f15/mtrmkt.pdf) (Last accessed January 20, 2022).

¹³⁰ EIA, Annual Energy Outlook, www.eia.gov/outlooks/aeo/ (Last accessed December 19, 2022).

¹³¹ For further details, see: www.eia.gov/outlooks/aeo/assumptions/pdf/commercial.pdf. (Last accessed December 19, 2022).

¹³² Joint Gas Commenters cite *Owner-Operator Indep. Drivers Ass'n v. FMCSA*, 494 F.3d 188, 202 (D.C. Cir. 2007) for the proposition that DOE must

Accordingly, for the reasons stated in this section, DOE has maintained the approach used in the May 2022 CWH ECS NOPR for analyzing energy

efficiency distribution in the no-new-standards case. The estimated market shares for the no-new-standards case for CWH equipment are shown in Table

IV.22. See chapter 8 of the final rule TSD for further information on the derivation of the efficiency distributions.

TABLE IV.22—MARKET SHARES FOR THE NO-NEW-STANDARDS CASE BY EFFICIENCY LEVEL FOR CWH EQUIPMENT

EL	Commercial gas-fired storage water heaters (%)	Residential-duty gas-fired storage water heaters (%)	Gas-fired instantaneous tankless water heaters (%)	Gas-fired circulating water heaters and hot water supply boilers (%)
0	34.3	53.7	17.0	5.3
1	2.7	20.9	0.0	13.3
2	0.0	14.9	0.0	12.9
3	15.3	3.0	4.2	2.1
4	46.7	6.0	20.8	11.4
5	1.0	1.5	58.1	55.1

9. Payback Period Analysis

The PBP is the amount of time (expressed in years) it takes the consumer to recover the additional installed cost of more-efficient products, compared to baseline products, through energy cost savings. PBPs that exceed the life of the product mean that the increased total installed cost is not recovered in reduced operating expenses.

The inputs to the PBP calculation for each efficiency level are the change in total installed cost of the product and the change in the first-year annual operating expenditures relative to the baseline. DOE refers to this as a “simple PBP” because it does not consider changes over time in operating cost savings. The PBP calculation uses the same inputs as the LCC analysis when deriving first-year operating costs.

As noted previously, EPCA establishes a rebuttable presumption that a standard is economically justified if the Secretary finds that the additional cost to the consumer of purchasing a product complying with an energy conservation standard level will be less than three times the value of the first year’s energy savings resulting from the standard, as calculated under the applicable test procedure. (42 U.S.C. 6295(o)(2)(B)(iii)) For each considered efficiency level, DOE determined the value of the first year’s energy savings¹³³ by calculating the energy savings in accordance with the applicable DOE test procedure, and multiplying those savings by the average energy price projection for the year in

provide stakeholders an opportunity to refute DOE’s responses during the rulemaking process. However, the court in that case did not state that an agency must allow stakeholders to refute its responses to comments on a NOPR as Joint Gas Commenters suggest. Rather, in that case, the D.C. Circuit held that the agency violated the notice-and-comment requirement of the Administrative Procedure Act

which compliance with the amended standards would be required. Chapter 8 of the final rule TSD provides additional details about the PBP.

10. Embodied Emissions and Recycling Costs

WM Technologies and Patterson-Kelley stated that if the Department utilizes emissions, or reference to carbon in the analysis, then the Department should also acknowledge the cost of embodied carbon in the analysis. Both stakeholders have been working with an ASHRAE group with the intention of improving the general understanding of embodied carbon, LCC, and operational carbon and identifying ways to accurately account for these metrics in HVAC products, among other things. (WM Technologies, No. 25 at pp. 1–2; Patterson-Kelley, No. 26 at pp. 2–3) EPCA requires DOE to consider the total projected energy saving resulting from a standard. DOE considers FFC energy savings, including the energy consumed in electricity production, in distribution and transmission, and in extracting, processing, and transporting primary fuels. DOE does not analyze energy savings (or air pollutant emissions) related to manufacturing, transporting, recycling, or disposing of products, as such impacts would not be considered a direct result of the standard on the energy use of the covered product. As such, embodied emission in this process is outside of DOE’s CWH ECS rulemaking scope.

Patterson-Kelley and WM Technologies both stated that because

when it promulgated a final rule with an update to a model used in the proposed rule that presented an entirely new methodology relative to the proposed rule. *Id.* at 200–201. As noted previously, DOE is using substantially the same model for the energy efficiency distribution in the no new standards case and Joint Gas Commenters had

the schedule and cost of recycling is different based upon the materials used in the water heater, these differences must be captured in the analysis. The World Green Building Council has recognized that carbon emissions from manufacturing of components, assembly of components into finished goods, their transportation, installation, and the end of life stage must be accounted for as well. (WM Technologies, No. 25 at p. 2; Patterson-Kelley, No. 26 at p. 3) Patterson-Kelley noted that in examining embodied carbon the following must be considered—a higher rate of recycling due to shorter life cycle of condensing products and other changes noted previously. (Patterson-Kelley, No. 26 at p. 3) DOE would note that it has yet to find evidence that condensing equipment has a shorter lifetime than non-condensing equipment, so there would be no change relative to lifetime. DOE takes into account the cost to remove a water heater at the time of replacement. Stakeholders did not provide information concerning the difference in the cost of materials recycling—whether the materials in a condensing water heater have more or less recycling value than a non-condensing water heater. Given that the first replacement of a condensing water heater installed under this standard would be 10 years in the future, DOE believes the discounted present value of any difference would likely be small enough to ultimately be immaterial. DOE has based the installation cost calculations including removal of old water heaters on

adequate ability to comment on, and refute, DOE’s analyses in the May 2022 CWH ECS NOPR.

¹³³ The DOE test procedure for CWH equipment at 10 CFR 431.106 does not specify a calculation method for determining energy use. For the rebuttable presumption PBP calculation, DOE used average energy use estimates.

nationally recognized sources. As a result of these considerations, DOE has not elected to change the analysis to reflect these comments.

11. LCC Model Error Messages and Other

Barton Day Law stated that the LCC spreadsheet model looks almost more like a draft than a final product, and that there are apparently “loads of errors” showing up, including computational errors. (Barton Day Law, Public Meeting Transcript, No. 13 at pp. 32–33) Joint Gas Commenter pointed to error messages in the LCC model, stating there were 11 million cell errors, #N/A, and #DIV/0 errors throughout model; some are labeled blank; others not; some tables and ranges are poorly labeled; and Excel calculations and Visual Basic for Applications, and the large number of worksheets make it more difficult to use and to trace formulas. Joint Gas Commenters stated DOE should correct the errors and give stakeholders sufficient time to review. (Joint Gas Commenters, No. 34 at pp. 36–37)

In response, DOE notes that additional fields were included throughout the LCC model to accommodate additional equipment classes. In the high-level summary sheets where results reported in the NOPR are tabulated, fields related to the additional equipment classes were either removed or contents were erased and labeled as “blank.” In some other worksheets, the calculations related to additional product classes were not erased. However, numerous inputs related to potential additional equipment classes were not populated and this fact led to many calculations that attempted division using unpopulated input fields, or in other words, which led to #DIV/0 messages. DOE has removed all of the potential additional product class input fields. In response to the “11 million cell errors,” DOE assumes this referred to the fact that the May 2022 CWH ECS NOPR LCC model used a user-defined function, the output of which would turn to an error code and needed to be refreshed when the model was left idle. Refreshing the function required the user to recalculate the model by pressing the F9 key, and once the model was recalculated the error codes would disappear and be replaced by values. To eliminate this source of error messages, DOE eliminated the user defined function by introducing an Excel code in the venting costs worksheet in the block of cells between Q22 and CA82. The new Excel code was written to exactly reproduce the output from the old user defined function, so this modeling change does

not affect results but rather it merely removes the irritation of the user defined function timing out and needing to be refreshed. Additionally, in response to the comment that some portions of the model were poorly labeled, DOE added labels to a small number of columns of calculations that DOE considered on review to be inadequately labeled, such as columns at the extreme right edges of the RECS.WH and CBECS.WH worksheets.

A further response to the error messages referred to in the Joint Gas Commenter and Barton Day Law comments—the error messages were cosmetic in the sense that eliminating them did not change any results in the analysis; therefore, there are no new data for Joint Gas Commenters to review strictly in terms of the elimination of these message codes. Based on comments documented in this section of the final rule, DOE believes that Joint Gas Commenters were able to review the LCC model in detailed ways even with the distractions caused by the message codes. Thus, DOE declines to provide additional review time related to the elimination of the extra product class fields.¹³⁴

Barton Day Law stated DOE should be more transparent about disclosing how the outcomes are allocated in its analysis and what the justification is. (Barton Day Law, Public Meeting Transcript, No. 13 at p. 55) Joint Gas Commenters presented graphs of the cumulative LCC savings of gas-fired tankless consumers from the LCC model, pointing out that the net LCC savings (average) were being generated by a small number of consumers with the largest LCC saving and if such customers were “reassigned” to different baseline efficiencies the result would have been different. (Joint Gas Commenters, No. 34 at p. 27) DOE would note that LCC savings are averages and as such include the results from those with large LCC savings and those with large LCC costs. Because of the way the model works, selecting consumers from the RECS and CBECS datasets for which each equipment type would apply, the number of consumers in the extreme cost and benefit tails will be small. With respect to the Joint Gas Commenter graphic about tankless product LCC results, DOE notes that given the existing distribution, the overwhelming majority of LCC customers modeled experience no impact because they already purchased

equipment of the efficiency level selected for the standard. As discussed in section IV.F.8 there are numerous reasons for customers to be either unaware of potential energy savings when they make efficiency decisions or to deliberately ignore such information.

Barton Day Law stated residential-duty gas-fired storage equipment has four different draw patterns and four separate standards but only one LCC analysis. (Barton Day Law, Public Meeting Transcript, No. 13 at pp. 30, 32) Joint Gas Commenters also stated that DOE analyzed four product classes but only provided one LCC analysis and asked that DOE perform an analysis for each class separately, and although the comment was unclear to DOE, it is presumed to refer to the same point Barton Day Law made. (Joint Gas Commenters, No. 34 at pp. 32–33) As noted in IV.C.4.c of this document, all residential-duty gas-fired equipment is within the high draw pattern, so only one analysis was performed of this equipment.

Joint Gas Commenters stated that the rule could have disproportionate impacts on small rural businesses that use propane fired equipment due to their more limited income and therefore a more limited opportunity to fund venting upgrades. They also stated that the problem is made worse by the fact that propane suppliers cannot provide incentives to consumers, as gas utilities can. They also stated that the May 2022 CWH ECS NOPR failed to address impacts on businesses that qualify for the Administration’s Justice40 Initiative. They further offered their opinion that DOE’s analysis must conform to the National Academy of Science’s peer review report and recommendations regarding welfare analysis. Joint Gas Commenters urged DOE to delay the rulemaking while investigating whether the rule would undermine the Justice40 Initiative. (Joint Gas Commenters, No. 34 at pp. 31–32) With respect to the impact on small rural businesses, DOE respects the Joint Gas Commenters note about the more limited income of small rural businesses, but also believes the overall cost structure of small rural businesses includes components that are likely lower than their urban counterparts, such as building lease or ownership costs. DOE also notes that, according to the EIA’s AEO used in this final rule, propane is, at a national level, twice as expensive as natural gas on a \$/Million Btu basis, meaning that the value of energy savings to these customers would be higher than the value to natural gas customers. Additionally, DOE expects that commercial buildings in rural areas are

¹³⁴ In response to requests, DOE reopened the comment period on the May 2022 CWH ECS NOPR to provide an additional two weeks for stakeholders to review and provide comments on the NOPR. 87 FR 43226.

less likely to reach the 10-story level that is cited by various commenters as problematic in vent installations. DOE also expects that commercial buildings in rural areas are less likely to share common brick walls with other neighboring businesses or have issues venting over sidewalks or busy alleys. This means rural businesses may find it easier to use horizontal venting than their metropolitan counterparts. While this advantage could be offset at least partially by a greater chance of having to deal with snow levels when siting a horizontal vent, DOE disagrees with the bottom line conclusion of this comment. With respect to the National Academy of Sciences report, the recommendations in the report, which pertain to the processes by which DOE analyzes energy conservation standards, are being considered in a separate rulemaking considering all product categories and DOE does not believe that this final rule should be delayed while the National Academy of Sciences report is considered.

WM Technologies stated they received an error trying to run the LCC model. They noted a macro returned an error message stating “Compile Error: Can’t find project or library” with the “VBA Code Subroutine cmdRun_Click() references [ControlPanel.IncomeBins]” highlighted. (WM Technologies, No. 25 at p. 10) DOE tested the LCC model to attempt to reproduce this error code, and the only way DOE could generate this code was to load the LCC model onto a computer that did not have Crystal Ball installed on it. Without Crystal Ball being installed, the macro is searching for software package references that do not exist. DOE has added language in appendix 8A of the final rule TSD describing how/why having Crystal Ball installed on the computer is necessary for reviewing this LCC model.

WM Technologies recommended the Department move the instructions for operating LCC models to the beginning of the TSD or provide a note there referencing the instruction location. (WM Technologies, No. 25 at p. 10) They additionally request a frequently asked questions website is made available to support industry review of the LCCs along with a question and answer portion where industry could post questions. (WM Technologies, No. 25 at p. 10) DOE notes that the May 2022 CWH ECS NOPR TSD chapter 1 included an outline of the document, and pointed to appendix 8A, which provides instructions. DOE additionally encourages stakeholders to utilize the public meetings to ask questions related to operation of the LCC and other

models, and will consider whether more general resources are warranted.

WM Technologies commented that after running the analysis on a local computer and using the Forecast Report writer in Crystal Ball, several cells identified cell errors and yet the analysis continued and provided results. WM Technologies noted some values of forecasts cells were empty. WM Technologies requested the Department provide further commentary on why empty values are present in forecast reports, particularly when the all product categories are subject to 10,000 iterations. (WM Technologies, No. 25 at p. 10) In response, DOE notes that the LCC model at each iteration selects a baseline efficiency for use in the iteration for all four equipment classes. For any possible efficiency level other than the lowest level, this leads to a situation where, by definition, there will be no LCC savings if a standard is set at that level. For example, if the model selects EL3 as the baseline, there would be no LCC savings and no PBP results for a standard set at lower efficiency levels. Because the number 0 is a valid result, setting those to 0 introduces possible issues. Rather, the model sets them equal to a blank, or a character field set to “ “. Thus if you print the forecast report, you will find blanks. Because introducing characters into downstream calculations causes math errors, the Crystal Ball routines are instructed by the VBA code to ignore these errors. DOE has used this method in LCC models for years to distinguish between “no impact cases” and cases with a valid result of 0.

WM Technologies requested the Department comment upon how different geographic areas are referenced in the same iteration. (WM Technologies, No. 25 at p. 10) At each iteration, the LCC model pulls eight samples, a RECS and CBECS sample for each of the four equipment classes, and then selects either residential or commercial to choose whether to use the RECS or CBECS sample. Those eight samples will all have their own geographic location linked to either the RECS or the CBECS samples selected, and would only purely by chance have the same geographic location.

WM Technologies stated their review of chapter 8 and appendix 8G did not clearly identify how the subgroup analysis is completed. They said further review of the LCC workbook indicates that the low-income subgroup is comprised of the first six bins in cells O3 to P28, and shown in B6 to B11. However, the assumption cell (B40) makes a probabilistic selection from range B6 to B36. Specifically, they

stated it would be beneficial to only run the sub-group analysis by hard coding the selection of income bins. They asked DOE to please verify that the correct values to hard code are in the range of B15 to AS16 on the “Bldg.Sample” tab. Additionally, they asked DOE to please provide insight into and how cells FG4 to FG12086 in tab “RECS.WH” relate the analysis and how the range D30 to E 54 on the “Control.Panel” tab interact with the analysis. (WM Technologies, No. 25 at p. 10) In response, DOE notes that the entire column of B6 to B36 comprises the probability distribution for the lowest 20 percent of residential households, or, in other words, the households that would be included in the low-income subgroup. The six bins that are referred to in cells O3 through P28 refer to the effort to remap the RECS income bins to the discount rate bins. The discount rates break the entire residential sector out by percentage of households while RECS breaks households out into discrete income bins. The model codes individual RECS samples as either eligible for the subgroup using the look-up table referenced above on the Control Panel tab and column CC on the Sampling Distributions. Column CC is either 0 or 1. If the model is not running a subgroup, all RECS income bins are coded as 1. If the model is running a subgroup, only those RECS income bins in the subgroup are coded 1, and the rest are coded 0. On the Sampling Distribution tab, the sampling weight assigned to each RECS observation is multiplied by the corresponding row of column CC. Thus, in a regular run, all households could be chosen. In a subgroup model run, only those households in the 0–20 percent of household income could be chosen.

G. Shipments Analysis

DOE uses projections of annual equipment shipments to calculate the national impacts of potential amended or new energy conservation standards on energy use, NPV, and future manufacturer cash flows.¹³⁵ The shipments model, discussed in section IV.G.6 of this final rule, takes an accounting approach, tracking market shares of each equipment category and the vintage of units in the stock. Stock accounting uses equipment shipments as inputs to estimate the age distribution of in-service equipment stocks for all years. The age distribution of in-service equipment stocks is a key input to

¹³⁵ DOE uses data on manufacturer shipments as a proxy for national sales, as aggregate data on sales are lacking. In general, one would expect a close correspondence between shipments and sales.

calculations of both the NES and NPV because operating costs for any year depend on the age distribution of the stock.

1. Commercial Gas Fired and Electric Storage Water Heaters

To develop the shipments model, DOE started with known information on shipments of commercial electric and gas-fired storage water heaters collected for the years 1994–2022 from the AHRI website,¹³⁶ and extended back to 1989 with data contained in a DOE rulemaking document published in 2000.¹³⁷ The historical shipments of commercial electric and gas-fired storage water heaters are summarized in Table IV.23 of this final rule. Given that the estimated average useful lifetimes of these two types of equipment are 12 and 10 years, respectively, the historical shipments provided a basis for the development of a multi-year series of stock values. Using the stock values, a saturation rate was determined by dividing equipment stock by building stock, and this saturation rate was combined with annual building stock additions to estimate the shipments to new construction. With these data elements, a yearly accounting model was developed for the historical period to identify shipments deriving from new construction and from replacements of existing equipment. The accounting model also identified consumer migration into or out of the storage water heater equipment classes by calculating the difference between new plus replacement shipments and the actual historical shipments.

TABLE IV.23—HISTORICAL SHIPMENTS OF COMMERCIAL GAS-FIRED AND ELECTRIC STORAGE WATER HEATERS

Year	Commercial gas-fired storage	Commercial electric storage
1994	91,027	22,288
1995	96,913	23,905
1996	127,978	26,954
1997	96,501	30,339
1998	94,577	35,586
1999	100,701	39,845

¹³⁶ Air Conditioning, Heating, and Refrigeration Institute. Commercial Storage Water Heaters Historical Data and Monthly Shipments. Available at www.ahrinet.org/analytics/research/historical-data/commercial-storage-water-heaters-historical-dataand and www.ahrinet.org/analytics/statistics/monthly-shipments. Last accessed March 10, 2023.

¹³⁷ U.S. Department of Energy. Screening Analysis for EPCAC-Covered Commercial HVAC and Water-Heating Equipment. Volume 1—Main Report. 2000. EERE–2006–STD–0098–0015. Available at www.regulations.gov/#/documentDetail;D=EERE-2006-STD-0098-0015.

TABLE IV.23—HISTORICAL SHIPMENTS OF COMMERCIAL GAS-FIRED AND ELECTRIC STORAGE WATER HEATERS—Continued

Year	Commercial gas-fired storage	Commercial electric storage
2000	99,317	44,162
2001	93,969	46,508
2002	96,582	45,819
2003	90,292	48,137
2004	96,481	57,944
2005	82,521	56,178
2006	84,653	63,170
2007	90,345	67,985
2008	88,265	68,686
2009	75,487	55,625
2010	78,614	58,349
2011	84,705	60,257
2012	80,490	67,265
2013	88,539	69,160
2014	94,247	73,458
2015	98,095	88,251
2016	97,026	127,344
2017	93,677	152,330
2018	94,473	137,937
2019	88,548	150,667
2020	80,070	140,666
2021	90,192	154,330
2022	83,487	120,152

For the May 2022 CWH ECS NOPR, DOE utilized regression techniques to develop the shipments forecast based on the assumption that shipments of gas-fired storage water heaters are a function of relative prices of natural gas and electricity, building stocks (*i.e.*, the replacement market), and building stock additions (the new market); the regression inputs were updated with 2022 data for this final rule. The result was a model yielding a forecast of shipments that increases 0.03 percent per year from 2023–2055, reaching just over 90,100 units by 2055. See chapter 9 of the final rule TSD for further details. The resulting growth rate for shipments is less than the underlying growth in building stocks (0.9 percent between 2023–2055).

For the May 2022 CWH ECS NOPR and for this final rule, no historical information was available that specifically identified shipments of gas-fired storage-type instantaneous water heaters. The AHRI online historical shipments data explicitly states residentially marketed equipment is excluded but does not explicitly state whether instantaneous storage equipment is included or excluded. Because of the similarities between the commercial storage gas water heaters and the gas-fired storage-type instantaneous water heaters, DOE has included both in downstream analyses in this final rule. However, DOE recognizes that some or all of the

storage-type instantaneous shipments may not be captured in the historical AHRI shipments data. The DOE shipments analysis is derived from AHRI historical shipments data and thus may underrepresent future shipments of gas-fired storage-type instantaneous water heaters.

2. Residential-Duty-Gas-Fired Storage and Instantaneous Water Heaters

For the May 2022 CWH ECS NOPR, DOE developed an econometric model similar to that described for commercial gas-fired storage water heater shipments. Following publication of the withdrawn May 2016 CWH ECS NOPR, AHRI provided data from manufacturers on instantaneous water heater shipments to DOE’s contractors under a confidentiality agreement and indicated that the data include shipments of gas-fired instantaneous tankless and circulating water heating equipment. DOE used these data to estimate an equation relating commercial instantaneous shipments to building stock additions and commercial electricity prices.¹³⁸ Because the historical data did not provide sufficient detail to identify the percentages represented by tankless and circulating water heater shipments, DOE estimated that 50 percent of the shipments are instantaneous tankless shipments and the remainder are circulating water heaters. Because the actual information provided by AHRI is confidential and cannot be disclosed, the only information being made available in this final rule is the econometric forecast made for use in the analysis.

Since the equipment that DOE has been calling hot water supply boilers includes what AHRI calls circulators as well as a second type of equipment AHRI calls boilers, DOE clarifies that the new DOE forecast for hot water supply boilers includes both circulating water heating equipment and hot water supply boilers. The circulating water heater shipments were developed as described earlier. In the May 2022 CWH ECS NOPR, DOE requested additional historical shipment information for commercial gas-fired instantaneous tankless water heaters to supplement the data provided in response to the

¹³⁸ While the instantaneous units are gas-fired, natural gas variables consistently exhibited incorrect signs on the estimated coefficients. For example, the ratio of commercial electric price divided by commercial gas had a negative sign, meaning that higher ratios would lead to lower shipments. This is the opposite of what was expected. Higher electric prices relative to gas prices should lead to higher, not lower, shipments of the natural gas products. Thus, commercial natural gas price variables were omitted from the model.

withdrawn May 2016 CWH ECS NOPR, and also sought actual historical shipments for gas-fired storage-type instantaneous water heaters and hot water supply boilers, but did not receive any data, and DOE was not able to identify additional information sources for the instantaneous equipment class shipments.

In the May 2022 CWH ECS NOPR, DOE requested actual historical shipment data for residential-duty gas-fired storage water heaters, but did not receive any data, and DOE was not able to identify additional information sources for residential-duty gas-fired shipments. DOE clarifies that residential-duty gas-fired storage water heaters are not residential water heaters. Instead, they are a type of CWH equipment and DOE draws no conclusions about residential-duty gas-fired storage shipments replacing or being replaced by commercial gas-fired storage water heater shipments. Rather, the linkage used in the DOE model would essentially have shipments of both types of storage equipment going up or down in parallel. DOE retained the forecasting method used for the May 2022 CWH ECS NOPR, using the same 20 percent factor. In other words, DOE assumes residential-duty gas-fired storage water heater shipments track with commercial gas-fired storage water heaters, and shipments of the former are assumed to be 20 percent of the shipments of the latter.

3. Available Products Database and Equipment Efficiency Trends

For the May 2022 CWH ECS NOPR, DOE revised the shipments and other analyses to reflect efficiency distribution data for commercial gas-fired storage water heaters and instantaneous gas-fired water heaters provided by AHRI, reconciling the analyses to account for the AHRI data rather than relying heavily on the number of available models to produce equipment efficiency trends. For this final rule analysis, DOE used the same adjustment method to account for underlying growth in high-efficiency products.

In the May 2022 CWH ECS NOPR, DOE requested historical shipments data dividing shipments between condensing and non-condensing efficiencies for all equipment types that comprise the subject of this proposed rulemaking. In comments filed in response to the May 2022 CWH ECS NOPR, A.O. Smith stated that the percentage of commercial gas-fired instantaneous circulating water heaters and hot water supply boilers shipments that are condensing is lower than the

percentage for gas storage products. (A.O. Smith, No. 22 at p. 3) As discussed in section IV.H.1, DOE used the AHRI-provided historical data received following the withdrawn May 2016 CWH ECS NOPR to fit a Bass Diffusion curve for each of the equipment categories analyzed for this final rule. With respect to the concern raised by A.O. Smith regarding condensing shares of circulating water heaters and hot water supply boilers in comparison to commercial gas storage water heaters, the data received from AHRI regarding the fraction of the units of the instantaneous equipment class that were condensing at 90 percent and over was higher than it was for the commercial gas storage category, and DOE did not receive any additional data nor identify additional sources of shipments by efficiency level for the instantaneous equipment categories on which DOE could base an adjustment to the diffusion curve. Further, DOE reviewed the underlying model counts and notes that the unadjusted model counts for condensing level commercial gas-fired storage and condensing level instantaneous circulating water heaters and hot water supply boilers are the same percentage of total models (45 percent). While DOE appreciates A.O. Smith's comment, the most recent industry data supplied by AHRI does not indicate that the condensing share of instantaneous circulating water heaters and hot water supply boilers are less than those for the commercial gas-fired storage equipment class.

In comments filed in response to the May 2022 CWH ECS NOPR, Rheem noted that the same colors were used for "Com/Res-Duty Gas Storage" and "Gas Instant HWSB" in Figure 10.2.1 of the NOPR TSD making it difficult to comment; however, Rheem commented it appeared that DOE was estimating between 55 and 60 percent of gas-fired storage water heaters are condensing, and that the breakdown between non-condensing and condensing levels needs review; Rheem also noted that they were willing to discuss the breakdown in a confidential meeting. (Rheem, No. 24 at p. 3, 6)

DOE thanks Rheem for pointing out that the colors used in Figure 10.2.1 of the May 2022 CWH ECS NOPR TSD were difficult to differentiate, and DOE has made adjustments to that figure within the final rule TSD to better distinguish the data illustrated there. Regarding Rheem's concern about condensing versus non-condensing shares of commercial gas-fired storage water heaters, DOE notes that the most recent ENERGY STAR data for commercial gas-fired water heaters

reports an estimated market penetration of 49 percent of total commercial gas-fired water heaters were ENERGY STAR qualified in 2021, with a thermal efficiency greater than or equal to 0.94.¹³⁹ DOE notes that there are additional condensing models currently on the market that do not meet ENERGY STAR requirements, so the total estimated condensing percentage is likely higher than ENERGY STAR levels. As discussed in response to the A.O. Smith comment earlier, AHRI supplied industry-level data on condensing shares of commercial gas-fired storage water heaters that has been fit to a Bass Diffusion curve, and the additional information received during supplemental manufacturer interviews did not include additional data on which to base changes to these percentages.

In comments filed in response to the May 2022 CWH ECS NOPR, A.O. Smith also stated that an analysis of their own shipments shows that 5 percent of residential-duty gas-fired storage units are condensing. (A.O. Smith, No. 22 at p. 4) In the May 2022 CWH ECS NOPR, DOE had used the same condensing market share curve calculated for commercial gas-fired storage water heaters, projected to be greater than 60 percent by 2026. In response, DOE considered the A.O. Smith data point, recognizing that it is a single data point that may not be representative of the entire industry, and also reviewed both ENERGY STAR data and the model counts database. Residential-duty gas-fired storage water heaters are included under the residential ENERGY STAR water heater program, rather than the commercial gas water heater program. Based on ENERGY STAR data, shipments of ENERGY STAR-rated residential gas-fired water heaters as a share of total shipments was 8 percent in 2021.¹⁴⁰ DOE notes that historically, not all ENERGY STAR-rated residential gas-fired water heaters have been condensing models,¹⁴¹ and also that the

¹³⁹ U.S. EPA. ENERGY STAR Unit Shipment and Market Penetration Report Calendar Year 2021 Summary. Available at www.energystar.gov/sites/default/files/asset/document/2021%20Unit%20Shipment%20Data%20Summary%20Report_0.pdf. Last accessed December 17, 2022.

¹⁴⁰ U.S. EPA. ENERGY STAR Unit Shipment and Market Penetration Report Calendar Year 2021 Summary. Available at www.energystar.gov/sites/default/files/asset/document/2021%20Unit%20Shipment%20Data%20Summary%20Report_0.pdf. Last accessed December 17, 2022.

¹⁴¹ ENERGY STAR updated its residential gas water heater criteria, including its criteria for gas-fired storage residential-duty commercial water heaters, effective on April 18, 2023. Under the updated specification requirements, residential-

estimated number of residential-duty gas-fired water heaters are a small fraction of total residential gas-fired water heater shipments, so DOE was not able to definitively determine what share of the residential-duty market is comprised of condensing equipment. DOE calculated that the percentage of residential-duty gas-fired water heaters that are condensing according to model counts is 32 percent, which is significantly less than the 45 percent of model counts identified as condensing for commercial gas-fired storage water heaters. For this final rule, DOE has revised the condensing market share for residential-duty gas-fired storage water heaters based on this information, using the historical ENERGY STAR residential water heater shipments to fit the Bass Diffusion curve. As conveyed in section IV.H.1, the overall resulting condensing share diffusion curve for the residential-duty equipment class is now lower than that modeled for commercial gas-fired storage water heaters.

A.O. Smith raised concerns that setting new minimum energy conservation standards for commercial gas-fired products at 95 percent and 96 percent thermal efficiency will have a dilutive effect on the ENERGY STAR program. For ENERGY STAR to remain a relevant catalyst for market adoption of commercial gas-fired water heaters, A.O. Smith said ENERGY STAR would need to set a new specification level significantly above the Department's proposed new minimums, which de facto would render the program obsolete for gas-fired CWH. A.O. Smith believes such an outcome would create significant marketplace competition implications considering technology feasibility, manufacturer product costs (MPCs) as well as limit product options for commercial businesses. (A.O. Smith, No. 22 at p. 3) Similarly, Atmos Energy stated that the proposed standards would negatively impact existing rebate programs. Atmos Energy stated that incentive programs provide a cost-effective means for improving residential building energy efficiency without requiring a market transition through which the water heating options consumers need are no longer available. (Atmos Energy, No. 36 at p. 3)

As discussed in section IV.C.4.a, DOE reviewed the efficiency level distributions of products on the market and found that the market distributions show the greatest number of unique basic models within the condensing range at 96 percent for gas-fired storage

duty gas-fired storage water heaters would likely need to be condensing to be ENERGY STAR compliant.

water heaters and storage type-instantaneous water heaters, gas-fired tankless water heaters, and gas-fired circulating water heaters and hot water supply boilers. DOE anticipates that there is still room for product differentiation, particularly for gas-fired storage water heaters which account for most of the shipments in this final rule, where products above 95 percent efficiency currently exist at 96, 97, 98, and 99 percent, and DOE also notes that products exist at 97 percent efficiency for tankless water heaters, and that there are products at 97, 98, and 99 percent efficiency products for circulating water heaters and hot water supply boilers. Thus, ENERGY STAR specifications could be updated, allowing for the continuation of utility rebate and other incentive programs.

4. Electrification Trends

In comments submitted in response to the May 2022 CWH ECS NOPR, several stakeholders expressed concerns about the impact of legislation and codes requiring electrification. Bradford White believes that local policies and codes that restrict the use of gas-fired commercial water heaters need to be taken into account, and both WM Technologies and Patterson-Kelley noted that local building codes are limiting installation of new gas-fired products, which are a risk of decreased future annual shipments across the market, and that changes in building codes related to discarding appliances prior to the end of their normal operational life could also impact shipments. (Bradford White, No. 23 at p. 6; WM Technologies, No. 25 at p. 3; Patterson-Kelley, No. 26 at p. 3) WM Technologies also commented that changes in building codes relating to electrification are impacting fuel switching differently at different efficiency levels in some localities. (WM Technologies, No. 25 at p. 3) AHRI also noted building code changes in states like Washington that are requiring heat pump water heating. (AHRI, No. 31 at p. 6) In response, DOE has conducted an internet search of State and municipal level legislation and building codes to identify locations where electrification requirements have been put into place, and where building codes have been changed with respect to discarding appliances prior to the end of their normal life. DOE identified a total of 81 municipalities and 1 State with an electrification requirement, either for new buildings, or upon equipment replacement.¹⁴² DOE also identified a

¹⁴² Building Decarbonization Coalition, Zero Emission Building Ordinances, State and Local

total of 20 States that have prohibited building gas restrictions and electrification mandates.¹⁴³ DOE was not able to identify any building codes that had been changed with respect to discarding appliances prior to the end of their normal life. DOE further notes that States and municipalities are actively proposing plans or legislation addressing electrification, or prohibiting electrification. Until these are adopted or passed, they are subject to change. As such, DOE attempted to account only for those jurisdictions that have passed or adopted electrification requirements. For example, both California and New York have released plans that incorporate end-use electrification for buildings, but neither State has finalized those plans.¹⁴⁴ ¹⁴⁵ Thus only municipalities within these States that have passed or adopted electricity requirements were included in DOE's analysis. DOE conducted a sensitivity analysis of potential electrification trends to consider the impact of additional electrification if both California and New York were to adopt electrification requirements state-wide (see appendix 10B of the final rule TSD).

Additionally, DOE notes that in December of 2022, DOE published the Clean Energy for New Federal Buildings and Major Renovations of Federal Buildings SNOPR ("Clean Energy Rule") as required by section 433 of the Energy Independence and Security Act of 2007 ("EISA 2007"), which requires that fossil fuel generated energy consumption be reduced to zero (as compared to a 2003 baseline) by 2030 for new construction and major renovations of Federal buildings.¹⁴⁶ Federal buildings are also subject to E.O. 14057, which requires that all new construction and major modernization

Government Decarbonization Efforts. Available at buildingdecarb.org/zeb-ordinances.html. Last accessed November 28, 2022.

¹⁴³ Gas Ban Monitor: East Coast policies advance; Pa. gas ban prohibition fails, August 2, 2022. Available at www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-ban-monitor-east-coast-policies-advance-pa-gas-ban-prohibition-fails-71439034. Last Accessed November 28, 2022.

¹⁴⁴ California Air Resources Board, November 16, 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available at ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp.pdf. Last accessed December 19, 2022.

¹⁴⁵ New York State Climate Action Council. 2022. "New York State Climate Action Council Scoping Plan." Available at climate.ny.gov/-/media/project/climate/files/2022-12-15-Draft-Final-Scoping-Plan.pdf. Last accessed December 20, 2022.

¹⁴⁶ Available at www.federalregister.gov/documents/2022/12/21/2022-27098/clean-energy-for-new-federal-buildings-and-major-renovations-of-federal-buildings. Last accessed February 13, 2023.

projects greater than 25,000 gross square feet be designed, constructed, and operated to be net-zero emissions by 2030, and that the Federal sector will have a net-zero emissions building portfolio by 2045, including a 50 percent emissions reduction (over 2008 levels) by 2032.¹⁴⁷

DOE used this information to develop an adjustment to account for reduced shipments due to electrification requirements. In total, based on policies and codes that have been adopted as of November 28, 2022, approximately 8 percent of the United States by population will be subject to electrification requirements for new buildings by 2026, with approximately 0.3 percent subject to electrification upon equipment replacement. Additionally, based on the proposed Clean Energy Rule and E.O. 14057, the potential percentage of floorspace impacted by Federal rules and requirements would range from 0.6 percent to 0.9 percent of new construction, and of 0.6 percent to 2.3 percent of replacements. The resulting adjustments are shown in Table IV.24.

TABLE IV.24—ELECTRIFICATION REDUCTIONS

Year	New shipment reductions	Replacement shipment reductions (%)
2026	8.6	0.9
2027	8.6	1.0
2028	8.6	1.1
2029	8.5	1.3
2030	8.5	1.4
2031	8.5	1.5
2032	8.6	1.6
2033	8.6	1.7
2034	8.6	1.8
2035	8.7	1.9
2036	8.7	1.9
2037	8.7	2.0
2038	8.8	2.1
2039	8.8	2.2
2040	8.8	2.3
2041	8.8	2.3
2042	8.9	2.4
2043	8.9	2.5

TABLE IV.24—ELECTRIFICATION REDUCTIONS—Continued

Year	New shipment reductions	Replacement shipment reductions (%)
2044	8.9	2.6
2045	8.9	2.6
2046	8.9	2.6
2047	8.9	2.6
2048	8.9	2.6
2049	8.8	2.5
2050	8.8	2.5
2051	8.8	2.5
2052	8.8	2.5
2053	8.8	2.5
2054	8.8	2.5
2055	8.8	2.4

A more detailed discussion of this adjustment and the underlying calculations is contained in chapter 9 of this TSD.

5. Shipments to Residential Consumers

DOE determined the fractions of commercial and residential applications for each equipment category based on the number of samples (in both CBECS and RECS) selected as relevant to be served by each equipment category considered in this rulemaking. Based on comments received in response to the withdrawn May 2016 CWH ECS NOPR, DOE included only residential multi-family stocks and building additions when considering the potential non-commercial consumer component in the development of the shipments forecast in the May 2022 CWH ECS NOPR. In comments received on the May 2022 CWH ECS NOPR, Bradford White noted DOE has overstated the amount of commercial gas-fired storage and storage-type instantaneous water heaters that are installed in residential applications, as in their experience, there are very few residential installations where this occurs (e.g., typically high end, large homes), and that they do not see gas-fired circulating water heaters and hot water supply boilers used in residential applications. (Bradford White, No. 23 at p. 6) DOE

wishes to clarify that the only residential applications considered in both the May 2022 CWH ECS NOPR and this final rule analysis are those in multi-family buildings; single family and manufactured home applications were excluded from the analysis, as previously suggested by commenters in response to the withdrawn May 2016 CWH ECS NOPR.

6. Final Rule Shipment Model

To project shipments and equipment stocks for 2023 through the end of the 30-year analysis period (2055), DOE used the shipments forecasting models (described in sections IV.G.1 and IV.G.2 of this final rule), a stock accounting model, and adjustments for electrification. The stock accounting model keeps track of shipments and calculates replacement shipments based on the historical shipments, the expected useful lifetime of each equipment class, and a Weibull distribution that identifies a percentage of units still in existence from a prior year that will fail and need to be replaced in the current year. In each year, DOE assumed a fraction of the replacement market will be retired rather than replaced due to the demolition of buildings in which this CWH equipment resides. This retirement fraction was derived from building stock data from the AEO2023.¹⁴⁸

To project shipments of CWH equipment for new construction, DOE relied on building stock data obtained from AEO2023. For this final rule, DOE assumes CWH equipment is used in both commercial buildings and residential multi-family buildings. DOE estimated a saturation rate for each equipment type using building and equipment stock values. The saturation rate was applied to new building additions in each year, yielding shipments to new buildings. The building stock and additions projections from AEO2023 are shown in Table IV.25.

TABLE IV.25—BUILDING STOCK PROJECTIONS

Year	Total commercial building stock (million sq. ft.)	Commercial building stock additions (million sq. ft.)	Multi-family residential building stock (millions of units)	Multi-family residential building additions (millions of units)
2022	93,444	2,027	32.84	0.61
2025	96,234	2,272	33.86	0.49
2026	97,373	2,197	34.18	0.49
2030	101,747	2,473	35.47	0.49

¹⁴⁷ E.O. 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, December 8, 2021. Available at www.fedcenter.gov/

[programs/eo14057/](https://www.regulations.gov/document/programs/eo14057/). Last accessed December 16, 2022.

¹⁴⁸ U.S. Energy Information Administration (EIA). 2023 Annual Energy Outlook. March 2023. Available at www.eia.gov/outlooks/aeo/.

TABLE IV.25—BUILDING STOCK PROJECTIONS—Continued

Year	Total commercial building stock (million sq. ft.)	Commercial building stock additions (million sq. ft.)	Multi-family residential building stock (millions of units)	Multi-family residential building additions (millions of units)
2035	108,065	2,336	36.93	0.46
2040	112,879	2,127	38.37	0.48
2045	116,845	2,152	39.78	0.47
2050	121,045	2,293	41.14	0.48
2055 *	123,348	2,381	42.61	0.51

Source: EIA AEO2023 Reference case.

* Post-2050, the projections were extended using the average annual growth rate from 2040 to 2050.

The next component in the stock accounting model is the calculation of shifts to or away from particular equipment classes. For this final rule, shipments were an input to the stock model. For both the historical and forecasted period, shifts to or away from a particular equipment class were calculated as a remainder. Using a saturation rate derived from historical equipment and building stocks, the model estimates shipments to new buildings. Using historical stock and retirement rates based on equipment life, the model estimates shipments for stock replacement. Shifts to or away from a particular equipment class equal the total shipments less shipments for new buildings and shipments for replacements. While DOE refers to the remainders as “shifts to or away from the equipment class,” the remainders could be a result of numerous factors: equipment lasting longer, which reduces the number of replacements; increased or decreased need for hot water generally due to greater efficiency in water usage; changing patterns of commercial activity; outside influences, such as ENERGY STAR and utility conservation or marketing programs; actual shifts between equipment classes caused by relative fuel prices, relative equipment costs and efficiencies, installation costs, repair and maintenance costs, and consumer preferences; and other factors.

Based on the historic data, there is an apparent shift toward electric storage water heating equipment. The historical shipments summarized in Table IV.23 of

this document show a steady growth in commercial electric storage water heaters, with shipments growing from 22,288 in 1994 to 154,330 in 2021, but declining in 2022 to 120,152, the lowest since 2016. Over the same time period, commercial gas-fired storage water heaters have seen a decline in shipments from 91,027 in 1994 to a low of 75,487 in 2009. After 2009, gas-fired storage water heater shipments rebounded, reaching a shipment level of 90,192 in 2021 (and a peak of 98,095 in 2015), although they declined again in 2022, to 83,487, the second lowest year since 2013. During the period 2009 through 2015, there was a reduction in the apparent shift away from commercial gas-fired storage units compared to the earlier period; however, there appeared to be an increase in 2016–2017 before returning to a reduction in the shift in commercial gas-fired storage units. Because the forecasted shipments of residential-duty gas-fired storage water heaters are linked to commercial gas-fired storage units, there is a similar shift away from the residential-duty gas-fired storage equipment class in the shipment forecast. Gas-fired instantaneous equipment appears to have a positive shift pattern.

Because the commercial gas-fired storage and gas-fired instantaneous CWH shipments forecasts were developed using econometric models based on historical data, these apparent shifts are captured in DOE’s shipments model and embedded in the total forecast. For purposes of assigning

equipment costs and energy usage in the NIA, DOE needs to know if the increased/decreased shipments are new or replacement shipments. For all equipment classes, DOE assumed that the apparent shift is most likely to occur in new installations rather than in the replacement installations. As described in chapter 9 of the final rule TSD, DOE assumed that a shift is twice as likely to take place in a new installation as in a replacement installation. For example, if DOE estimated that in 2023, 20 percent of shipments for an equipment class went to new installations and 80 percent went for replacements in the absence of switching, DOE multiplied the 20 percent by 2 (40 percent) and added the 80 percent (which equals 120 percent). Both the 40 percent for new and the 80 percent for replacement were then divided by 120 percent to normalize to 100 percent, yielding revised shipment allocations of 33 percent for new and 67 percent for replacement.

Finally, an adjustment is made to account for units projected to switch out of the equipment class due to electrification requirements. The estimated percent reduction shown in Table IV.24 is applied to the new and replacement shipments calculated for each year as described previously. These modified shipments are then accounted for in future stock retirements so that once a unit has “exited” the stock, it does not re-enter when it would be due for replacement.

The resulting shipment projection is shown in Table IV.26.

TABLE IV.26—SHIPMENTS OF COMMERCIAL WATER HEATING EQUIPMENT

Year	Commercial gas-fired storage water heaters and gas-fired storage-type instantaneous water heaters (units *)	Residential-duty gas-fired storage water heaters (units)	Gas-fired tankless water heaters (units)	Gas-fired circulating water heaters and hot water supply boilers (units)
2023	87,890	17,548	9,612	11,141
2025	89,827	17,919	10,123	11,658
2026	90,483	18,051	10,312	11,931

TABLE IV.26—SHIPMENTS OF COMMERCIAL WATER HEATING EQUIPMENT—Continued

Year	Commercial gas-fired storage water heaters and gas-fired storage-type instantaneous water heaters (units)*	Residential-duty gas-fired storage water heaters (units)	Gas-fired tankless water heaters (units)	Gas-fired circulating water heaters and hot water supply boilers (units)
2030	90,838	18,189	13,212	15,123
2035	89,229	17,839	14,970	17,076
2040	88,121	17,617	16,700	18,615
2045	87,733	17,545	18,822	20,726
2050	87,422	17,484	21,013	22,992
2055	86,917	17,380	23,259	25,366

*The projected shipments are based on historical data for commercial gas-fired storage water heaters which may or may not include storage-type instantaneous shipments. For analysis purposes, DOE has grouped these categories but recognizes that future shipments for storage-type instantaneous may not be captured in the projection.

Because the estimated energy usage of CWH equipment differs by commercial and residential settings, the NIA employs the same fractions of shipments (or sales) to commercial and residential consumers used by the LCC analysis. The fractions of shipments by type of consumer are shown in Table IV.27.

TABLE IV.27—SHIPMENT SHARES BY TYPE OF CONSUMER

Equipment	Commercial (%)	Residential (%)
Commercial gas-fired storage water heaters and gas-fired storage-type instantaneous water heaters	84	16
Residential-duty gas-fired storage water heaters	60	40
Gas-fired instantaneous water heaters and hot water supply boilers:		
Gas-fired tankless water heaters	60	40
Gas-fired circulating water heaters and hot water supply boilers	85	15

For the NIA model, shipments must be disaggregated by efficiency levels that correspond to the levels analyzed in the engineering and LCC analyses. To identify the percentage of shipments corresponding to each efficiency level, DOE combined the efficiency trends based on AHRI and manufacturer shipments data and information derived from a database of equipment currently produced and sold by manufacturers. The sources of information for this database included the DOE Compliance Certification and manufacturer catalogs and websites. DOE used the AHRI shipments data provided in response to the withdrawn May 2016 CWH ECS NOPR to project the percentage of shipments that are condensing and non-condensing, for the period from 2015 through the end of the analysis period. Starting with the last year of historical data from AHRI, shipments within the non-condensing and condensing efficiency ranges were distributed based on the available models database. Because the efficiency bins used in the AHRI shipments data did not exactly match the thermal efficiency bins studied by DOE, available models were used to re-distribute the historical shipment period within the non-condensing and condensing efficiency ranges to match the DOE thermal

efficiency levels. For each subsequent year in the final rule analysis period, as the percentage of shipments that are in the condensing efficiency range increases, the shipments are distributed across the condensing thermal efficiency levels by increasing proportionally the percentage of shipments by efficiency level in the previous year. Similarly, as the percentage of non-condensing shipments decrease, DOE distributed shipments across thermal efficiency levels by proportionately decreasing the percentage of shipments in the prior year.

H. National Impact Analysis

The NIA assesses the NES and the NPV from a national perspective of total consumer costs and savings that would be expected to result from new or amended standards at specific efficiency levels.¹⁴⁹ (“Consumer” in this context refers to consumers of the equipment being regulated.) DOE calculates the NES and NPV for the potential standard levels considered based on projections of annual equipment shipments, along with the annual energy consumption and total installed cost data from the energy use and LCC analyses. For the

¹⁴⁹The NIA accounts for impacts in the 50 states and U.S. territories.

present analysis, DOE projected the energy savings, operating cost savings, equipment costs, and NPV of consumer benefits for equipment shipped from 2026 through 2055, the year in which the last standards-compliant equipment would be shipped during the 30-year analysis period.

DOE evaluates the impacts of new or amended standards by comparing a case without such standards with standards-case projections. The no-new-standards case characterizes energy use and consumer costs for each equipment class in the absence of new or amended energy conservation standards. For this projection, DOE considers historical trends in efficiency and various forces that are likely to affect the mix of efficiencies over time. DOE compares the no-new-standards case with projections characterizing the market for each equipment class if DOE adopted new or amended standards at specific energy efficiency levels (i.e., the TSLs or standards cases) for that class. For the standards cases, DOE considers how a given standard would likely affect the market shares of equipment with efficiencies greater than the standard.

DOE uses a spreadsheet model to calculate the energy savings and the national consumer costs and savings from each TSL. Chapter 10 and

appendix 10A of the final rule TSD explain the model and how to use it. The model and documentation are available on DOE’s website.¹⁵⁰ Interested parties can review DOE’s analyses by changing various input quantities within the spreadsheet. The NIA spreadsheet model uses typical values (as opposed to probability distributions) as inputs.

Unlike the LCC analysis, the NIA does not use distributions for inputs or outputs, but relies on inputs based on national average equipment costs and energy costs. DOE used the NIA spreadsheet to perform calculations of NES and NPV using the annual energy consumption, maintenance and repair costs, and total installed cost data from the LCC analysis. The NIA also uses energy prices and building stock and

additions consistent with the projections from the *AEO2023*. NIA results are presented in chapter 10 of the final rule TSD.

Table IV.28 summarizes the inputs and methods DOE used for the NIA analysis for this final rule. Discussion of these inputs and methods follows the table. See chapter 10 of the final rule TSD for further details.

TABLE IV.28—SUMMARY OF INPUTS AND METHODS FOR THE NATIONAL IMPACT ANALYSIS

Inputs	Method
Shipments	Annual shipments from shipments model.
Compliance Date of Standard	2026.
Efficiency Trends	No-new-standards case, standards cases.
Annual Energy Consumption per Unit	Annual weighted-average values are a function of energy use at each TSL.
Total Installed Cost per Unit	Annual weighted-average values are a function of cost at each TSL.
Annual Energy Cost per Unit	Annual weighted-average values as a function of the annual energy consumption per unit and energy prices.
Repair and Maintenance Cost per Unit	Annual values do not change with efficiency level.
Energy Price Trends	<i>AEO2023</i> projections (to 2050) and extrapolation thereafter.
Energy Site-to-Primary and FFC Conversion	A time-series conversion factor based on <i>AEO2023</i> .
Discount Rate	3 percent and 7 percent.
Present Year	2023.

1. Product Efficiency Trends

A key component of the NIA is the trend in energy efficiency projected for the no-new-standards case and each of the standards cases. DOE uses a no-new-standards-case distribution of efficiency levels to project what the CWH equipment market would look like in the absence of potential standards. For the withdrawn May 2016 CWH ECS NOPR, DOE developed the no-new-standards-case distribution of equipment by thermal efficiency levels, and by standby loss efficiency levels, for CWH equipment by analyzing a database¹⁵¹ of equipment currently available. For the standards cases, DOE used a “roll-up” scenario to establish the shipment-weighted efficiency for the year that standards are assumed to become effective (2026). In this scenario, the market shares of equipment in the no-new-standards case that do not meet the standard under consideration would “roll up” to meet the new standard level, and the market share of equipment above the standard would remain unchanged. The approach is further described in chapter 10 of the final rule TSD.

For this final rule, DOE developed the no-new-standards distribution of equipment by thermal efficiency levels for CWH equipment using data from

DOE’s Compliance Certification database, data submitted by AHRI regarding condensing versus non-condensing equipment, and ENERGY STAR shipments for residential gas-fired water heaters. Using the data provided by AHRI for commercial gas-fired storage water heaters and instantaneous gas-fired water heaters and hot water supply boilers, DOE has modeled a no-new-standards efficiency trend in which 75 to 85 percent of consumers purchase condensing equipment by 2055 by using the historical AHRI data to develop a future trend, but the Department points out that at present, the adoption of equipment equivalent to the standards proposed herein is currently about half of total shipments.¹⁵² Thus, this final rule analysis assigns substantial credit to market-driven efficiency accomplishments. DOE further notes that new and replacement markets were modeled using the same efficiency distributions.

For this final rule, DOE used the AHRI efficiency data to fit a Bass Diffusion curve, which shows continued market-driven efficiency improvements over the forecast period up to a point where 75 percent of commercial gas-fired storage and circulating water heaters and hot water supply boiler

shipments are condensing in the no-new-standards case. For instantaneous tankless shipments, DOE modeled up to 85 percent of shipments in the condensing efficiency levels because it appears that presently, the percentage is much higher than for the other equipment types. Similarly, DOE used ENERGY STAR shipments of residential gas water heaters to fit a Bass Diffusion curve for the residential-duty equipment category, which shows continued market-driven efficiency improvement over the forecast period up to a point where 23 percent of residential-duty gas-fired storage water heater shipment are condensing in the no-new-standards case. DOE notes that the specification for the Bass Diffusion curve used a maximum of 75 percent; however, that maximum was not reached during the forecast period. Thus, an increasing efficiency trend is modeled over the 30-year analysis period in the NIA model for all equipment categories.

Table IV.29 shows the starting distribution of equipment by efficiency level. In the no-new-standards case, the distributions represent the starting point for analyzing potential energy savings and cumulative consumer impacts of potential standards for each equipment category.

¹⁵⁰ DOE’s web page on CWH equipment is available at www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=36.

¹⁵¹ This database was developed using model data from DOE’s Compliance Certification database

(available at www.regulations.doe.gov/certification-data/) and manufacturer websites and catalogs.

¹⁵² U.S. EPA. ENERGY STAR Unit Shipment and Market Penetration Report Calendar Year 2021 Summary. Available at www.energystar.gov/sites/

www1.eere.energy.gov/buildings/appliance_standards/standards/2021%20Unit%20Shipment%20Data%20Summary%20Report_0.pdf. Last accessed December 17, 2022.

TABLE IV.29—MARKET SHARES BY EFFICIENCY LEVEL IN 2026 *

Equipment	EL 0** (%)	EL1 (%)	EL2 (%)	EL3 (%)	EL4 (%)	EL5 (%)
Commercial gas-fired storage water heaters and gas-fired storage-type instantaneous water heaters	34	3	0	15	47	1
Residential-duty gas-fired storage water heaters	54	21	15	3	6	1
Gas-fired instantaneous water heaters and hot water supply boilers:						
Gas-fired tankless water heaters	17	0	0	4	22	57
Gas-fired circulating water heaters and hot water supply boilers	5	13	13	2	11	55

* Due to rounding, shares for each row might not add to 100 percent.

** For the Residential-duty equipment class, efficiency is in terms of UEF. Because minimum UEF under the existing efficiency standard varies by storage tank size, equipment is categorized not by absolute value of UEF but by percentage point increases over the minimum efficiency required on the basis of the equipment's tank size.

For each efficiency level analyzed, DOE used a “roll-up” scenario to establish the market shares by efficiency level for the year that compliance would be required with potential standards. The analysis starts with the no-new-standards-case distributions wherein shipments are assumed to be distributed across efficiency levels as shown in Table IV.29. When potential standard levels above the base level are analyzed, as the name implies, the shipments in the no-new-standards case that did not meet the efficiency standard level being considered would roll up to meet the next higher standard level. The “roll-up” scenario also suggests that equipment efficiencies in the no-new-standards case that were above the standard level under consideration would not be affected. The no-new-standards-case efficiency distributions for each equipment class are discussed more fully in chapter 10 of the final rule TSD.

2. Fuel and Technology Switching

For this final rule, DOE analyzed whether amended standards would potentially create economic incentives for shifting between fuels, and specifically from natural gas to electricity, beyond any switching inherent in historical trends or due to electrification requirements, as discussed in section IV.G.4 of this document.

In comments filed in response to the May 2022 CWH ECS NOPR, Bradford White disagreed with DOE's assertion that moving to condensing levels would not lead to fuel switching in existing applications, noting that if products are unable to be vented for a variety of reasons, the commercial consumer will be forced to switch to one or more electric water heaters to meet their hot water needs. (Bradford White, No. 23 at

p. 4) The Joint Gas Commenters stated that the proposed standards would cause entities to switch to electric products and raised concerns that EPCA does not permit DOE to establish standards that would drive consumers to switch fuel types. (Joint Gas Commenters, No. 34 at p. 39)

DOE acknowledges these concerns; however, DOE has determined (based upon the analyses described in this section) that the amended standard will not introduce additional economic incentives that would cause a noticeable increase in fuel switching from gas-fired CWH (and residential-duty) equipment to their electric counterparts. Accordingly, DOE did not explicitly include fuel or technology switching in this final rule beyond the continuation of historical trends and electrification requirements discussed in section IV.G.4 of this document. Additionally, DOE has previously received comments that condensing water heaters can be installed in lieu of noncondensing CWH equipment. For example, in comments received on the withdrawn May 2016 CWH ECS NOPR, HTP opined that given the various venting solutions available in the market, condensing water heater installation would be neither physically impossible nor prohibitively expensive, meaning these buildings would not end up “stranded.” (DOE Docket EERE–2014–BT–STD–0042, HTP Inc., No. 44 at pp. 1–2) As another example, in comments received by NEEA,¹⁵³ they noted that “Even in cases that present significant challenges, interviewees reported that technical solutions were always possible” and that “Interviewees expressed that there is always a technical way to solve each of the retrofit problems that were identified, although sometimes the solutions may be expensive or out of line with what

the building owner wants.” (DOE Docket EERE–2018–BT–STD–0018, NEEA, No. 62 attached report at pp. 3, 6). DOE is cognizant that there may be higher cost installations that an individual building owner must weigh, and DOE has incorporated an extraordinary venting cost adder to account for these potential installations (see section IV.F.2.d).

For fuel and technology switching, DOE focused on whether the adopted standard would cause fuel switching based on economic factors, and did not consider additional fuel switching beyond the continuation of historical trends and electrification requirements discussed in section IV.G.4 of this document. DOE considered the effects of fuel switching by comparing total installed costs and operating costs of competing CWH equipment types. DOE conducted a high-level analysis by using average NIA inputs and equipment operating hour data from the energy analysis to examine consumer PBPs in situations where they might switch from gas-fired to electric water heaters in both new and replacement construction at the proposed standard level. As previously noted, DOE is not analyzing thermal efficiency standards for electric storage water heaters since the thermal efficiency of these units already approaches 100 percent; as such, the underlying technology has most likely not changed, so for comparison purposes in this final rule, the installation, equipment, and maintenance and repair costs from the withdrawn May 2016 CWH ECS NOPR have been adjusted to account for inflation.¹⁵⁴ To make the costs comparable across equipment categories, DOE adjusted the average costs using ratios based on the first-hour ratings shown in Table IV.30.

¹⁵³ NEEA, Northeast Energy Efficiency Partnerships, Pacific Gas & Electric, and National Grid. Joint comment response to the Notice of Petition for Rulemaking; request for comment (report attached—Memo: Investigation of Installation Barriers and Costs for Condensing Gas

Appliances). Docket EERE–2018–BT–STD–0018, document number 62. www.regulations.gov/comment/EERE-2018-BT-STD-0018-0062. Last accessed July 8, 2021.

¹⁵⁴ Electric storage water heater costs were escalated from 2014\$ to 2022\$ using gross domestic

product price deflators. First year electricity costs were recalculated using the AEO2023 prices for 2026, weighted by the percent of shipments to the commercial and residential markets for the comparison equipment class (commercial gas-fired or residential-duty).

TABLE IV.30—FIRST-HOUR EQUIPMENT RATINGS USED IN THE FUEL SWITCHING ANALYSIS

Year	Commercial gas-fired storage water heaters	Residential-duty gas-fired storage water heaters	Gas-fired tankless water heaters	Gas-fired circulating water heaters and hot water supply boilers	Electric storage water heaters
First-hour rating (gal)	283	134	268	664	165
Ratio to Commercial Gas-fired Storage	1.00	0.47	* 0.32	2.34	0.58

* The ratio of the number of installed commercial gas-fired storage water heaters to installed gas-fired tankless water heaters is not directly comparable using only first-hour ratings, here based on a 90 °F temperature rise. The ratio shown reflects in-use delivery capability of the representative gas-fired tankless water heater model relative to the delivery capability of the representative commercial gas-fired storage water heater, and includes an estimated 3-to-1 delivery capability tradeoff for a tankless unit without storage compared to the representative gas storage water heater with the same first-hour rating.

DOE reviewed the installed cost of commercial electric and gas-fired storage water heaters, both at the no-new-standards-case efficiency level and with the standard level proposed herein for commercial gas-fired water heaters. The analysis uses costs for the year 2026 (in 2022\$), the first year that an amended standard would be in effect. In new installations, the analysis assumes that the inflation-adjusted commercial electric storage water heater installed cost is \$4,705 and the first year maintenance and repair cost is \$54.¹⁵⁵ In replacement installations, the analysis assumes that the inflation-adjusted commercial electric storage water heater installed cost is \$4,419 and the first year maintenance and repair cost is \$54. In further investigating the potential for fuel-switching, DOE first scaled the first costs and the maintenance and repair costs of the electric storage water in new and replacement installations linearly with first-hour rating assuming that the consumer needs to meet the first hour capacity of the representative

commercial gas-fired storage water heater. To better compare the electric energy use in a fuel switching scenario, DOE examined the average burner operating hours for the commercial gas water heater to meet the hot water load, as detailed in appendix 7B of the final rule TSD. By multiplying the input rating of the gas storage water heater by the baseline thermal efficiency and the average 3.23 hours of operation to meet the water load including piping losses (and not included standby burner operation), the average daily hot water provided by the unit was estimated at 513,718 Btu/day. Assuming a 100 percent conversion efficiency for the electric energy to provide this load would be 150.56 kWh/day or 54,955 kWh/yr with an energy cost of \$5,785 in the first year. DOE notes that this value does not account for additional energy for electric water heater standby losses.

With the electric water heater costs thus scaled and corresponding energy cost calculated, within new construction installations the

commercial gas-fired storage water heater was estimated to be more expensive to purchase and install than the electric storage unit in both the no-new-standards and standards cases, but significantly less costly to operate (see Table IV.31). In these cases, the up-front cost premium of the commercial gas-fired storage unit at the amended standard level (TSL 3) relative to the scaled electric storage unit costs, divided by the annual operating savings for choosing the gas water heater, yields a PBP of 0.33 years, compared to a PBP of 0.22 years in the no-new-standards case. In replacement markets, the total installed cost of a commercial gas-fired storage unit was compared to the first-hour-rating scaled cost estimate for the commercial electric water heater as a replacement unit from the withdrawn May 2016 CWH ECS NOPR. The estimated total installed cost of the comparable electric storage unit exceeds the cost of the commercial gas-fired storage unit. As with new construction, the replacement electric storage unit is substantially more costly to operate.

TABLE IV.31—TYPICAL UNIT COSTS, SCALED FOR FIRST-HOUR RATING (COMMERCIAL GAS-FIRED STORAGE = 1.0)—ELECTRIC STORAGE VERSUS COMMERCIAL GAS-FIRED STORAGE [2022\$]

Equipment	Cost	No-new-standards case new construction	No-new-standards case replacement *	Standards case new construction	Standards case replacement *
Electric Storage	Installed Cost	\$8,070	\$7,580	\$8,070	\$7,580
	Energy, Maintenance, and Repair Cost (First Year).	5,878	5,878	5,955	5,955
Commercial Gas-fired Storage	Installed Cost	8,945	5,642	9,505	7,298
	Energy, Maintenance, and Repair Cost (First Year).	1,880	1,962	1,668	1,735

* Installed costs for electric storage water heaters shown for the replacement case do not include cost of infrastructure alterations (e.g., upgraded wiring, removal or modification of gas infrastructure).

DOE further notes that, depending on the specifics of the commercial building, significant additional costs could be incurred in switching to electric storage water heaters if the

existing building lacks the electrical wire capacity to where equivalent electrical water heater would be installed or related infrastructure (existing electrical panels, which may

require the addition or upsizing of breakers, and electrical switchgear) to handle the input rating of a commercial electric storage water heater(s) that would meet the existing natural gas

¹⁵⁵ Since the electric storage water heater was dropped from this final rule, for this analysis the

MPC from the withdrawn 2016 ECS NOPR standby

loss level 0 was used to represent no-new-standards-case electric storage water heaters.

water heater capacity/load. Thus, DOE concludes that the amended standard will not cause a noticeable increase in fuel switching from commercial gas-fired to electric storage water heaters.

A similar analysis to that of the commercial gas-fired storage water heater and electric equivalent was repeated separately for residential-duty water heaters. The first costs and maintenance and repair costs were scaled by first hour rating to that equivalent to the representative residential-duty water heater. The hot water load for the electric equivalent unit was estimated based on the burner operating hours from appendix 7B of the TSD and the electric water heater energy costs were estimated assuming 100

percent conversion efficiency of the electric input to hot water load. For an electric water heater equivalent to a residential-duty gas water heater, the estimated energy consumption was 25,618 kWh/yr, equating to an energy cost of \$2,853 in the first year. This value does not account for additional energy for electric water heater standby losses. The appropriately scaled first costs and operating cost estimates are shown in Table IV.32. In all but the no-new-standards replacement case, the residential-duty water heater is more expensive to install than the electric storage water heater; however, it was less costly to operate in all cases. For the cases in which the electric storage water heater was less expensive to

install, the up-front cost premium of the gas-fired residential-duty unit relative to the electric storage unit, divided by the annual operating savings from using the gas water heater, yields a PBP of 0.11 years in the no-new-standards new installation case, of 0.21 years at the amended standard level (TSL 3) replacement case, and of 0.59 years at the amended standard level new installation case. Based on the comparison of costs for equivalent electric water heating, DOE concludes that amended standards would not introduce additional economic incentives for fuel switching from residential-duty to electric storage water heaters.

TABLE IV.32—TYPICAL UNIT COSTS, SCALED FOR FIRST-HOUR RATING (RESIDENTIAL-DUTY = 1.0)—ELECTRIC STORAGE VERSUS RESIDENTIAL-DUTY [2022\$]

Equipment	Cost	No-new-standards case new construction	No-new-standards case replacement *	Standards case new construction	Standards case replacement *
Electric Storage	Installed Cost	\$3,821	\$3,589	\$3,821	\$3,589
	Energy, Maintenance, and Repair Cost (First Year).	2,896	2,897	2,876	2,876
Residential-duty Storage	Installed Cost	4,014	2,247	4,922	3,979
	Energy, Maintenance, and Repair Cost (First Year).	1,180	1,179	997	997

* Installed costs for electric storage water heaters shown for the replacement case do not include cost of infrastructure alterations (e.g., upgraded wiring, removal or modification of gas infrastructure).

In the May 2022 CWH ECS NOPR, DOE did not consider instantaneous gas-fired equipment and electric storage water heaters to be likely objects of gas-to-electric fuel switching, largely due to the disparity in hot water delivery capacity between the instantaneous gas-fired equipment and commercial electric storage equipment. In the May 2022 CWH ECS NOPR, DOE requested comment on the availability of systems that can be built by plumbing multiple individual water heaters together to achieve the same level of hot water delivery capacity. In response, AHRI, Rheem, and A.O. Smith all noted that CWH manufacturers currently offer product solutions that utilize one or more individual water heaters plumbed or racked together for hot water delivery. (AHRI, No. 31 at p. 4, Rheem, No. 24 at p. 6, A.O. Smith, No. 22 at p. 7) A.O. Smith described that many of these systems are highly customized; however, many manufacturers also offer systems that are preconfigured at the point of manufacture in ranges of total system capacity and are then sold as a single stock keeping unit (“SKU”). (A.O. Smith, No. 22 at p. 7) Rheem also suggested that these scalable hot water solutions in which multiple gas-fired

instantaneous water heaters are combined may use water heaters that are individually rated, and the rack systems are distributed on an engineered-to-order basis with the additional rack system components (such as controllers and shut-off valves) sold separately alongside the water heaters. (Rheem, No. 24 at p. 6) Additionally, CA IOUs noted research that suggested commercial hot water systems that include multiple water heaters are common practice. (CA IOUs, No. 33 at p. 2) WM Technologies and Patterson-Kelley stated their understanding that several products are available like rack-type hot water heaters. In addition, the commenters stated the situation is limited by the first cost of installation and occurs predominantly in smaller commercial installations which employ multiple residential products to meet the hot water demand. WM Technologies and Patterson-Kelley stated these should be accounted for in the LCC model and that the deciding factor on use is cost with driving factors like venting, floor space, local code requirements, and possibly other causes. (WM Technologies, No. 25 at p. 8; Patterson-Kelley, No. 26 at p. 6) DOE appreciates the input from all

commenters on the question about multiple individual water heaters being plumbed together. After reviewing the input from stakeholders on this issue, DOE believes that its analysis of gas-fired tankless water heating equipment, which already provides for multiple tankless water heaters to be used in a commercial building, sufficiently characterizes the LCC for this equipment and there is no need to consider these types of systems separately in the LCC analysis because operating costs and savings are similar, and additional costs associated with the racks and preconfiguration costs would likely be the same regardless of efficiency.

In its analysis of fuel switching DOE included tankless units, and as noted above, DOE believes the rack systems would have similar economic eventualities in the analysis of fuel switching, scaled up or down representing their use of multiple tankless units. As discussed, this analysis is similar to that of the commercial and residential-duty gas storage water heaters for the instantaneous water heater equipment categories as compared to an electric equivalent.

As with the commercial gas-fired and residential-duty storage water heaters, the first costs and maintenance and repair costs were scaled by first hour rating to the electric equivalent for the representative instantaneous tankless water heater. The hot water load for the electric equivalent unit was estimated based on the burner operating hours from appendix 7B of the TSD and the electric water heater energy costs were estimated assuming 100 percent conversion efficiency of the electric input to hot water load. For an electric water heater equivalent to an instantaneous tankless water heater, the estimated energy consumption was

15,338 kWh/yr, equating to an energy cost of \$1,769 in the first year. This value does not account for additional energy for electric water heater standby losses. The appropriately scaled first costs and operating cost estimates are shown in Table IV.33. In all but the no-new-standards replacement case, the instantaneous water heater is more expensive to install than the electric storage water heater; however, it was less costly to operate in all cases. For the cases in which the electric storage water heater was less expensive to install, the up-front cost premium of the gas-fired instantaneous tankless unit relative to the electric storage unit,

divided by the annual operating savings from using the gas water heater, yields a PBP of 2.00 years in the no-new-standards new installation case, of 1.26 years at the amended standard level (TSL 3) replacement case, and of 1.05 years at the amended standard level new installation case. Based on the comparison of costs for equivalent electric water heating, DOE concludes that amended standards would not introduce additional economic incentives for fuel switching from instantaneous tankless to electric storage water heaters.

TABLE IV.33—TYPICAL UNIT COSTS, SCALED FOR FIRST-HOUR RATING (INSTANTANEOUS TANKLESS = 1.0)—ELECTRIC STORAGE VERSUS INSTANTANEOUS TANKLESS [2022\$]

Equipment	Cost	No-new-standards case new construction	No-new-standards case replacement *	Standards case new construction	Standards case replacement *
Electric Storage	Installed Cost	\$2,582	\$2,426	\$2,582	\$2,426
	Energy, Maintenance, and Repair Cost (First Year).	1,799	1,799	1,798	1,798
Instantaneous Tankless	Installed Cost	4,790	2,414	3,834	3,956
	Energy, Maintenance, and Repair Cost (First Year).	694	666	610	585

* Installed costs for electric storage water heaters shown for the replacement case do not include cost of infrastructure alterations (e.g., upgraded wiring, removal or modification of gas infrastructure).

Similarly, the first costs and maintenance and repair costs were scaled by first hour rating to that equivalent to the representative circulating water heater and hot water supply boiler. The hot water load for the electric equivalent unit was estimated based on the burner operating hours from appendix 7B of the TSD, and the electric water heater energy costs were estimated to assume 100 percent conversion efficiency of the electric

input to hot water load. For an electric water heater equivalent to a circulating water heater and hot water supply boiler, the estimated energy consumption was 119,041 kWh/yr, equating to an energy cost of \$12,405 in the first year. This value does not account for additional energy for electric water heater standby losses. The appropriately scaled first costs and operating cost estimates are shown in Table IV.34. In all cases, the circulating

water heater and hot water supply boiler is less expensive to install and less costly to operate than the electric storage water. Based on the comparison of costs for equivalent electric water heating, DOE concludes that amended standards would not introduce additional economic incentives for fuel switching from circulating water heaters and hot water supply boilers to electric storage water heaters.

TABLE IV.34—TYPICAL UNIT COSTS, SCALED FOR FIRST-HOUR RATING (CIRCULATING WATER HEATER AND HOT WATER SUPPLY BOILER = 1.0)—ELECTRIC STORAGE VERSUS CIRCULATING WATER HEATER AND HOT WATER SUPPLY BOILER [2022\$]

Equipment	Cost	No-new-standards case new construction	No-new-standards case replacement *	Standards case new construction	Standards case replacement *
Electric Storage	Installed Cost	\$18,934	\$17,785	\$18,934	\$17,785
	Energy, Maintenance, and Repair Cost (First Year).	12,623	12,623	13,084	13,084
Circulating Water Heater and Hot Water Supply Boiler.	Installed Cost	10,660	6,455	15,359	13,301
	Energy, Maintenance, and Repair Cost (First Year).	4,206	4,377	3,735	3,861

* Installed costs for electric storage water heaters shown for the replacement case do not include cost of infrastructure alterations (e.g., upgraded wiring, removal or modification of gas infrastructure).

DOE recognizes that commercial tankless gas-fired water heaters could in theory be replaced with one or more electric tankless units. DOE notes that

without hot water storage in such a system the instantaneous electric heating load could disproportionately impact a commercial buildings electric

demand in many applications relative to the equivalent electric storage water heater, requiring greater electrical infrastructure upgrades as well as

potentially higher and less predictable ongoing electric demand costs. DOE concludes that amended standards would not introduce additional economic incentives for fuel switching from gas-fired instantaneous tankless to electric storage or electric tankless water heaters. Similarly, replacement of gas fired circulating water heaters or boilers with an electric equivalent would be expected to require substantial electric capacity upgrades as well as much higher operating cost of the electric equipment. The representative 399 kBtu/h baseline gas-fired hot water boiler represents an approximately 94 kW electric instantaneous equivalent, anticipated to be a significant load increase to most commercial buildings that might otherwise use the gas-fired hot water boiler.

In summary, based upon the reasoning above, DOE did not explicitly include fuel or technology switching in this final rule beyond the continuation of historical trends and electrification requirements discussed in section IV.G.4 of this document.

3. National Energy Savings

The NES analysis involves a comparison of national energy consumption of the considered products between each potential standards case (“TSL”) and the case with no new or amended energy conservation standards. DOE calculated the national energy consumption by multiplying the number of units (stock) of each product (by vintage or age) by the unit energy consumption (also by vintage). DOE calculated annual NES based on the difference in national energy consumption for the no-new-standards case and for each higher efficiency standard case. DOE estimated energy consumption and savings based on site energy and converted the electricity consumption and savings to primary energy (*i.e.*, the energy consumed by power plants to generate site electricity) using annual conversion factors derived from *AEO2023*. Cumulative energy savings are the sum of the NES for each year over the timeframe of the analysis.

In 2011, in response to the recommendations of a committee on “Point-of-Use and Full-Fuel-Cycle Measurement Approaches to Energy Efficiency Standards” appointed by the National Academy of Sciences, DOE announced its intention to use FFC measures of energy use and greenhouse gas and other emissions in the national impact analyses and emissions analyses included in future energy conservation standards rulemakings. 76 FR 51281 (Aug. 18, 2011). After evaluating the approaches discussed in the August 18,

2011 notice, DOE published a statement of amended policy in which DOE explained its determination that EIA’s NEMS is the most appropriate tool for its FFC analysis and its intention to use NEMS for that purpose. 77 FR 49701 (Aug. 17, 2012). NEMS is a public domain, multi-sector, partial equilibrium model of the U.S. energy sector¹⁵⁶ that EIA uses to prepare its *AEO*. The FFC factors incorporate losses in production and delivery in the case of natural gas (including fugitive emissions) and additional energy used to produce and deliver the various fuels used by power plants. The approach used for deriving FFC measures of energy use and emissions is described in appendix 10D of the final rule TSD.

DOE calculated the NES associated with the difference between the per-unit energy use under a standards-case scenario and the per-unit energy use in the no-new-standards case. The average energy per unit used by the CWH equipment stock gradually decreases in the standards case relative to the no-new-standards case as more-efficient CWH units gradually replaces less-efficient units.

Unit energy consumption values for each equipment category are taken from the LCC spreadsheet for each efficiency level and weighted based on market efficiency distributions. To estimate the total energy savings for each efficiency level, DOE first calculated the per-unit energy reduction (*i.e.*, the difference between the energy directly consumed by a unit of equipment in operation in the no-new-standards case and the standards case) for each category of CWH equipment for each year of the analysis period. The electricity and natural gas savings or increases (in the case of electricity used for condensing natural gas-fired water heaters) are accounted separately. Second, DOE determined the annual site energy savings by multiplying the stock of each equipment category by vintage (*i.e.*, year of shipment) by the per-unit energy reduction for each vintage (from step one). This second step adds to the electricity impacts an amount of energy savings/increase to account for the losses and inefficiencies in the generation, transmission, and distribution systems. The result of the second step yields primary electricity impacts at the generation source. The second step applies only to electricity; there is no analogous adjustment made to natural gas savings. Third, DOE

converted the annual site electricity savings into the annual amount of energy saved at the source of electricity generation (the source or primary energy), using a time-series of conversion factors derived from the latest version of EIA’s NEMS. This third step accounts for the energy used to extract and transport fuel from mines or wells to the electric generation facilities, and accounts for the natural gas NES for drilling and pipeline energy usage. The third step yields the total FFC impacts. DOE accounts for the natural gas savings separately from the electricity impacts, so the factors used at each step are appropriate for the specific fuel. The coefficients developed for the analysis are mutually exclusive, so there should be no double-counting of impacts. Finally, DOE summed the annual primary energy savings for the lifetime of units shipped over a 30-year period to calculate the total NES. DOE performed these calculations for each efficiency level considered for CWH equipment in this rulemaking. DOE notes that for the LCC and PBP analyses, only site energy impacts are used. The only steps in the analysis wherein FFC savings are used are the calculation of NES. DOE notes that the development of data for site-to-source and other factors is accomplished by running the EIA’s model used to generate the *AEO*. DOE has included with this final rule TSD the previously mentioned chapter 10 and appendix 10D, which reference the development of the FFC factors and provide some of the underlying data.

Regarding the fossil fuel site-to-source values used in the final rule analysis, DOE used the *AEO2023* Reference case, which reflects the most up-to-date information on resource and fuel costs, but excludes Clean Power Plan (“CPP”)¹⁵⁷ impacts. Use of the *AEO2023* also incorporates all Federal legislation and regulations in place when EIA prepared the analyses. The growing penetration of renewable electricity generation would have little effect on the trend in site-to-source energy factors because EIA uses an average fossil fuel heat to characterize the primary energy associated with renewable generation. At this time, DOE is continuing to use the “fossil fuel equivalency” accounting convention used by EIA. DOE notes the *AEO* projections stop in 2050. Because the trends were relatively flat, DOE

¹⁵⁶ For more information on NEMS, refer to *The National Energy Modeling System: An Overview 2018*, April 2019. Available at www.eia.gov/forecasts/aeo/index.cfm (last accessed December 13, 2022).

¹⁵⁷ The CPP was repealed in June 2019 as part of EPA’s final Affordable Clean Energy (“ACE”) Rule, but the ACE Rule was vacated in January 2021 by the United States Court of Appeals for the District of Columbia Circuit, who also remanded EPA to consider a new regulatory framework to replace the ACE Rule.

maintained the 2050 value for the remainder of the forecast period. When DOE develops the site-to-source and FFC-factors, it models resource mixes representative of the load profile of the equipment covered in the rulemaking that vary by end-use. For this final rule, DOE has used an average of resources compatible with the general load profile of CWH equipment, and the data used are the most current available.

DOE also considered whether a rebound effect is applicable in its NES analysis for CWH equipment. A rebound effect occurs when an increase in equipment efficiency leads to increased demand for its service. For example, when a consumer realizes that a more-efficient water heating device will lower the energy bill, that person may opt to increase his or her amenity level by taking longer showers and thereby consuming more hot water. In this way, the consumer gives up a portion of the energy cost savings in favor of the increased amenity. For the CWH equipment market, there are two ways that a rebound effect could occur: (1) increased use of hot water within the buildings in which such units are installed and (2) additional hot water outlets that were not previously installed. Because the CWH equipment addressed in this final rule is commercial equipment, the person owning the equipment (*i.e.*, the apartment or commercial building owner) is usually not the person operating the equipment (*e.g.*, the apartment renter, or the restaurant employee using hot water to wash dishes). Because the operator usually does not own the equipment, that person will not have the operating cost information necessary to influence his or her operation of the equipment. Therefore, the first type of rebound is unlikely to occur at levels that could be considered significant. Similarly, the second type of rebound is unlikely because a small change in efficiency is insignificant among the factors that determine whether a company will invest the money required to pipe hot water to additional outlets. In response to the May 2022 CWH ECS NOPR, Atmos Energy stated that DOE should reconsider its conclusion that the proposed rule is unlikely to result in rebound effects on water usage and noted that some parts of the country are experiencing drought conditions. (Atmos Energy, No. 36 at p. 5) DOE recognizes that drought conditions may impact water usage within regions; however, the CWH equipment that is the subject of this rulemaking addresses only the heating of the water, and not

the water usage itself, as water usage is based on demand and not the efficiency of the water heater. DOE had previously sought comments and data on any rebound effect that may be associated with more efficient commercial water heaters in the October 2014 RFI. 79 FR 62908 (Oct. 21, 2014) DOE received two comments. Both A.O. Smith and Joint Advocates did not believe a rebound effect would be significant. A.O. Smith commented that water usage is based on demand and more efficient water heaters would not change the demand. (DOE Docket EERE-2014-BT-STD-0042, A.O. Smith, No. 2 at p. 4) Joint Advocates commented that with the marginal change in energy bill for small business owners, they would expect little increased hot water usage, and that for tenant-occupied buildings, it would be “difficult to infer that more tenants will wash their hands longer because the hot water costs the building owner less.” Thus, Joint Advocates thought the likelihood of a strong rebound effect is very low. (DOE Docket EERE-2014-BT-STD-0042, Joint Advocates, No. 7 at p. 5) DOE has therefore retained its position that a rebound effect is unlikely to occur for the CWH that are the subject of this final rule.

PHCC commented that the Department advanced this rule based on the significant energy savings of 0.7 quads. (PHCC, No. 28 at pp. 1) PHCC noted that totaling the energy use columns on the base case (no-new-standards) section of the NIA model spreadsheet for new units and replacement and switch units shows an approximate 6.5 quads, but if the total stock of units is extended, using even just the replacement energy yields 8.2 quads. PHCC stated it is important to make transparent comparisons; for example, using one way the 0.7 quads is an approximate 10 percent savings, and using the other is closer to 8.5 percent. (PHCC, No. 28 at pp. 1–2) PHCC further noted that commercial gas-fired storage water heaters and instantaneous circulating water heaters and hot water supply boilers are the major contributors and that the residential-duty gas-fired water heaters and instantaneous tankless water heaters are substantially less significant, and if evaluated individually, the significant energy savings argument would be even harder to make. (PHCC, No. 28 at p. 2)

As stated in section III.E.2, the significance of energy savings offered by an amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking. DOE evaluates the significance of energy

savings on a case-by-case basis, taking into account the significance of cumulative FFC national energy savings, the cumulative FFC emissions reductions, and the need to confront the global climate crisis, among other factors. Accordingly, taking these factors, among others into account, DOE has determined the energy savings for the TSL proposed in this rulemaking are “significant” within the meaning of EPCA.¹⁵⁸

PHCC additionally questioned the NES calculations, noting that the energy savings appear to be based on the savings of equipment sold across the 30-year life cycle in the rule, but that it was not apparent what the total energy of the installed equipment or CWH equipment installed and currently in use might be. (PHCC, No. 28 at pp. 1) PHCC further stated that using the Department’s spreadsheets, it appears that the total energy used is for the newly installed equipment. (PHCC, No. 28 at pp. 1) PHCC stated that it is unclear how the 0.7 quads savings was derived. PHCC calculated a separate estimate of savings at 0.37 quads out of total energy consumed to be 8.2 quads. PHCC also noted that it has additional issues with assumptions made by the Department that would further erode the potential savings, but are difficult to quantify. (PHCC, No. 28 at p. 2) PHCC stated that based on its own review and understanding, PHCC questions the energy use and savings calculation that form the basis of the significant energy savings assertion. (PHCC, No. 28 at p. 6) PHCC also sought clarification as to the low energy use (site) in the early years of the Department’s analysis and noted that it appeared that there is no consideration of the energy usage of all existing covered products. (PHCC, No. 28 at p. 6)

In response, DOE would clarify that for its analysis, DOE considers only the impact of the proposed standard levels on equipment shipments that occur within the 2026 through 2055 analysis period. As a result, the estimated energy

¹⁵⁸ To the extent PHCC’s comments refer to a numeric savings threshold previously used to determine significance of energy savings, DOE notes that the numeric threshold for determining the significance of energy savings established in a final rule, Energy Conservation Program for Appliance Standards: Procedures for Use in New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment, published on February 14, 2020 (85 FR 8626, 8670), was subsequently eliminated in a final rule, Energy Conservation Program for Appliance Standards: Procedures, Interpretations, and Policies for Consideration in New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment, published on December 13, 2021 (86 FR 70892).

use in the early years of the analysis includes only equipment shipped for new and replacement applications beginning in 2026, and does not include the energy use of the existing equipment installed prior to 2026, the year in which the standard would go into effect. However, the NES does include the stream of energy savings that occurs over the life of the equipment installed during the analysis period, meaning that energy savings for a commercial gas-fired storage water heater installed in 2055 would be accrued throughout its life, beyond 2055 (see section IV.F.6 for a discussion of equipment lifetimes).

DOE further appreciates the effort that PHCC undertook to develop their calculations of energy use and energy savings, and notes that the PHCC calculations are similar to the DOE calculations within the NIA model. However, the DOE NIA model incorporates some additional calculations and factors to capture the energy accounting more fully. For each year beginning with 2026 (the first year that the standard would go into effect), energy use for both the no-new-standards case (labeled base case within the NIA spreadsheet's product tabs) and the selected efficiency level (labeled standards case) are calculated by multiplying the estimated number of installed units still surviving (which is equal to the installed units multiplied by a survival function) by the estimated unit energy use for the year in which they were installed. This calculation accounts for changes to the weighted average efficiencies installed in a given year, as the no-new-standards case has an increasing efficiency trend built into it. The NES is then calculated as the sum of the differences between the energy use calculated in the no-new-standards case and the energy use calculated in the standards case.

DOE observed that the screen captures of the PHCC calculations (PHCC, No. 28 at pp. 4–5) appear to contain only numbers for the commercial sector and do not seem to account for additional energy use and savings calculations for the residential sector (which can be viewed by selecting “Residential” in any of the application sector drop-down menus located throughout the model, as described in appendix 10A of the final rule TSD). Additionally, the PHCC calculations did not appear to account for the energy savings that accrue after 2055 from equipment installed through 2055 that had not yet reached their end of life. By summing the calculated site energy savings in the May 2022 CWH ECS NOPR NIA model (column CN within each of the product tabs of the NOPR NIA model), DOE calculated

commercial site natural gas savings of 0.35 quads for the years 2026–2055, an additional 0.13 quads of commercial site natural gas savings beyond 2055 that accrue to equipment installed during the analysis period, and an additional 0.17 quads of residential sector site natural gas savings, yielding a total of 0.65 quads of site natural gas NES. DOE notes that the NES for the selected subset of years and commercial sector (0.35 quads) were similar to what PHCC calculated (0.37 quads). DOE also clarifies that the 0.70 quads referenced by PHCC are FFC NES, which explains the remaining difference between the site natural gas savings and the FFC savings; PHCC did not include the impact of changes in electricity due to proposed standards, which DOE also excluded here so as to produce a comparable set of numbers. With regard to PHCC's additional unnamed issues with assumptions made by DOE, DOE notes that the underlying assumptions are made based on best available data and are meant to be representative of the equipment category while also allowing for a feasible analysis.

4. Net Present Value Analysis

The inputs for determining the NPV of the total costs and benefits experienced by consumers are (1) total annual installed cost, (2) total annual operating costs (energy costs and repair and maintenance costs), and (3) a discount factor to calculate the present value of costs and savings. DOE calculates net savings each year as the difference between the no-new-standards case and each standards case in terms of total savings in operating costs versus total increases in installed costs. DOE calculates operating cost savings over the lifetime of each product shipped during the projection period. DOE determined the difference between the equipment costs under the standard case and the no-new-standards case in order to obtain the net equipment cost increase resulting from the higher standard level. As noted in section IV.F.1 of this document, DOE used a constant real price assumption as the default price projection; the cost to manufacture a given unit of higher efficiency neither increases nor decreases over time. The analysis of the price trends is described in chapter 10 of the final rule TSD.

The energy cost savings are calculated using the estimated energy savings in each year and the projected price of the appropriate form of energy. To estimate energy prices in future years, DOE multiplied the average regional energy prices by the projection of annual national-average commercial energy

price changes in the Reference case from *AEO2023*, which has an end year of 2050. To estimate price trends after 2050, the 2040–2050 average was used for all years. As part of the NIA, DOE also analyzed scenarios that used inputs from variants of the *AEO2023* Reference case that have lower and higher economic growth. Those cases have lower and higher energy price trends compared to the Reference case. NIA results based on these cases are presented in appendix 10B of the final rule TSD.

DOE then determined the difference between the net operating cost savings and the net equipment cost increase in order to obtain the net savings (or expense) for each year. DOE then discounted the annual net savings (or expenses) to 2023 for CWH equipment bought on or after 2026 and summed the discounted values to provide the NPV for an efficiency level.

In calculating the NPV, DOE multiplies the net savings in future years by a discount factor to determine their present value. For this final rule, DOE estimated the NPV of consumer benefits using both a 3-percent and a 7-percent real discount rate. DOE uses these discount rates in accordance with guidance provided by the OMB to Federal agencies on the development of regulatory analysis.¹⁵⁹ The discount rates for the determination of NPV are in contrast to the discount rates used in the LCC analysis, which are designed to reflect a consumer's perspective. The 7-percent real value is an estimate of the average before-tax rate of return to private capital in the U.S. economy. The 3-percent real value represents the “social rate of time preference,” which is the rate at which society discounts future consumption flows to their present value.

DOE considered the possibility that consumers make purchase decisions based on first cost instead of LCC. DOE projects that new installations meeting a potential standard would not cause the commercial gas-fired storage water heaters to be significantly more expensive than electric storage water heaters of comparable first-hour capacity, as detailed in section IV.H.2 of this document. DOE further notes that only the relative costs of purchasing, installing, and operating equipment were considered in its analysis, and did not consider unrelated issues such as additional electrification of customer

¹⁵⁹ United States Office of Management and Budget. *Circular A–4: Regulatory Analysis*. September 17, 2003. Section E. Available at www.whitehouse.gov/omb/information-for-agencies/circulars/ (last accessed December 13, 2022).

loads beyond those that have been adopted, as DOE cannot speculate about consumer electrification or other policies or issues (*see* sections IV.G and section IV.H.2 of this document).

DOE notes that governmental and corporate purchasing policies are increasingly resulting in purchases of more-efficient equipment. However, DOE does not infer anything with respect to the remaining market for efficient water heaters simply because of a purchase by one consumer or even by one segment of the consumer base, such as purchases by government consumers. In other words, if all Federal government agencies purchase ENERGY STAR-compliant water heaters, that tells us nothing about the installation costs experienced by any other consumers. DOE assumes the purchases reveal more about the underlying consumer discount rate premiums than about a distribution of installation costs. It is possible that corporate commitment to green purchasing policies might result in situations where, in their rational decision-making process, the consumer gives green purchase alternatives an explicit advantage. As an example, a purchasing policy may specify that a “non-green” alternative must have a PBP of 3 years or less while a “green” alternative can have a PBP up to 5 years. This type of corporate decision making would have the outward appearance of providing an apparent discount rate advantage to the “green” alternative, or perhaps, an appearance of assessing a lower discount rate premium on the “green” alternative than is assessed on all other alternatives. Thus, while significant numbers of purchases are taking place in the market, DOE contends that such purchases reveal an underlying distribution of discount rate premiums rather than an underlying distribution of installation costs. Green policies and programs such as FEMP-designated equipment and ENERGY STAR will continue to effectively reduce even more consumers’ discount rate premiums, leading to more green purchases. This assumption underlies DOE’s decision to take the efficiency trends data provided by manufacturers and extend the trends into the future rather than holding efficiency constant at current rates.

I. Consumer Subgroup Analysis

In analyzing the potential impact of new or amended standards on consumers, DOE evaluates the impact on identifiable subgroups of consumers that may be disproportionately affected by a new or revised national energy conservation standard level. The purpose of a subgroup analysis is to

determine the extent of any such disproportionate impacts. DOE evaluates impacts on particular subgroups of consumers by analyzing the LCC impacts and PBP for those particular consumers from alternative standard levels. For this final rule, DOE identified consumers at the lowest income bracket in the residential sector and only included them for a residential sector subgroup analysis. The following provides further detail regarding DOE’s consumer subgroup analysis. Chapter 11 in the final rule TSD describes the consumer subgroup analysis.

1. Residential Sector Subgroup Analysis

The RECS database divides the residential samples into 16 income bins. The income bins represent total gross annual household income. As far as discount rates are concerned, the survey of consumer finances divides the residential population into six different income bins: income bin 1 (0–20 percent income percentile), income bin 2 (20–40 percent income percentile), income bin 3 (40–60 percent income percentile), income bin 4 (60–80 percent income percentile), income bin 5 (80–90 percent income percentile), and income bin 6 (90–100 percent income percentile). In general, consumers in the lower income groups tend to discount future streams of benefits at a higher rate when compared to consumers in the higher income groups.

Hence, to analyze the influence of a national standard on the low-income group population, DOE conducted a (residential) subgroup analysis where only the 0–20 percent income percentile samples were included for the entire simulation run. Subsequently, the results of the subgroup analysis are compared to the results from all consumers.

The results of DOE’s LCC subgroup analysis are summarized in section V.B.1.b of this final rule and described in detail in chapter 11 of the final rule TSD.

J. Manufacturer Impact Analysis

1. Overview

DOE performed an MIA to estimate the financial impacts of amended energy conservation standards on manufacturers of CWH equipment and to estimate the potential impacts of such standards on employment and manufacturing capacity. The MIA has both quantitative and qualitative aspects and includes analyses of projected industry cash flows, the INPV, investments in research and development (“R&D”) and manufacturing capital, and domestic

manufacturing employment. Additionally, the MIA seeks to determine how amended energy conservation standards might affect manufacturing employment, capacity, and competition, as well as how standards contribute to overall regulatory burden. Finally, the MIA serves to identify any disproportionate impacts on manufacturer subgroups, including small business manufacturers.

The quantitative part of the MIA primarily relies on GRIM, an industry cash flow model with inputs specific to this rulemaking. The key GRIM inputs include data on the industry cost structure, unit production costs, equipment shipments, manufacturer markups, and investments in R&D and manufacturing capital required to produce compliant equipment. The key GRIM outputs are the INPV, which is the sum of industry annual cash flows over the analysis period, discounted using the industry-weighted average cost of capital, and the impact to domestic manufacturing employment. The model uses standard accounting principles to estimate the impacts of more-stringent energy conservation standards on a given industry by comparing changes in INPV and domestic manufacturing employment between a no-new-standards case and the various standards cases (“TSLs”). To capture the uncertainty relating to manufacturer pricing strategies following amended standards, the GRIM estimates a range of possible impacts under different markup scenarios.

The qualitative part of the MIA addresses manufacturer characteristics and market trends. Specifically, the MIA considers such factors as a potential standard’s impact on manufacturing capacity, competition within the industry, the cumulative impact of other DOE and non-DOE regulations, and impacts on manufacturer subgroups. The complete MIA is outlined in chapter 12 of the final rule TSD.

DOE conducted the MIA for this rulemaking in three phases. In Phase 1 of the MIA, DOE prepared a profile of the CWH equipment manufacturing industry based on the market and technology assessment, preliminary manufacturer interviews, and publicly-available information. This included a top-down analysis of CWH equipment manufacturers that DOE used to derive preliminary financial inputs for the GRIM (*e.g.*, revenues; materials, labor, overhead, and depreciation expenses; selling, general, and administrative expenses (“SG&A”); and R&D expenses). DOE also used public sources of information to further calibrate its initial characterization of the CWH

equipment manufacturing industry, including company filings of form 10-K from the SEC,¹⁶⁰ corporate annual reports, the U.S. Census Bureau's Economic Census,¹⁶¹ and reports from Dunn & Bradstreet.¹⁶²

In Phase 2 of the MIA, DOE prepared a framework industry cash-flow analysis to quantify the potential impacts of amended energy conservation standards. The GRIM uses several factors to determine a series of annual cash flows starting with the announcement of the standard and extending over a 30-year period following the compliance date of the standard. These factors include annual expected revenues, costs of sales, SG&A and R&D expenses, taxes, and capital expenditures. In general, energy conservation standards can affect manufacturer cash flow in three distinct ways: (1) creating a need for increased investment, (2) raising production costs per unit, and (3) altering revenue due to higher per-unit prices and changes in sales volumes.

In addition, during Phase 2, DOE developed interview guides to distribute to manufacturers of CWH equipment in order to develop other key GRIM inputs, including product and capital conversion costs, and to gather additional information on the anticipated effects of energy conservation standards on revenues, direct employment, capital assets, industry competitiveness, and subgroup impacts.

In Phase 3 of the MIA, DOE conducted structured, detailed interviews with representative manufacturers. During these interviews, DOE discussed engineering, manufacturing, procurement, and financial topics to validate assumptions used in the GRIM and to identify key issues or concerns. As part of Phase 3, DOE also evaluated subgroups of manufacturers that may be disproportionately impacted by amended standards or that may not be accurately represented by the average cost assumptions used to develop the industry cash flow analysis. Such manufacturer subgroups may include small business manufacturers, low-volume manufacturers ("LVMs"), niche players, and/or manufacturers

¹⁶⁰ U.S. Securities and Exchange Commission, Annual 10-K Reports (Various Years) (Available at www.sec.gov/edgar/searchedgar/companysearch.html).

¹⁶¹ U.S. Census Bureau, Annual Survey of Manufacturers: General Statistics: Statistics for Industry Groups and Industries (2021). Available at www.census.gov/data/tables/time-series/econ/asm/2018-2021-asm.html.

¹⁶² Dunn & Bradstreet Company Profiles, Various Companies. Available at app.dnbhoovers.com.

exhibiting a cost structure that largely differs from the industry average. DOE identified one subgroup for a separate impact analysis: small business manufacturers. The small business subgroup is discussed in section VI.B, "Review under the Regulatory Flexibility Act" and in chapter 12 of the final rule TSD.

2. Government Regulatory Impact Model and Key Inputs

DOE uses the GRIM to quantify the changes in cash flow due to amended standards that result in a higher or lower industry value. The GRIM uses a standard, annual discounted cash-flow analysis that incorporates manufacturer costs, markups, shipments, and industry financial information as inputs. The GRIM models changes in costs, distribution of shipments, investments, and manufacturer margins that could result from an amended energy conservation standard. The GRIM spreadsheet uses the inputs to arrive at a series of annual cash flows, beginning in 2023 (the base year of the analysis) and continuing to 2055. DOE calculated INPVs by summing the stream of annual discounted cash flows during this period. For manufacturers of residential central air conditioners and heat pumps, DOE used a real discount rate of 9.1 percent, which was derived from industry financials and then modified according to feedback received during manufacturer interviews.

The GRIM calculates cash flows using standard accounting principles and compares changes in INPV between the no-new-standards case and each standards case. The difference in INPV between the no-new-standards case and a standards case represents the financial impact of the amended energy conservation standard on manufacturers. As discussed previously, DOE developed critical GRIM inputs using a number of sources, including publicly available data, results of the engineering analysis, and information gathered from industry stakeholders during the course of manufacturer interviews and through written comments. The GRIM results are presented in section V.B.2. Additional details about the GRIM, the discount rate, and other financial parameters can be found in chapter 12 of the final rule TSD.

a. Manufacturer Production Costs

Manufacturing more efficient equipment is typically more expensive than manufacturing baseline equipment due to the use of more complex components, which are typically more costly than baseline components. The

changes in the MPCs of covered equipment can affect the revenues, gross margins, and cash flow of the industry. MPCs were derived in the engineering analysis, using methods discussed in section IV.C. For a complete description of the MPCs, see chapter 5 of the final rule TSD.

b. Shipments Projections

The GRIM estimates manufacturer revenues based on total unit shipment projections and the distribution of those shipments by efficiency level. Changes in sales volumes and efficiency mix over time can significantly affect manufacturer finances. For this analysis, the GRIM uses the NIA's annual shipment projections derived from the shipments analysis from 2023 (the base year) to 2055 (the end year of the analysis period). See chapter 9 of the final rule TSD for additional details.

c. Conversion Costs and Stranded Assets

Amended energy conservation standards could cause manufacturers to incur conversion costs to bring their production facilities and equipment designs into compliance. DOE evaluated the level of conversion-related expenditures that would be needed to comply with each considered efficiency level in each product class. For the MIA, DOE classified these conversion costs into two major groups: (1) product conversion costs; and (2) capital conversion costs.

Product conversion costs are investments in research, development, testing, marketing, and other non-capitalized costs necessary to make product designs comply with amended energy conservation standards. Capital conversion costs are investments in property, plant, and equipment necessary to adapt or change existing production facilities such that new compliant product designs can be fabricated and assembled.

To evaluate potential product conversion costs, DOE estimated the number of platforms manufacturers would have to modify to move their equipment lines to each incremental efficiency level. DOE developed the product conversion costs by estimating the amount of labor per platform manufacturers would need for research and development to raise the efficiency of models to each incremental efficiency level. DOE also assumed manufacturers would incur safety certification costs (including costs for updating safety certification records and for safety testing) associated with modifying their current product offerings to comply with amended standards.

To evaluate the level of capital conversion expenditures manufacturers would likely incur to comply with amended standards, DOE used information derived from the engineering analysis, equipment teardowns, and manufacturer interviews. DOE used the information to estimate the additional investments in property, plant, and equipment that are necessary to meet amended energy conservation standards. In the engineering analysis evaluation of higher efficiency equipment from leading manufacturers of commercial water heaters (both commercial duty and residential duty), DOE found a range of designs and manufacturing approaches. DOE attempted to account for both the range of manufacturing pathways and the current efficiency distribution of shipments in the modeling of industry capital conversion costs.

The capital conversion cost estimates for gas-fired storage water heaters are driven by the cost for industry to double production capacity at condensing efficiency levels. Those costs included, but were not limited to, capital investments in tube bending, press dies, machining, enameling, metal inert gas (“MIG”) welding, leak testing, quality assurance stations, conveyer, and additional space requirements.

For gas-fired instantaneous water heaters capital conversion costs, DOE understands that manufacturers produce commercial models on the same production lines as residential models, which have much higher shipment volumes. As such, DOE modeled the scenario in which gas-fired instantaneous water heater manufacturers make incremental investments to increase production capacity, but do not need to setup entirely new production lines or new facilities to accommodate an amended standard requiring condensing technology for gas-fired instantaneous water heaters.

For gas-fired instantaneous circulating water heaters and hot water supply boilers, the design changes to reach condensing efficiency levels were driven by purchased parts (*i.e.*, condensing heat exchanger, burner tube, blower, gas valve). The capital conversion costs for this equipment class are based on incremental warehouse space needed to house additional purchased parts.

Rheem commented the conversion costs should reflect larger

manufacturing space and more manufacturing time to produce a condensing unit, and the costs should reflect the expansion of existing facilities, expansion of assembly lines, and added shifts. (Rheem, No. 24 at p. 7) After the 2022 CWH ECS NOPR publication, DOE conducted additional manufacturer interviews at the request of industry. (AHRI, No. 31 at p. 5; Rheem, No. 24 at p.1; Bock, No. 20 at p. 2) Where manufacturers provided estimates and analysis supporting updates to conversion costs, DOE incorporated the interview feedback into its estimation of investment levels. The interview feedback that DOE received was primarily focused on the gas-fired storage water heaters product class.

Bradford White commented that volume water heaters are not produced on the same production lines as residential products, and that volume water heaters are built in lower volumes and have different installation configurations than consumer water heaters. (Bradford White, No. 23 at p. 9) DOE’s conversion costs reflect Bradford White’s statements. DOE understands that volume water heaters are produced on lines dedicated to low-volume, commercial equipment.

In addition to capital and product conversion costs, amended energy conservation standards could create stranded assets, *i.e.*, tooling and equipment that were not yet fully depreciated and could have been used longer if energy conservation standards had not made them obsolete. In the compliance year, manufacturers write down the remaining undepreciated book value of existing tooling and equipment rendered obsolete by amended energy conservation standards.

To evaluate conversion costs manufacturers would likely incur to comply with amended standards, DOE used information derived from the engineering analysis, equipment teardowns, and manufacturer interviews. In conjunction with the evaluation of capital conversion costs, DOE estimated the portion of existing equipment, tooling, and conveyor that would be retired.

In general, DOE assumes all conversion-related investments occur between the year of publication of the final rule and the year by which manufacturers must comply with the new standard. The conversion cost figures used in the GRIM can be found in section V.B.2 of this document. For

additional information on the estimated capital conversion costs, product conversion costs, and stranded assets, see chapter 12 of the final rule TSD.

d. Manufacturer Markup Scenarios

MSPs include manufacturing production costs (*i.e.*, labor, materials, and overhead estimated in DOE’s MPCs) and all non-production costs (*i.e.*, SG&A, R&D, and interest), along with profit. To calculate the MSPs in the GRIM, DOE applied non-production cost markups to the MPCs estimated in the engineering analysis for each product class and efficiency level. Modifying these manufacturer markups in the standards case yields different sets of impacts on manufacturers. For the MIA, DOE modeled two standards-case markup scenarios to represent uncertainty regarding the potential impacts on prices and profitability for manufacturers following the implementation of amended energy conservation standards: (1) a preservation of gross margin percentage markup scenario; and (2) a preservation of per-unit operating profit markup scenario. These scenarios lead to different markup values that, when applied to the MPCs, result in varying revenue and cash flow impacts.

Under the preservation of gross margin percentage scenario, DOE applied a single uniform “gross margin percentage” markup across all efficiency levels, which assumes that manufacturers would be able to maintain the same amount of profit as a percentage of revenues at all efficiency levels within an equipment category. As manufacturer production costs increase with efficiency, this scenario implies that the absolute dollar markup will increase.

To estimate the average manufacturer markup used in the preservation of gross margin percentage markup scenario, DOE analyzed publicly-available financial information for manufacturers of CWH equipment. DOE then requested feedback on its initial markup estimates during manufacturer interviews. The revised markups, which are used in DOE’s quantitative analysis of industry financial impacts, are presented in Table IV.35 of this final rule. These markups capture all non-production costs, including SG&A expenses, R&D expenses, interest expenses, and profit.

TABLE IV.35—MANUFACTURER MARKUPS FOR PRESERVATION OF GROSS MARGIN PERCENTAGE MARKUP SCENARIO

Equipment	Markup
Commercial gas-fired storage and gas-fired storage-type instantaneous water heaters	1.45
Residential-duty gas-fired storage water heaters	1.45
Gas-fired instantaneous water heaters and hot water supply boilers:	
Tankless water heaters	1.43
Circulating water heaters and hot water supply boilers	1.43

DOE also models the preservation of per-unit operating profit scenario because manufacturers stated that they do not expect to be able to mark up the full cost of production in the standards case, given the highly competitive nature of the CWH market. In this scenario, manufacturer markups are set so that operating profit 1 year after the compliance date of amended energy conservation standards is the same as in the no-new-standards case on a per-unit basis. In other words, manufacturers are not able to garner additional operating profit from the higher production costs and the investments that are required to comply with the amended standards; however, they are able to maintain the same per-unit operating profit in the standards case that was earned in the no-new-standards case. Therefore, operating margin in percentage terms is reduced between the no-new-standards case and standards case.

DOE adjusted the manufacturer markups in the GRIM at each TSL to yield approximately the same per-unit earnings before interest and taxes in the standards case as in the no-new-standards case. The preservation of per-unit operating profit markup scenario represents the lower bound of industry profitability in the standards case. This is because manufacturers are not able to fully pass through to commercial consumers the additional costs necessitated by amended standards for CWH equipment.

A comparison of industry financial impacts under the two markup scenarios is presented in section V.B.1.b of this document.

K. Emissions Analysis

The emissions analysis consists of two components. The first component estimates the effect of potential energy conservation standards on power sector and site combustion emissions of CO₂, NO_x, SO₂, and Hg. The second component estimates the impacts of potential standards on emissions of two additional greenhouse gases, CH₄ and N₂O, as well as the reductions in emissions of other gases due to “upstream” activities in the fuel production chain. These upstream activities comprise extraction,

processing, and transporting fuels to the site of combustion.

The analysis of electric power sector emissions of CO₂, NO_x, SO₂, and Hg uses emissions factors intended to represent the marginal impacts of the change in electricity consumption associated with amended or new standards. The methodology is based on results published for the *AEO*, including a set of side cases that implement a variety of efficiency-related policies. The methodology is described in appendix 13A in the final rule TSD. The analysis presented in this notice uses projections from *AEO2023*. Power sector emissions of CH₄ and N₂O from fuel combustion are estimated using “Emission Factors for Greenhouse Gas Inventories” published by the Environmental Protection Agency (“EPA”).¹⁶³

The onsite operation of CWH equipment involves combustion of fossil fuels and results in emissions of CO₂, NO_x, SO₂, CH₄, and N₂O where this equipment is used. Site emissions of these gases were estimated using “Emission Factors for Greenhouse Gas Inventories” and, for NO_x and SO₂, emissions intensity factors from an EPA publication.¹⁶⁴

FFC upstream emissions, which include emissions from fuel combustion during extraction, processing, and transportation of fuels, and “fugitive” emissions (direct leakage to the atmosphere) of CH₄ and CO₂, are estimated based on the methodology described in chapter 15 of the final rule TSD.

The emissions intensity factors are expressed in terms of physical units per MWh or MMBtu of site energy savings. For power sector emissions, specific emissions intensity factors are calculated by sector and end use. Total emissions reductions are estimated

¹⁶³ Available at www.epa.gov/sites/production/files/2021-04/documents/emission-factors_apr2021.pdf (last accessed December 22, 2022).

¹⁶⁴ U.S. Environmental Protection Agency. External Combustion Sources. In *Compilation of Air Pollutant Emission Factors*. AP-42. Fifth Edition. Volume I: Stationary Point and Area Sources. Chapter 1. Available at www.epa.gov/air-emissions-factors-and-quantification/ap-42-Compilation-air-emissions-factors#Proposed/ (last accessed December 22, 2022).

using the energy savings calculated in the NIA.

1. Air Quality Regulations Incorporated in DOE’s Analysis

DOE’s no-new-standards case for the electric power sector reflects the *AEO2023*, which incorporates the projected impacts of existing air quality regulations on emissions. *AEO2023* generally represents current legislation and environmental regulations, including recent government actions, that were in place at the time of preparation of *AEO2023*, including the emissions control programs discussed in the following paragraphs.¹⁶⁵

SO₂ emissions from affected electric generating units (“EGUs”) are subject to nationwide and regional emissions cap-and-trade programs. Title IV of the Clean Air Act sets an annual emissions cap on SO₂ for affected EGUs in the 48 contiguous States and the District of Columbia (“DC”). (42 U.S.C. 7651 *et seq.*) SO₂ emissions from numerous States in the eastern half of the United States are also limited under the Cross-State Air Pollution Rule (“CSAPR”). 76 FR 48208 (Aug. 8, 2011). CSAPR requires these States to reduce certain emissions, including annual SO₂ emissions, and went into effect as of January 1, 2015.¹⁶⁶ *AEO2023* incorporates implementation of CSAPR, including the update to the CSAPR ozone season program emission budgets and target dates issued in 2016. 81 FR

¹⁶⁵ For further information, see the Assumptions to *AEO2023* report that sets forth the major assumptions used to generate the projections in the Annual Energy Outlook. Available at www.eia.gov/outlooks/aeo/assumptions/ (last accessed April 13, 2023).

¹⁶⁶ CSAPR requires states to address annual emissions of SO₂ and NO_x, precursors to the formation of fine particulate matter (“PM_{2.5}”) pollution, in order to address the interstate transport of pollution with respect to the 1997 and 2006 PM_{2.5} National Ambient Air Quality Standards (“NAAQS”). CSAPR also requires certain states to address the ozone season (May–September) emissions of NO_x, a precursor to the formation of ozone pollution, in order to address the interstate transport of ozone pollution with respect to the 1997 ozone NAAQS. 76 FR 48208 (Aug. 8, 2011). EPA subsequently issued a supplemental rule that included an additional five states in the CSAPR ozone season program; 76 FR 80760 (Dec. 27, 2011) (Supplemental Rule), and EPA issued the CSAPR Update for the 2008 ozone NAAQS. 81 FR 74504 (Oct. 26, 2016).

74504 (Oct. 26, 2016). Compliance with CSAPR is flexible among EGUs and is enforced through the use of tradable emissions allowances. Under existing EPA regulations, for States subject to SO₂ emissions limits under CSAPR, any excess SO₂ emissions allowances resulting from the lower electricity demand caused by the adoption of an efficiency standard could be used to permit offsetting increases in SO₂ emissions by another regulated EGU.

However, beginning in 2016, SO₂ emissions began to fall as a result of the Mercury and Air Toxics Standards (“MATS”) for power plants. 77 FR 9304 (Feb. 16, 2012). In the MATS final rule, EPA established a standard for hydrogen chloride as a surrogate for acid gas hazardous air pollutants (“HAP”) and also established a standard for SO₂ (a non-HAP acid gas) as an alternative equivalent surrogate standard for acid gas HAP. The same controls are used to reduce HAP and non-HAP acid gas; thus, SO₂ emissions are being reduced as a result of the control technologies installed on coal-fired power plants to comply with the MATS requirements for acid gas. In order to continue operating, coal plants must have either flue gas desulfurization or dry sorbent injection systems installed. Both technologies, which are used to reduce acid gas emissions, also reduce SO₂ emissions. Because of the emissions reductions under the MATS, it is unlikely that excess SO₂ emissions allowances resulting from the lower electricity demand would be needed or used to permit offsetting increases in SO₂ emissions by another regulated EGU. Therefore, energy conservation standards that decrease electricity generation will generally reduce SO₂ emissions. DOE estimated SO₂ emissions reduction using emissions factors based on *AEO2023*.

CSAPR also established limits on NO_x emissions for numerous States in the eastern half of the United States. Energy conservation standards would have little effect on NO_x emissions in those States covered by CSAPR emissions limits if excess NO_x emissions allowances resulting from the lower electricity demand could be used to permit offsetting increases in NO_x emissions from other EGUs. In such case, NO_x emissions would remain near the limit even if electricity generation goes down. Depending on the configuration of the power sector in the different regions and the need for allowances, however, NO_x emissions might not remain at the limit in the case of lower electricity demand. That would mean that energy conservation standards might reduce NO_x emissions

in covered States. Despite this possibility, DOE has chosen to be conservative in its analysis and has maintained the assumption that standards will not reduce NO_x emissions in States covered by CSAPR. Standards would be expected to reduce NO_x emissions in the States not covered by CSAPR. DOE used *AEO2023* data to derive NO_x emissions factors for the group of States not covered by CSAPR.

The MATS limit mercury emissions from power plants, but they do not include emissions caps and, as such, DOE’s energy conservation standards would be expected to slightly impact Hg emissions. DOE estimated mercury emissions reduction using emissions factors based on *AEO2023*, which incorporates the MATS.

In comments, Rheem stated some consumers will elect to switch from gas-fired to electric water heaters in response to difficult installations to switch from non-condensing to condensing, and that DOE should consider how the electricity grid produces energy in DOE’s climate analysis. Rheem stated that in some regions, the use of electricity generated from coal to power electric water heaters will increase emissions compared to a gas water heater. (Rheem, No. 24 at p. 8). Similarly, Suburban Propane expressed concern that the proposed standards would produce more, rather than less, greenhouse gas emissions in most of the country due to lack of consideration of lower-carbon and carbon-negative energy sources such as traditional and renewable propane. (Suburban Propane, No. 16 at pp. 2–3) Suburban Propane stated that the proposed standards would effectively mandate that only electric energy be used for future water heating needs, causing additional strain to the electric infrastructure and leading to increased carbon emissions. *Id.* Suburban Propane added that traditional propane is an abundant, domestically produced energy source and is defined as a clean alternative fuel under the 1990 Clean Air Act. *Id.* Suburban Propane encouraged DOE to focus on a technology-neutral approach that requires low carbon and carbon negative fuel sources, such as a clean fuel standard for building emissions. *Id.*

Because DOE has no authority over questions such as whether a company might electrify loads or future State policies about electrification, DOE is limiting the response to these comments to the matters arising because of this final rule. As noted throughout this final rule, under EPCA DOE can only set standards for CWH equipment if such does not result in the elimination of

products or product features from the market, and if clear and convincing evidence exists to support the standard. DOE believe both of these conditions exist, and that the outcome described in the Suburban Propane comment where the standard effectively becomes an electric-only mandate will not come to pass as a result of this final rule. As discussed in section IV.H.2 of this document, DOE believes that generally the final rule will not induce fuel switching. Rheem’s comment addresses a more specific case, that of the difficult installation. DOE notes that consumers facing difficult installations using vertical venting may have cost-effective alternatives such as horizontal venting. DOE notes based on the NEEA report the number of difficult installations is expected to be small. Add to this the fact that bringing multiple tens of kW or more of electric power to the existing commercial water heater(s) location including wiring, switching, breaker panels and other internal building changes to effect fuel switching in existing buildings, may be costly itself making the economics of fuel switching, particularly to a more expensive water heating fuel not an attractive option for existing buildings. DOE believes the number of installations that would fuel switch is small enough to not materially change the results posted in this final rule.

Bradford White recommended that DOE take into account other regulatory actions, including those at the State level (*i.e.*, California) that will reduce NO_x emissions regardless of the outcome of this rulemaking to avoid potentially double counting reduced emissions. (Bradford White, No. 23 at pp. 6–7) Bradford White recommended that DOE take into account other regulatory actions, including those at the State level (*i.e.*, California) that will reduce NO_x emissions regardless of the outcome of this rulemaking to avoid potentially double counting reduced emissions. (Bradford White, No. 23 at pp. 6–7) In response, DOE has found that pre-mix burners are the primary technology used to produce low, and ultra-low NO_x emitting equipment. (Docket No. EERE–2017–BT–STD–0019, chapter 5) As Bradford White notes, DOE does not explicitly model the quantity of these low- and ultra-low NO_x units to NO_x regulated states in its baseline consumer sample. In a standard that results in consumers migrating from atmospheric burners to the types of pre-mix burners used to achieve condensing-level efficiencies, as required in this rule, NO_x reductions would occur from reduction of energy

used at the site (as well as upstream from the site). In DOE's emissions quantification, the emissions benefit from the reduction of energy use is considered directly. However, the additional reduction from the type of combustion system used has not been quantified. While Bradford White is correct that DOE did not explicitly address the extent of NO_x emissions benefits in NO_x-regulated geographic areas, DOE does account for the large fraction of consumers already purchasing condensing equipment, with powered burners, in its base case (see section IV.F.8 of this document). To the extent that consumers in NO_x regulated geographic areas preferentially purchase high-efficiency equipment with pre-mix burners to meet these NO_x regulations, this mitigates potential double counting. Further, the analysis conducted by DOE examines the emissions benefits from reduction of natural gas consumption due to efficiency improvements. However, because of the burner technology shift necessary to achieve the higher efficiency levels and the correlated reduction in NO_x emissions in the shift in burner technology, DOE believes there will be additional NO_x emission reductions across the United States and these are not captured in DOE's analysis. DOE believes that these additional benefits will offset any remaining double counting in NO_x-regulated geographies.

Bradford White recommend DOE also analyze additional emissions generated to comply with an amended standard. (Bradford White, No. 23 at p. 6) With an amended standard, more components, including more complex components and more of certain existing components will be required to comply. Bradford White suggested that this begged the question whether more emissions would be generated to produce components to comply with an amended standard versus what emissions will be saved by requiring higher efficiency equipment. (Bradford White, No. 23 p. 6) In section IV.F.10 of this document, DOE addressed the comments related to embodied emissions posted by WM Technologies and Patterson-Kelley. EPCA authorizes DOE to promulgate rules regulating the energy efficiency of CWH equipment, but this authority does not extend to regulating or considering the means by which manufacturers produce CWH equipment. DOE quantifies the emissions reductions generated by the estimated energy savings as part of the analysis relevant to its implementation of its authority to regulate energy efficiency. Given DOE's lack of

authority over manufacturers' processes, DOE also has no mechanism for effecting change. Therefore, DOE declines at present to quantify these embodied emissions as they are outside the scope of DOE's authority and analysis of energy efficiency of covered equipment.

L. Monetizing Emissions Impacts

As part of the development of this final rule, for the purpose of complying with the requirements of E.O. 12866, DOE considered the estimated monetary benefits from the reduced emissions of CO₂, CH₄, N₂O, NO_x, and SO₂ that are expected to result from each of the TSLs considered. In order to make this calculation analogous to the calculation of the NPV of consumer benefit, DOE considered the reduced emissions expected to result over the lifetime of products shipped in the projection period for each TSL. This section summarizes the basis for the values used for monetizing the emissions benefits and presents the values considered in this final rule.

To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

1. Monetization of Greenhouse Gas Emissions

For the purpose of complying with the requirements of E.O. 12866, DOE estimates the monetized benefits of the reductions in emissions of CO₂, CH₄, and N₂O by using a measure of the social cost ("SC") of each pollutant (e.g., SC-CO₂). These estimates represent the monetary value of the net harm to society associated with a marginal increase in emissions of these pollutants in a given year, or the benefit of avoiding that increase. These estimates are intended to include (but are not limited to) climate-change-related changes in net agricultural productivity, human health, property damages from increased flood risk, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services.

DOE exercises its own judgment in presenting monetized climate benefits as recommended by applicable Executive Orders, and DOE would reach the same conclusion presented in this rule in the absence of the SC-GHG, including the February 2021 Interim Estimates presented by the IWG. The social costs of greenhouse gases, whether measured using the February

2021 interim estimates presented by the IWG or by another means, did not affect the rule ultimately proposed by DOE.

DOE estimated the global social benefits of CO₂, CH₄, and N₂O reductions (i.e., SC-GHGs) using the estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990*, published in February 2021 by the IWG. The SC-GHGs is the monetary value of the net harm to society associated with a marginal increase in emissions in a given year, or the benefit of avoiding that increase. In principle, SC-GHG includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk and natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC-GHG therefore, reflects the societal value of reducing emissions of the gas in question by one metric ton. The SC-GHG is the theoretically appropriate value to use in conducting benefit-cost analyses of policies that affect CO₂, N₂O and CH₄ emissions. As a member of the IWG involved in the development of the February 2021 SC-GHG TSD, DOE agrees that the interim SC-GHG estimates represent the most appropriate estimate of the SC-GHG until revised estimates have been developed reflecting the latest, peer-reviewed science.

The SC-GHG estimates presented here were developed over many years, using transparent process, peer-reviewed methodologies, the best science available at the time of that process, and input from the public. Specifically, in 2009, the IWG, that included the DOE and other executive branch agencies and offices was established to ensure that agencies were using the best available science and to promote consistency in the SC-CO₂ values used across agencies. The IWG published SC-CO₂ estimates in 2010 that were developed from an ensemble of three widely cited integrated assessment models ("IAMs") that estimate global climate damages using highly aggregated representations of climate processes and the global economy combined into a single modeling framework. The three IAMs were run using a common set of input assumptions in each model for future population, economic, and CO₂ emissions growth, as well as equilibrium climate sensitivity ("ECS")—a measure of the globally averaged temperature response to

increased atmospheric CO₂ concentrations. These estimates were updated in 2013 based on new versions of each IAM. In August 2016 the IWG published estimates of the SC-CH₄ and SC-N₂O using methodologies that are consistent with the methodology underlying the SC-CO₂ estimates. The modeling approach that extends the IWG SC-CO₂ methodology to non-CO₂ GHGs has undergone multiple stages of peer review. The SC-CH₄ and SC-N₂O estimates were developed by Marten *et al.*¹⁶⁷ and underwent a standard double-blind peer review process prior to journal publication.

In 2015, as part of the response to public comments received to a 2013 solicitation for comments on the SC-CO₂ estimates, the IWG announced a National Academies of Sciences, Engineering, and Medicine review of the SC-CO₂ estimates to offer advice on how to approach future updates to ensure that the estimates continue to reflect the best available science and methodologies. In January 2017, the National Academies released their final report, *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*, and recommended specific criteria for future updates to the SC-CO₂ estimates, a modeling framework to satisfy the specified criteria, and both near-term updates and longer-term research needs pertaining to various components of the estimation process.¹⁶⁸ Shortly thereafter, in March 2017, President Trump issued E.O. 13783, which disbanded the IWG, withdrew the previous TSDs, and directed agencies to ensure SC-CO₂ estimates used in regulatory analyses are consistent with the guidance contained in OMB's Circular A-4, "including with respect to the consideration of domestic versus international impacts and the consideration of appropriate discount rates" (E.O. 13783, Section 5(c)). Benefit-cost analyses following E.O. 13783 used SC-GHG estimates that attempted to focus on the U.S.-specific share of climate change damages as estimated by the models and were calculated using two discount rates recommended by Circular A-4, 3 percent and 7 percent. All other methodological decisions and model

versions used in SC-GHG calculations remained the same as those used by the IWG in 2010 and 2013, respectively.

On January 20, 2021, President Biden issued E.O. 13990, which re-established the IWG and directed it to ensure that the U.S. Government's estimates of the SC-CO₂ and SC-GHG reflect the best available science and the recommendations of the National Academies. The IWG was tasked with first reviewing the SC-GHG estimates currently used in Federal analyses and publishing interim estimates within 30 days of the Executive Order that reflect the full impact of GHG emissions, including by taking global damages into account. The interim SC-GHG estimates published in February 2021 are used here to estimate the climate benefits for this rule. The Executive Order instructs the IWG to undertake a fuller update of the SC-GHG estimates by January 2022 that takes into consideration the advice of the National Academies and other recent scientific literature.

The February 2021 SC-GHG TSD provides a complete discussion of the IWG's initial review conducted under E.O. 13990. In particular, the IWG found that the SC-GHG estimates used under E.O. 13783 fail to reflect the full impact of GHG emissions in multiple ways. First, the IWG found that the SC-GHG estimates used under E.O. 13783 fail to fully capture many climate impacts that affect the welfare of U.S. citizens and residents, and those impacts are better reflected by global measures of the SC-GHG. Examples of omitted effects from the E.O. 13783 estimates include direct effects on U.S. citizens, assets, and investments located abroad, supply chains, U.S. military assets and interests abroad, tourism, spillover pathways such as economic and political destabilization, and global migration that can lead to adverse impacts on U.S. national security, public health, and humanitarian concerns. In addition, assessing the benefits of U.S. GHG mitigation activities requires consideration of how those actions may affect mitigation activities by other countries, as those international mitigation actions will provide a benefit to U.S. citizens and residents by mitigating climate impacts that affect U.S. citizens and residents. A wide range of scientific and economic experts have emphasized the issue of reciprocity as support for considering global damages of GHG emissions. If the United States does not consider impacts on other countries, it is difficult to convince other countries to consider the impacts of their emissions on the United States. The only way to achieve an efficient allocation of resources for

emissions reduction on a global basis—and so benefit the United States and its citizens—is for all countries to base their policies on global estimates of damages. As a member of the IWG involved in the development of the February 2021 SC-GHG TSD, DOE agrees with this assessment and, therefore, in this rule DOE centers attention on a global measure of SC-GHG. This approach is the same as that taken in DOE regulatory analyses from 2012 through 2016. A robust estimate of climate damages that accrue only to U.S. citizens and residents does not currently exist in the literature. As explained in the February 2021 TSD, existing estimates are both incomplete and an underestimate of total damages that accrue to the citizens and residents of the United States because they do not fully capture the regional interactions and spillovers discussed above, nor do they include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature. As noted in the February 2021 SC-GHG TSD, the IWG will continue to review developments in the literature, including more robust methodologies for estimating a U.S.-specific SC-GHG value, and explore ways to better inform the public of the full range of carbon impacts. As a member of the IWG, DOE will continue to follow developments in the literature pertaining to this issue.

Second, the IWG found that the use of the social rate of return on capital (7 percent under current OMB Circular A-4 guidance) to discount the future benefits of reducing GHG emissions inappropriately underestimates the impacts of climate change for the purposes of estimating the SC-GHG. Consistent with the findings of the National Academies and the economic literature, the IWG continued to conclude that the consumption rate of interest is the theoretically appropriate discount rate in an intergenerational context,¹⁶⁹ and recommended that

¹⁶⁹ Interagency Working Group on Social Cost of Carbon. Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866. 2010. United States Government. (Last accessed April 15, 2022.) www.epa.gov/sites/default/files/2016-12/documents/scc_tsd_2010.pdf; Interagency Working Group on Social Cost of Carbon. Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866. 2013. (Last accessed April 15, 2022.) www.federalregister.gov/documents/2013/11/26/2013-28242/technical-support-document-technical-update-of-the-social-cost-of-carbon-for-regulatory-impact; Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. Technical Support Document: Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis—Under Executive Order 12866. August 2016. (Last accessed January 18, 2022.) www.epa.gov/sites/default/files/

¹⁶⁷ Marten, A.L., E.A. Kopits, C.W. Griffiths, S.C. Newbold, and A. Wolverton. Incremental CH₄ and N₂O mitigation benefits consistent with the US Government's SC-CO₂ estimates. *Climate Policy*. 2015. 15(2): pp. 272–298.

¹⁶⁸ National Academies of Sciences, Engineering, and Medicine. *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide*. 2017. The National Academies Press: Washington, DC.

discount rate uncertainty and relevant aspects of intergenerational ethical considerations be accounted for in selecting future discount rates.

Furthermore, the damage estimates developed for use in the SC–GHG are estimated in consumption-equivalent terms, and so an application of OMB Circular A–4’s guidance for regulatory analysis would then use the consumption discount rate to calculate the SC–GHG. DOE agrees with this assessment and will continue to follow developments in the literature pertaining to this issue. DOE also notes that while OMB Circular A–4, as published in 2003, recommends using 3 percent and 7 percent discount rates as “default” values, Circular A–4 also reminds agencies that “different regulations may call for different emphases in the analysis, depending on the nature and complexity of the regulatory issues and the sensitivity of the benefit and cost estimates to the key assumptions.” On discounting, Circular A–4 recognizes that “special ethical considerations arise when comparing benefits and costs across generations,” and Circular A–4 acknowledges that analyses may appropriately “discount future costs and consumption benefits . . . at a lower rate than for intragenerational analysis.” In the 2015 Response to Comments on the Social Cost of Carbon for Regulatory Impact Analysis, OMB, DOE, and the other IWG members recognized that “Circular A–4 is a living document” and “the use of 7 percent is not considered appropriate for intergenerational discounting. There is wide support for this view in the academic literature, and it is recognized in Circular A–4 itself.” Thus, DOE concludes that a 7 percent discount rate is not appropriate to apply to value the SC–GHG in the analysis presented in this analysis.

To calculate the present and annualized values of climate benefits, DOE uses the same discount rate as the rate used to discount the value of damages from future GHG emissions, for internal consistency. That approach to discounting follows the same approach that the February 2021 TSD recommends “to ensure internal consistency—*i.e.*, future damages from

climate change using the SC–GHG at 2.5 percent should be discounted to the base year of the analysis using the same 2.5 percent rate.” DOE has also consulted the National Academies’ 2017 recommendations on how SC–GHG estimates can “be combined in RIAs with other cost and benefits estimates that may use different discount rates.” The National Academies reviewed several options, including “presenting all discount rate combinations of other costs and benefits with [SC–GHG] estimates.”

As a member of the IWG involved in the development of the February 2021 SC–GHG TSD, DOE agrees with the above assessment and will continue to follow developments in the literature pertaining to this issue. While the IWG works to assess how best to incorporate the latest, peer reviewed science to develop an updated set of SC–GHG estimates, it set the interim estimates to be the most recent estimates developed by the IWG prior to the group being disbanded in 2017. The estimates rely on the same models and harmonized inputs and are calculated using a range of discount rates. As explained in the February 2021 SC–GHG TSD, the IWG has recommended that agencies revert to the same set of four values drawn from the SC–GHG distributions based on three discount rates as were used in regulatory analyses between 2010 and 2016 and were subject to public comment. For each discount rate, the IWG combined the distributions across models and socioeconomic emissions scenarios (applying equal weight to each) and then selected a set of four values recommended for use in benefit-cost analyses: an average value resulting from the model runs for each of three discount rates (2.5 percent, 3 percent, and 5 percent), plus a fourth value, selected as the 95th percentile of estimates based on a 3 percent discount rate. The fourth value was included to provide information on potentially higher-than-expected economic impacts from climate change. As explained in the February 2021 SC–GHG TSD, and DOE agrees, this update reflects the immediate need to have an operational SC–GHG for use in regulatory benefit-cost analyses and other applications that was developed using a transparent process, peer-reviewed methodologies, and the science available at the time of that process. Those estimates were subject to public comment in the context of dozens of proposed rulemakings as well as in a dedicated public comment period in 2013.

There are a number of limitations and uncertainties associated with the SC–GHG estimates. First, the current

scientific and economic understanding of discounting approaches suggests discount rates appropriate for intergenerational analysis in the context of climate change are likely to be less than 3 percent, near 2 percent or lower.¹⁷⁰ Second, the IAMs used to produce these interim estimates do not include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature and the science underlying their “damage functions”—*i.e.*, the core parts of the IAMs that map global mean temperature changes and other physical impacts of climate change into economic (both market and nonmarket) damages—lags behind the most recent research. For example, limitations include the incomplete treatment of catastrophic and non-catastrophic impacts in the integrated assessment models, their incomplete treatment of adaptation and technological change, the incomplete way in which inter-regional and intersectoral linkages are modeled, uncertainty in the extrapolation of damages to high temperatures, and inadequate representation of the relationship between the discount rate and uncertainty in economic growth over long time horizons. Likewise, the socioeconomic and emissions scenarios used as inputs to the models do not reflect new information from the last decade of scenario generation or the full range of projections. The modeling limitations do not all work in the same direction in terms of their influence on the SC–CO₂ estimates. However, as discussed in the February 2021 TSD, the IWG has recommended that, taken together, the limitations suggest that the interim SC–GHG estimates used in this final rule likely underestimate the damages from GHG emissions. DOE concurs with this assessment.

In comments filed in response to the May 2022 CWH ECS NOPR, Joint Climate Commenters stated that DOE appropriately applies the social cost estimates developed by the IWG for CO₂, CH₄, and N₂O, to its analysis of emission reduction benefits. The Joint Climate Commenters added that those values are widely agreed to underestimate the full SC–GHG emissions but are appropriate to use as conservative estimates, have been used

¹⁷⁰Interagency Working Group on Social Cost of Greenhouse Gases (IWG). 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. February. United States Government. Available at: www.whitehouse.gov/briefing-room/blog/2021/02/26/a-return-to-science-evidence-based-estimates-of-the-benefits-of-reducing-climate-pollution/.

2016-12/documents/sc_co2_tsd_august_2016.pdf; Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. Addendum to Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866: Application of the Methodology to Estimate the Social Cost of Methane and the Social Cost of Nitrous Oxide. August 2016. (Last accessed January 18, 2022.) www.epa.gov/sites/default/files/2016-12/documents/addendum_to_sc-ghg_tsd_august_2016.pdf.

in dozens of previous rulemakings, and were upheld in Federal court. (Joint Climate Commenters, No. 19 at pp. 1–2). The Joint Climate Commenters suggested that DOE should expand upon its rationale for adopting a global damages valuation and for the range of discount rates it applies to climate effects, and should also strongly consider conducting supplemental sensitivity analyses to assess the proposed rule’s climate benefits at lower discount rates, as recommended by the IWG. (Joint Climate Commenters, No. 20 at p. 2). The Joint Climate Commenters also stated that DOE should provide additional support for adopting a global framework for valuing climate impacts, including providing legal justifications based on applicable requirements placed on DOE. In particular, the Joint Climate Commenters suggested that DOE could strengthen its economic and policy justifications by explicitly concluding that the theory and evidence for international reciprocity justify a focus on the full global values. However, they stated that DOE should also consider including a discussion of domestic-only estimates and should consider conducting sensitivity analysis using a sounder domestic-only estimate as a backstop, and should explicitly conclude that the rule is cost-benefit justified even using a domestic-only valuation that may still undercount climate benefits. (Joint Commenters, No. 21 at p. 2) The Joint Climate Commenters also stated that DOE should consider including additional justification for adopting the range of discount rates endorsed by the IWG and for appropriately deciding not to apply a 7 percent capital-based discount rate to climate impacts. In particular, they suggested that DOE should provide additional justification for combining climate effects discounted at an appropriate consumption-based rate with other costs and benefits discounted at a capital-based rate. The Joint Climate Commenters suggested that it is appropriate generally to focus its analysis of this rule on consumption-based rates given that most costs and benefits are projected to fall to consumption rather than to capital investments. (Joint Commenters, No. 22 at pp. 2–3) The Joint Climate Commenters also suggested that DOE should also consider providing additional sensitivity analysis using discount rates of 2 percent or lower for climate impacts, as recently suggested by the Working Group. (Joint Climate Commenters, No. 23 at p. 3) The Joint Climate Commenters stated that DOE should consider adding further

justification for relying on the Working Group’s other methodological choices, including the fact that the Working Group applied a transparent and rigorous process that relied upon the best-available and most widely cited models for monetizing climate damages. In support of this, they included several attachments which they said provide detailed rebuttals to common criticisms of the Working Group’s methodology. (Joint Climate Commenters, No. 24 at p. 3) DOE acknowledges that interim estimates were developed over many years, using transparent process, peer-reviewed methodologies, the best science available at the time of that process, and with input from the public. The interim SC–GHG estimates represent the most appropriate estimate of the SC–GHG until revised estimates have been developed reflecting the latest, peer-reviewed science. The IWG February 2021 TSD provides further justification for use of global SC–GHG estimates.

The Joint Climate Commenters encouraged DOE to clearly state that any criticisms of the social cost of greenhouse gases are moot in this rulemaking because the Proposed Rule is easily cost-justified without any climate benefits. (Joint Climate Commenters, No. 25 at p. 3) DOE acknowledges that this rule is economically justified without SC–GHG and health benefits, but notes that consideration of those benefits and costs is important when determining the impact to the nation.

The Associations state that DOE should not rely on the SC–GHG for any decision-making until the procedural shortcomings in the SC–GHG development have been addressed, alleging that the development of SC–GHG needs to be developed through a process consistent with the Administrative Procedure Act and that the current SC–GHG was not. (The Associations, No. 32 at pp. 2–3) The Associations stated that the SC–GHG was issued in 2021 without prior notice and no public comment period. The Associations alleged this process lacked transparency, and by extension the DOE NOPR process lacked transparency insofar as it does not provide a full IWG process record for the public to comment on. The Associations commented that without such a record, the public’s ability to comment meaningfully is impaired. They further stated that a future comment period in the IWG process does not provide remedy. (The Associations, No. 32 at p. 3) The Associations stated additionally that the original social cost of carbon comment period in 2013 did not reflect

a meaningful opportunity to comment, lacked a peer review process, and did not provide the public access to information underlying the estimates. This period predated the SC–CH₄ and SC–N₂O, which the Associations alleged were also not subject to public input. (The Associations, No. 32 at p. 4) The Associations stated that DOE should further not use the SC–GHG because the IWG has yet to fully consider recommendations for improvement made by the National Academy of Sciences. (The Associations, No. 32 at p. 4) DOE notes as stated above that interim estimates were developed over many years, using transparent process, peer-reviewed methodologies, the best science available at the time of that process, and with input from the public. The interim SC–GHG estimates represent the most appropriate estimate of the SC–GHG until revised estimates have been developed reflecting the latest, peer-reviewed science.

The Associations stated that the SC–GHG estimates do not comply with OMB guidance on information quality because the IWG failed to follow OMB’s guidance for peer review, and therefore use by DOE could be considered arbitrary and capricious. They noted further that the IWG also failed to meet OMB’s requirements for a formal uncertainty analysis. (The Associations, No. 32 at pp. 4–5) The Associations also pointed out that the discount rates used do not comport with OMB’s Circular A–4, which requires use of 3 and 7 percent discount rates, and note that A–4 remains the governing guidance for regulatory cost-benefit analyses. They urged DOE to comply with Circular A–4 in all relevant aspects. (The Associations, No. 32 at p. 5) DOE notes in response that DOE uses discount rates consistent with findings of the National Academies, economic literature, and the IWG. Circular A–4 recognizes that “special ethical considerations arise when comparing the benefits and costs across generations.” Circular A–4 acknowledges that analyses may appropriately “discount future costs and consumption benefits . . . at a lower rate than for intragenerational analysis.” See Circular A–4 at 36. DOE will continue to follow developments in the literature pertaining to this issue.

The Associations recommended DOE state clearly the statutory authority for applying SC–GHG estimates in the rulemaking and that DOE “articulate the principles that will allow private parties to predict future applications of such estimates in domains governed by the particular statutory provisions.” (The Associations, No. 32 at pp. 2 and 7) The

Associations urged DOE to consider whether the “major questions doctrine” applies to DOE’s use of the SC–GHG estimates “because the SC–GHG estimates are of such major economic and political significance”. *Id.* at 7. The Associations liken the use of SC–GHG to effectively serving as a fee for GHG emissions and note that Congress has not established GHG taxes or fees. Thus, the Associations state their opinion that SC–GHG usage falls under the major questions doctrine and urge DOE to therefore not use the SC–GHG estimates. (The Associations, No. 32 at pp. 2–3 and 8) The Associations note the change in levels of SC–GHG between Administrations and use such as evidence that choices might involve policy judgements requiring an express delegation from Congress. (The Associations, No. 32 at p. 8)

DOE notes first that, under EPCA, the Department regulates only the energy efficiency or use of CWHs. DOE does not regulate the emissions of CWHs or the emissions of energy sources used to generate energy for those water heaters. While DOE does not regulate emissions under EPCA, DOE is required to determine the benefits and burdens of an energy conservation standard. (See 42 U.S.C. 6313(a)(6)(B)(ii)) Emissions reductions are one of the benefits that DOE considers when weighing the possibility of more-stringent energy conservation standards. And in compliance with E.O. 12866 and E.O. 13990, and for the reasons described above, DOE is using the SC–GHG estimates to quantify the value of those emissions reductions.¹⁷¹

Patterson-Kelley and WM Technologies commented regarding the Supreme Court ruling in *West Virginia v. EPA*. Patterson-Kelley is concerned over the emissions impact analysis in the commercial water heater rulemaking, as it is likely to require

rollback of any efficiency rulemaking. (Patterson-Kelley, No. 26 at pp. 1–2, 7; WM Technologies, No. 25 at pp. 1 and 9) DOE notes this final rule is economically justified without including net benefits related to emissions. Thus, if the Supreme Court or any other court acted to curtail the consideration of the benefits arising from emissions reductions, this rule is not dependent on the value of such benefits and should not be affected.

In comments, PHCC stated that while DOE presented much information on the social costs of climate emissions as well as related health costs of emission, it is unclear how the Department intends to use this information, noting that on occasion it is stated that the proposal pays for itself without these factors, while at the same time stressing these factors’ importance. PHCC asked why DOE would engage in the debate if the rule is economically justified without these factors. (PHCC, No. 28 at p. 11) DOE acknowledges the rule is economically justified without SC–GHG and health impacts. However, understanding SC–GHG and health benefits and costs is part of describing clearly the total impact of energy efficiency standards, and they are relevant considerations for the public and stakeholders.

PHCC also questioned the Department’s authority to regulate emissions and notes the language of the statute directs DOE to deal with energy, not emissions, and that this topic is a matter of current litigation, which the Department acknowledges. PHCC would like clarification as to the status of this rule should this question ultimately be ruled contrary to the opinion of DOE. (PHCC, No. 28 at p. 11) In response, DOE notes again that it does not regulate emissions for covered products and equipment. Instead, EPCA grants DOE clear authority to establish energy

conservation standards for covered products and equipment.

PHCC asks for clarification as to why emissions information is presented at the 3 percent discount rate and not at 7 percent, stating that DOE should plainly state its rationale for this practice other than not having a “single central SC–GHG point estimate” and that DOE should acknowledge that the projected social benefits and health benefits are not simple benefits to a purchase of CWH products but rather are benefits for the world population. (PHCC, No. 28 at p. 11) DOE discusses the global nature of social emissions benefits in sections I.C, IV.L.1.a, V.B.8, 0, and V.C.2. DOE uses all four sets of SC–GHG estimates to capture the uncertainties involved in regulatory impact analysis as recommended by the IWG. The rationale for the choice of discount rates is described in the IWG’s February 2021 TSD.

DOE’s derivations of the SC–CO₂, SC–N₂O, and SC–CH₄ values used for this final rule are discussed in the following sections, and the results of DOE’s analyses estimating the benefits of the reductions in emissions of these GHGs are presented in section V.B.8 of this document.

a. Social Cost of Carbon

The SC–CO₂ values used for this final rule were generated using the values presented in the 2021 update from the IWG’s February 2021 TSD. Table IV.36 shows the updated sets of SC–CO₂ estimates from the IWG’s TSD in 5-year increments from 2020 to 2050. The full set of annual values that DOE used is presented in appendix 14A of the final rule TSD. For purposes of capturing the uncertainties involved in regulatory impact analysis, DOE has determined it is appropriate to include all four sets of SC–CO₂ values, as recommended by the IWG.¹⁷²

TABLE IV.36—ANNUAL SC–CO₂ VALUES FROM 2021 INTERAGENCY UPDATE, 2020–2050

[2020\$ per metric ton CO₂]

Year	Discount rate and statistic			
	5%	3%	2.5%	3%
	Average	Average	Average	95th percentile
2020	14	51	76	152
2025	17	56	83	169
2030	19	62	89	187
2035	22	67	96	206
2040	25	73	103	225

¹⁷¹ For more information, see the “Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under

Executive Order 13990,” published in February 2021 by the IWG.

¹⁷² For example, the February 2021 TSD discusses how the understanding of discounting approaches

suggests that discount rates appropriate for intergenerational analysis in the context of climate change may be lower than 3 percent.

TABLE IV.36—ANNUAL SC-CO₂ VALUES FROM 2021 INTERAGENCY UPDATE, 2020–2050—Continued
[2020\$ per metric ton CO₂]

Year	Discount rate and statistic			
	5%	3%	2.5%	3%
	Average	Average	Average	95th percentile
2045	28	79	110	242
2050	32	85	116	260

In calculating the potential global benefits resulting from reduced CO₂ emissions, DOE used the values from the 2021 interagency report, adjusted to 2022\$ using the implicit price deflator for gross domestic product (“GDP”) from the Bureau of Economic Analysis. For each of the four sets of SC-CO₂ cases specified, the values for emissions in 2020 were \$14, \$51, \$76, and \$152 per metric ton avoided (values expressed in 2020\$). For 2051 to 2070, DOE used SC-CO₂ estimates published by EPA, adjusted to 2022\$.¹⁷³ These estimates are based on methods, assumptions, and parameters identical to the 2020–2050 estimates published by the IWG (which were based on EPA modeling). DOE expects additional

climate benefits to accrue for any longer-life furnaces after 2070, but a lack of available SC-CO₂ estimates for emissions years beyond 2070 prevents DOE from monetizing these potential benefits in this analysis. DOE multiplied the CO₂ emissions reduction estimated for each year by the SC-CO₂ value for that year in each of the four cases. DOE adjusted the values to 2022\$ using the implicit price deflator for GDP from the Bureau of Economic Analysis. To calculate a present value of the stream of monetary values, DOE discounted the values in each of the four cases using the specific discount rate that had been used to obtain the SC-CO₂ values in each case. See appendix 14A for the annual SC-CO₂ values.

b. Social Cost of Methane and Nitrous Oxide
The SC-CH₄ and SC-N₂O values used for this final rule were based on the values developed for the February 2021 TSD. Table IV.37 shows the updated sets of SC-CH₄ and SC-N₂O estimates from the latest interagency update in 5-year increments from 2020 to 2050. The full set of annual values used is presented in appendix 14A of the final rule TSD. To capture the uncertainties involved in regulatory impact analysis, DOE has determined it is appropriate to include all four sets of SC-CH₄ and SC-N₂O values, as recommended by the IWG. DOE derived values after 2050 using the approach described above for the SC-CO₂.

TABLE IV.37—ANNUAL SC-CH₄ AND SC-N₂O VALUES FROM 2021 INTERAGENCY UPDATE, 2020–2050
[2020\$ per metric ton]

Year	SC-CH ₄				SC-N ₂ O			
	Discount rate and statistic				Discount rate and statistic			
	5%	3%	2.5%	3%	5%	3%	2.5%	3%
	Average	Average	Average	95th percentile	Average	Average	Average	95th percentile
2020	670	1,500	2,000	3,900	5,800	18,000	27,000	48,000
2025	800	1,700	2,200	4,500	6,800	21,000	30,000	54,000
2030	940	2,000	2,500	5,200	7,800	23,000	33,000	60,000
2035	1,100	2,200	2,800	6,000	9,000	25,000	36,000	67,000
2040	1,300	2,500	3,100	6,700	10,000	28,000	39,000	74,000
2045	1,500	2,800	3,500	7,500	12,000	30,000	42,000	81,000
2050	1,700	3,100	3,800	8,200	13,000	33,000	45,000	88,000

DOE multiplied the CH₄ and N₂O emissions reduction estimated for each year by the SC-CH₄ and SC-N₂O estimates for that year in each of the cases. DOE adjusted the values to 2022\$ using the implicit price deflator for GDP from the Bureau of Economic Analysis. To calculate a present value of the stream of monetary values, DOE discounted the values in each of the cases using the specific discount rate that had been used to obtain the SC-CH₄ and SC-N₂O estimates in each case. See

chapter 13 for the annual emissions reduction. See appendix 14A for the annual SC-CH₄ and SC-N₂O values.
2. Monetization of Other Emissions Impacts
For the final rule, DOE estimated the monetized value of NO_x and SO₂ emissions reductions from electricity generation using benefit per ton estimates for that sector from the EPA’s Benefits Mapping and Analysis Program.¹⁷⁴ DOE used EPA’s values for

PM_{2.5}-related benefits associated with NO_x and SO₂ and for ozone-related benefits associated with NO_x for 2025 and 2030, and 2040, calculated with discount rates of 3 percent and 7 percent. DOE used linear interpolation to define values for the years not given in the 2025 to 2040 period; for years beyond 2040 the values are held constant. DOE combined the EPA benefit per ton estimates with regional information on electricity consumption and emissions to define weighted-

¹⁷³ See EPA, Revised 2023 and Later Model Year Light-Duty Vehicle GHG Emissions Standards: Regulatory Impact Analysis, Washington, DC, December 2021. Available at: nepis.epa.gov/Exec/

[ZyPDF.cgi?Dockey=P1013ORN.pdf](https://www.epa.gov/benmap/estimating-benefit-ton-reducing-pm25-precursors-21-sectors) (last accessed January 13, 2023).

¹⁷⁴ Estimating the Benefit per Ton of Reducing PM_{2.5} Precursors from 21 Sectors. www.epa.gov/benmap/estimating-benefit-ton-reducing-pm25-precursors-21-sectors.

average national values for NO_x and SO₂ as a function of sector (see appendix 14B of the NOPR TSD).

DOE multiplied the site emissions reduction (in tons) in each year by the associated \$/ton values, and then discounted each series using discount rates of 3 percent and 7 percent as appropriate.

M. Utility Impact Analysis

The utility impact analysis estimates the changes in installed electrical capacity and generation projected to result for each considered TSL. The analysis is based on published output from the NEMS associated with AEO2023. NEMS produces the AEO Reference case, as well as a number of side cases that estimate the economy-wide impacts of changes to energy supply and demand. For the current analysis, impacts are quantified by comparing the levels of electricity sector generation, installed capacity, fuel consumption and emissions in the AEO2023 Reference case and various side cases. Details of the methodology are provided in the appendices to chapters 13 and 15 of the final rule TSD.

The output of this analysis is a set of time-dependent coefficients that capture the change in electricity generation, primary fuel consumption, installed capacity and power sector emissions due to a unit reduction in demand for a given end use. These coefficients are multiplied by the stream of electricity savings calculated in the NIA to provide estimates of selected utility impacts of potential new or amended energy conservation standards.

N. Employment Impact Analysis

DOE considers employment impacts in the domestic economy as one factor in selecting a standard. Employment impacts from new or amended energy conservation standards include both direct and indirect impacts. Direct employment impacts are any changes in the number of employees of manufacturers of the products subject to standards, their suppliers, and related service firms. The MIA addresses those impacts. Indirect employment impacts are changes in national employment that occur due to the shift in expenditures and capital investment caused by the purchase and operation of more-efficient appliances. Indirect employment impacts from standards consist of the net jobs created or eliminated in the national economy, other than in the manufacturing sector being regulated, caused by (1) reduced spending by consumers on energy, (2) reduced spending on new energy supply by the utility industry, (3) increased

consumer spending on the products to which the new standards apply and other goods and services, and (4) the effects of those three factors throughout the economy.

One method for assessing the possible effects on the demand for labor of such shifts in economic activity is to compare sector employment statistics developed by the Labor Department's Bureau of Labor Statistics ("BLS"). BLS regularly publishes its estimates of the number of jobs per million dollars of economic activity in different sectors of the economy, as well as the jobs created elsewhere in the economy by this same economic activity. Data from BLS indicate that expenditures in the utility sector generally create fewer jobs (both directly and indirectly) than expenditures in other sectors of the economy.¹⁷⁵ There are many reasons for these differences, including wage differences and the fact that the utility sector is more capital-intensive and less labor-intensive than other sectors. Energy conservation standards have the effect of reducing consumer utility bills. Because reduced consumer expenditures for energy likely lead to increased expenditures in other sectors of the economy, the general effect of efficiency standards is to shift economic activity from a less labor-intensive sector (*i.e.*, the utility sector) to more labor-intensive sectors (*e.g.*, the retail and service sectors). Thus, the BLS data suggest that net national employment may increase due to shifts in economic activity resulting from energy conservation standards.

DOE estimated indirect national employment impacts for the standard levels considered in this final rule using an input/output model of the U.S. economy called Impact of Sector Energy Technologies ("ImSET").¹⁷⁶ ImSET is a special-purpose version of the "U.S. Benchmark National Input-Output" ("I-O") model, which was designed to estimate the national employment and income effects of energy-saving technologies. The ImSET software includes a computer-based I-O model having structural coefficients that characterize economic flows among 187 sectors most relevant to industrial,

¹⁷⁵ See U.S. Department of Commerce-Bureau of Economic Analysis. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System ("RIMS II")*. 1997. U.S. Government Printing Office: Washington, DC. Available at www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf (last accessed July 1, 2021).

¹⁷⁶ Livingston, O.V., S.R. Bender, M.J. Scott, and R.W. Schultz. *ImSET 4.0: Impact of Sector Energy Technologies Model Description and User's Guide*. 2015. Pacific Northwest National Laboratory: Richland, WA. PNNL-24563.

commercial, and residential building energy use.

DOE notes that ImSET is not a general equilibrium forecasting model, and understands the uncertainties involved in projecting employment impacts, especially changes in the later years of the analysis. Because ImSET does not incorporate price changes, the employment effects predicted by ImSET may over-estimate actual job impacts over the long run for this rule. Therefore, DOE used ImSET only to generate results for near-term timeframes (2026–2030), where these uncertainties are reduced. For more details on the employment impact analysis, see chapter 16 of the final rule TSD.

V. Analytical Results and Conclusions

The following section addresses the results from DOE's analyses with respect to the considered energy conservation standards for CWH equipment. It addresses the TSLs examined by DOE, the projected impacts of each of these levels if adopted as energy conservation standards for CWH equipment, and the standards levels that DOE is adopting in this final rule. Additional details regarding DOE's analyses are contained in the final rule TSD supporting this document.

A. Trial Standard Levels

In general, DOE typically evaluates potential amended standards for products and equipment by grouping individual efficiency levels for each class into TSLs. Use of TSLs allows DOE to identify and consider manufacturer cost interactions between the equipment classes, to the extent that there are such interactions, and market cross elasticity from consumer purchasing decisions that may change when different standard levels are set.

In the analysis conducted for this final rule, for commercial gas-fired storage water heaters, DOE included efficiency levels for both thermal efficiency and standby loss in each TSL because standby loss is dependent upon thermal efficiency. This dependence of standby loss on thermal efficiency is discussed in detail in section IIIIV.C.4.b of this final rule and chapter 5 of the final rule TSD. However, as discussed in section IV.C.4.b of this final rule, for all thermal efficiency levels for commercial gas-fired storage water heaters, DOE only analyzed one standby loss level corresponding to each thermal efficiency level.

The thermal efficiency levels for commercial gas-fired storage water heaters and commercial gas-fired

instantaneous water heaters and hot water supply boilers, the standby loss levels for commercial gas-fired storage water heaters, and the UEF levels for residential-duty gas-fired storage water heaters that are included in each TSL are described in the following paragraphs and presented in Table V.1 of this final rule.

TSL 4 consists of the max-tech efficiency levels for each equipment category, which correspond to the highest condensing efficiency levels. TSL 3 consists of intermediate condensing efficiency levels for commercial gas-fired storage water heaters and residential-duty gas-fired storage water heaters, and max-tech efficiency levels for commercial gas-fired instantaneous water heaters and hot water supply boilers. TSL 2 consists of the minimum condensing efficiency

levels analyzed for commercial gas-fired storage water heaters and residential-duty gas-fired storage water heaters, and intermediate condensing efficiency levels for commercial gas-fired instantaneous water heaters and hot water supply boilers. These TSLs require similar technologies to achieve the efficiency levels and have roughly comparable equipment availability across each equipment category in terms of the share of models available that meet the efficiency level and having multiple manufacturers that produce those models. TSL 1 consists of the maximum non-condensing thermal efficiency or UEF (as applicable) levels analyzed for each equipment category.

Table V.1 presents the efficiency levels for each equipment category (*i.e.*, commercial gas-fired storage water heaters and storage-type instantaneous

water heaters, residential-duty gas-fired storage water heaters, gas-fired tankless water heaters, and gas-fired circulating water heaters and hot water supply boilers) in each TSL. Table V.2 presents the thermal efficiency value and standby loss reduction factor for each equipment category in each TSL that DOE considered, with the exception of residential-duty gas-fired storage water heaters (for which TSLs are shown separately in Table V.3). The standby loss reduction factor is a multiplier representing the reduction in allowed standby loss relative to the current standby loss standard and which corresponds to the associated increase in thermal efficiency. Table V.3 presents the UEF equations for residential-duty gas-fired storage water heaters corresponding to each TSL that DOE considered.

TABLE V.1—TRIAL STANDARD LEVELS FOR CWH EQUIPMENT BY EFFICIENCY LEVEL

Equipment	Trial standard level***							
	1		2		3		4	
	E _t or UEF EL	SL EL	E _t or UEF EL	SL EL	E _t or UEF EL	SL EL	E _t or UEF EL	SL EL
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	1	0	2	0	4	0	5	0
Residential-duty gas-fired storage water heaters	2	.....	3	.....	4	.....	5	.....
Gas-fired instantaneous water heaters and hot water supply boilers:								
Tankless water heaters	2	.....	4	.....	5	.....	5	.....
Circulating water heaters and hot water supply boilers	2	.....	4	.....	5	.....	5	.....

* E_t stands for thermal efficiency, SL stands for standby loss, UEF stands for uniform energy factor, and EL stands for efficiency level. E_t applies to commercial gas-fired storage water heaters and storage-type instantaneous water heaters, and to gas-fired instantaneous water heaters and hot water supply boilers. SL applies to commercial gas-fired storage water heaters and storage-type instantaneous water heaters. UEF applies to residential-duty gas-fired storage water heaters.

** As discussed in sections III.B.5 and III.B.6 of this final rule, DOE did not analyze amended standby loss standards for instantaneous water heaters and hot water supply boilers. In addition, standby loss standards are not applicable for residential-duty commercial gas-fired storage water heaters. Lastly, for commercial gas-fired storage water heaters and storage-type instantaneous water heaters DOE only analyzed the reduction that is inherent to increasing E_t and did not analyze SL efficiency levels above ELO.

TABLE V.2—TRIAL STANDARD LEVELS FOR CWH EQUIPMENT BY THERMAL EFFICIENCY AND STANDBY LOSS REDUCTION FACTOR

[Except residential-duty gas-fired storage water heaters]

Equipment	Trial standard level***							
	1		2		3		4	
	E _t (%)	SL factor †	E _t (%)	SL factor †	E _t (%)	SL factor †	E _t (%)	SL factor †
Commercial gas-fired storage water heaters and storage-type instantaneous water heaters	82	0.98	90	0.91	95	0.86	99	0.83
Gas-fired instantaneous water heaters and hot water supply boilers:								
Tankless water heaters	84	.....	94	.....	96	.....	96	.....
Circulating water heaters and hot water supply boilers	84	.....	94	.....	96	.....	96	.....

* E_t stands for thermal efficiency, and SL stands for standby loss.

** As discussed in sections III.B.5 and III.B.6 of this final rule, DOE did not analyze amended standby loss standards for instantaneous water heaters and hot water supply boilers.

† Standby loss reduction factor is a factor that is multiplied by the current maximum standby loss equations for each equipment class, as applicable. DOE used reduction factors to develop the amended maximum standby loss equation for each TSL. These reduction factors and maximum standby loss equations are discussed in section IV.C.4.b of this final rule.

TABLE V.3—TRIAL STANDARD LEVELS BY UEF FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

Draw pattern *	Trial standard level **			
	1	2	3	4
	UEF	UEF	UEF	UEF
High	0.7497 – 0.0009*Vr	0.8397 – 0.0009*Vr	0.9297 – 0.0009*Vr	0.9997 – 0.0009*Vr
Medium	0.6902 – 0.0011*Vr	0.7802 – 0.0011*Vr	0.8702 – 0.0011*Vr	0.9402 – 0.0011*Vr
Low	0.6262 – 0.0012*Vr	0.7162 – 0.0012*Vr	0.8062 – 0.0012*Vr	0.8762 – 0.0012*Vr
Very Small	0.3574 – 0.0009*Vr	0.4474 – 0.0009*Vr	0.5374 – 0.0009*Vr	0.6074 – 0.0009*Vr

* Draw pattern is a classification of hot water use of a consumer water heater or residential-duty commercial water heater, based upon the first-hour rating. The draw pattern is determined using the Uniform Test Method for Measuring the Energy Consumption of Water Heaters in in appendix E to subpart B of 10 CFR part 430.

** Vr is rated volume in gallons.

DOE constructed the TSLs for this final rule to include efficiency levels representative of efficiency levels with similar characteristics (*i.e.*, using similar technologies and/or efficiencies, and having roughly comparable equipment availability). The use of representative efficiency levels provided for greater distinction between the TSLs. While representative efficiency levels were included in the TSLs, DOE considered all efficiency levels as part of its analysis.¹⁷⁷

B. Economic Justification and Energy Savings

1. Economic Impacts on Individual Consumers

DOE analyzed the economic impacts on CWH equipment consumers by looking at the effects that potential amended standards at each TSL would have on the LCC and PBP. DOE also examined the impacts of potential

standards on selected consumer subgroups. These analyses are discussed in the following sections.

a. Life-Cycle Cost and Payback Period

In general, higher-efficiency products affect consumers in two ways: (1) purchase price increases and (2) annual operating costs decrease. Inputs used for calculating the LCC and PBP include total installed costs (*i.e.*, product price plus installation costs) and operating costs (*i.e.*, annual energy use, energy prices, energy price trends, repair costs, and maintenance costs). The LCC calculation also uses product lifetime and a discount rate. Chapter 8 of the final rule TSD provides detailed information on the LCC and PBP analyses.

Table V.4 through Table V.13 of this final rule show the LCC and PBP results for the TSLs considered in this final rule. In the first of each pair of tables,

the simple payback is measured relative to the baseline product. In the second table, impacts are measured relative to the efficiency distribution in the no-new-standards case in the compliance year (see section IV.F.8 of this document). Because some consumers purchase products with higher efficiency in the no-new-standards case, the average savings are less than the difference between the average LCC of the baseline product and the average LCC at each TSL. The savings refer only to consumers who are affected by a standard at a given TSL. As was noted in IV.H.1 of this document, DOE assumes a large percentage of consumers will already be purchasing higher efficiency condensing equipment by 2026. Those who already purchase a product with efficiency at or above a given TSL are not affected. Consumers for whom the LCC increases at a given TSL experience a net cost.

TABLE V.4—AVERAGE LCC AND PBP RESULTS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS

TSL *	Thermal efficiency (E _t) (%)	Standby loss (SL) factor	Average costs (2022\$)				Simple payback period (years)
			Installed cost	First year's operating cost	Lifetime operating cost	LCC	
0	80	1.00	6,083	2,419	18,589	24,672	0
1	82	0.98	6,158	2,374	18,252	24,410	1.7
2	90	0.91	7,477	2,243	17,266	24,743	7.9
3	95	0.86	7,593	2,157	16,681	24,274	5.8
4	99	0.83	7,733	2,094	16,206	23,939	5.1

* The results for each TSL are calculated assuming that all consumers use equipment with that efficiency level. The PBP is measured relative to the baseline equipment.

Note: TSL 0 represents the baseline.

¹⁷⁷ Efficiency levels that were analyzed for this final rule are discussed in section IV.C.4 of this

document. Results by efficiency level are presented in TSD chapters 8, 10, and 12.

TABLE V.5—AVERAGE LCC SAVINGS RELATIVE TO THE NO-NEW-STANDARDS CASE FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS

TSL	Thermal efficiency (E _t) level (%)	Standby loss (SL) factor	Life-cycle cost savings		
			Percentage of commercial consumers that experience a net cost (%)	Percentage of commercial consumers that experience a net benefit (%)	Average life-cycle cost savings* (2022\$)
0	80	1.00	0	0	0
1	82	0.98	3	32	267
2	90	0.91	19	18	(85)
3	95	0.86	17	35	367
4	99	0.83	23	76	528

* The calculation includes affected consumers only. A value in parenthesis is a negative number.
Note: TSL 0 represents the baseline.

TABLE V.6—AVERAGE LCC AND PBP RESULTS FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

TSL *	UEF **	Average costs (2022\$)				Simple payback period (years)
		Installed cost	First year's operating cost	Lifetime operating cost	LCC	
0	0.59	2,539	1,519	13,470	16,009	.....
1	0.68	2,791	1,427	12,671	15,462	2.7
2	0.77	3,746	1,365	12,220	15,966	7.8
3	0.86	4,135	1,298	11,634	15,769	7.2
4	0.93	4,199	1,261	11,311	15,510	6.4

* The results for each TSL are calculated assuming that all consumers use equipment with that efficiency level. The PBP is measured relative to the baseline equipment.
Note: TSL 0 represents the baseline.
 ** The UEF shown is for the representative capacity of 75 gallons.

TABLE V.7—AVERAGE LCC SAVINGS RELATIVE TO THE NO-NEW-STANDARDS CASE FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

TSL	UEF *	Life-cycle cost savings		
		Percentage of commercial consumers that experience a net cost (%)	Percentage of commercial consumers that experience a net benefit (%)	Average life-cycle cost savings** 2022\$
0	0.59	0	0	0
1	0.68	6	69	509
2	0.77	43	47	(80)
3	0.86	42	50	119
4	0.93	37	62	370

* The UEF shown is for the representative capacity of 75 gallons.
 ** The calculation includes affected consumers only. A value in parentheses is a negative number.
Note: TSL 0 represents the baseline.

TABLE V.8—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR GAS-FIRED TANKLESS WATER HEATERS

TSL *	Thermal efficiency (E _t) (%)	Average costs 2022\$				Simple payback period years
		Installed cost	First year's operating cost	Lifetime operating cost	LCC	
0	80	3,007	821	9,535	12,543	.....
1	84	3,046	789	9,201	12,247	1.3
2	94	3,858	729	8,612	12,471	9.3
3	96	3,925	717	8,480	12,405	8.9

TABLE V.8—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR GAS-FIRED TANKLESS WATER HEATERS—Continued

TSL *	Thermal efficiency (E _i) (%)	Average costs 2022\$				Simple payback period years
		Installed cost	First year's operating cost	Lifetime operating cost	LCC	
4	96	3,925	717	8,480	12,405	8.9

* The results for each TSL are calculated assuming that all consumers use equipment with that efficiency level. The PBP is measured relative to the baseline equipment.

Note: TSL 0 represents the baseline.

TABLE V.9—AVERAGE LCC SAVINGS RELATIVE TO THE NO-NEW-STANDARDS-CASE EFFICIENCY DISTRIBUTION FOR GAS-FIRED TANKLESS WATER HEATERS

TSL	Thermal efficiency (E _i) (%)	Life-cycle cost savings		
		Percentage of commercial consumers that experience a net cost (%)	Percentage of commercial consumers that experience a net benefit (%)	Average life-cycle cost savings* 2022\$
0	80	0	0	0
1	84	0	17	295
2	94	10	11	105
3	96	15	27	120
4	96	15	27	120

* The calculation includes affected consumers only.

Note: TSL 0 represents the baseline.

TABLE V.10—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR GAS-FIRED CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

TSL *	Thermal efficiency (E _i) (%)	Average costs 2022\$				Simple payback period years
		Installed cost	First year's operating cost	Lifetime operating cost	LCC	
0	80	8,622	5,273	80,367	88,989	.....
1	84	8,830	5,114	77,996	86,826	1.3
2	94	13,973	4,731	72,358	86,331	9.9
3	96	14,362	4,661	71,307	85,668	9.4
4	96	14,362	4,661	71,307	85,668	9.4

* The results for each TSL are calculated assuming that all consumers use equipment with that efficiency level. The PBP is measured relative to the baseline equipment.

Note: TSL 0 represents the baseline.

TABLE V.11—AVERAGE LCC SAVINGS RELATIVE TO THE NO-NEW-STANDARDS-CASE EFFICIENCY DISTRIBUTION FOR GAS-FIRED CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

TSL	Thermal efficiency (E _i) (%)	Life-cycle cost savings		
		Percentage of commercial consumers that experience a net cost (%)	Percentage of commercial consumers that experience a net benefit (%)	Average life-cycle cost savings* 2022\$
0	80	0	0	0
1	84	2	17	1,153
2	94	17	16	1,204
3	96	18	26	1,570
4	96	18	26	1,570

* The calculation includes affected consumers only.

Note: TSL 0 represents the baseline.

TABLE V.12—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR GAS-FIRED INSTANTANEOUS WATER HEATERS AND HOT WATER SUPPLY BOILERS *

TSL **	Thermal efficiency (E _t) (%)	Average costs 2022\$				Simple payback period years
		Installed cost	First year's operating cost	Lifetime operating cost	LCC	
0	80	6,021	3,211	47,561	53,582	.....
1	84	6,151	3,111	46,132	52,284	1.3
2	94	9,288	2,877	42,834	52,122	9.8
3	96	9,528	2,834	42,208	51,736	9.3
4	96	9,528	2,834	42,208	51,736	9.3

* This table shows results for the gas-fired instantaneous water heaters and hot water supply boilers equipment class (i.e., both tankless water heaters and hot water supply boilers), and reflects a weighted average result of Tables V.8 and V.10 of this final rule.

** The results for each TSL are calculated assuming that all consumers use equipment with that efficiency level. The PBP is measured relative to the baseline equipment.

Note: TSL 0 represents the baseline.

TABLE V.13—AVERAGE LCC SAVINGS RELATIVE TO THE NO-NEW-STANDARDS-CASE EFFICIENCY DISTRIBUTION FOR GAS-FIRED INSTANTANEOUS WATER HEATERS AND HOT WATER SUPPLY BOILERS *

TSL	Thermal efficiency (E _t) (%)	Life-cycle cost savings		
		Percentage of commercial consumers that experience a net cost (%)	Percentage of commercial consumers that experience a net benefit (%)	Average life-cycle cost savings ** 2022\$
0	80	0	0	0
1	84	1	17	756
2	94	14	14	695
3	96	17	27	898
4	96	17	27	898

* This table shows results for the gas-fired instantaneous water heaters and hot water supply boilers equipment class (i.e., both tankless water heaters and hot water supply boilers), and reflects a weighted average result of Tables V.9 and V.11 of this final rule.

** The calculation includes affected consumers only.

Note: TSL 0 represents the baseline.

b. Consumer Subgroup Analysis

In the consumer subgroup analysis, DOE estimated the impact of the considered TSLs on a low-income residential population (0–20 percentile gross annual household income) subgroup. Table V.14 through Table V.23 of this final rule compare the

average LCC savings and PBP at each efficiency level for the consumer subgroup, along with the average LCC savings for the entire consumer sample. In most cases, the average LCC savings and PBP for low-income residential consumers at the considered efficiency levels are either similar to or more favorable than the average for all

consumers, due in part to greater levels of equipment usage in RECS apartment building sample identified as low-income observations when compared to the average consumer of CWH equipment. Chapter 11 of the final rule TSD presents the complete LCC and PBP results for the subgroup analysis.

TABLE V.14—COMPARISON OF IMPACTS FOR CONSUMER SUBGROUP WITH ALL CONSUMERS, COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS

TSL	Thermal efficiency (E _t) (%)	Standby loss (SL) factor (%)	LCC savings (2022\$)		Simple payback period (years)	
			Residential low-income	All	Residential low-income	All
1	82	98	524	267	1.0	1.7
2	90	91	994	(85)	4.3	7.9
3	95	86	1,578	367	3.2	5.8
4	99	83	1,542	528	2.8	5.1

TABLE V.15—COMPARISON OF IMPACTED CONSUMERS FOR CONSUMER SUBGROUP AND ALL CONSUMERS, COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS

TSL	Thermal efficiency (E _t) (%)	Standby loss (SL) factor (%)	Percent of consumers that experience a net cost		Percent of consumers that experience a net benefit	
			Residential low-income	All	Residential low-income	All
1	82	98	0	3	34	32
2	90	91	10	19	27	18
3	95	86	6	17	46	35
4	99	83	4	23	95	76

TABLE V.16—COMPARISON OF IMPACTS FOR CONSUMER SUBGROUP WITH ALL CONSUMERS, RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

TSL	UEF	LCC savings (2022\$)		Simple payback period (years)	
		Residential low-income	All	Residential low-income	All
1	0.68	716	509	2.2	2.7
2	0.77	368	(80)	5.6	7.8
3	0.86	729	119	5.3	7.2
4	0.93	1,033	370	4.7	6.4

* Parentheses indicate negative values.

TABLE V.17—COMPARISON OF IMPACTED CONSUMERS FOR CONSUMER SUBGROUP AND ALL CONSUMERS, RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

TSL	UEF	Percent of consumers that experience a net cost		Percent of consumers that experience a net benefit	
		Residential low-income (%)	All	Residential low-income (%)	All
1	0.68	1	6	73	69
2	0.77	28	43	61	47
3	0.86	24	42	68	50
4	0.93	19	37	79	62

TABLE V.18—COMPARISON OF IMPACTS FOR CONSUMER SUBGROUP WITH ALL CONSUMERS, GAS-FIRED TANKLESS WATER HEATERS

TSL	Thermal efficiency (E _t) (%)	LCC savings 2022\$		Simple payback period (years)	
		Residential low-income	All	Residential low-income	All
1	84	217	295	1.7	1.3
2	94	26	105	10.2	9.3
3	96	49	120	9.9	8.9
4	96	49	120	9.9	8.9

TABLE V.19—COMPARISON OF IMPACTED CONSUMERS FOR CONSUMER SUBGROUP AND ALL CONSUMERS, GAS-FIRED TANKLESS WATER HEATERS

TSL	Thermal efficiency (E _t) (%)	Percent of consumers that experience a net cost		Percent of consumers that experience a net benefit	
		Residential low-income	All	Residential low-income	All
1	84	0	0	17	17
2	94	11	10	10	11
3	96	17	15	26	27
4	96	17	15	26	27

TABLE V.20—COMPARISON OF IMPACTS FOR CONSUMER SUBGROUP WITH ALL CONSUMERS, GAS-FIRED CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

TSL	Thermal efficiency (E _i) (%)	LCC savings 2022\$		Simple payback period (years)	
		Residential low-income	All	Residential low-income	All
1	84	2,289	1,153	0.7	1.3
2	94	7,552	1,204	5.6	9.9
3	96	7,425	1,570	5.3	9.4
4	96	7,425	1,570	5.3	9.4

TABLE V.21—COMPARISON OF IMPACTED CONSUMERS FOR CONSUMER SUBGROUP AND ALL CONSUMERS, GAS-FIRED CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

TSL	Thermal efficiency (E _i) (%)	Percent of consumers that experience a net cost		Percent of consumers that experience a net benefit	
		Residential low-income	All	Residential low-income	All
1	84	0	2	19	17
2	94	5	17	28	16
3	96	5	18	40	26
4	96	5	18	40	26

TABLE V.22—COMPARISON OF IMPACTS FOR CONSUMER SUBGROUP WITH ALL CONSUMERS, GAS-FIRED INSTANTANEOUS WATER HEATERS AND HOT WATER SUPPLY BOILERS *

TSL	Thermal efficiency (E _i) (%)	LCC savings (2022\$)		Simple payback period (years)	
		Residential low-income	All	Residential low-income	All
1	84	1,329	756	0.8	1.3
2	94	4,066	695	5.8	9.8
3	96	4,009	898	5.5	9.3
4	96	4,009	898	5.5	9.3

* This table shows results for the gas-fired instantaneous water heaters and hot water supply boilers equipment class (i.e., both tankless water heaters and hot water supply boilers), and reflects a weighted average result of Tables V.18 and V.20 of this final rule.

TABLE V.23—COMPARISON OF IMPACTED CONSUMERS FOR CONSUMER SUBGROUP AND ALL CONSUMERS, GAS-FIRED INSTANTANEOUS WATER HEATERS AND HOT WATER SUPPLY BOILERS *

TSL	Thermal efficiency (E _i) (%)	Percent of consumers that experience a net cost		Percent of consumers that experience a net benefit	
		Residential low-income	All	Residential low-income	All
1	84	0	1	18	17
2	94	8	14	20	14
3	96	10	17	33	27
4	96	10	17	33	27

* This table shows results for the gas-fired instantaneous water heaters and hot water supply boilers equipment class (i.e., both tankless water heaters and hot water supply boilers), and reflects a weighted average result of Tables V.19 and V.21 of this final rule.

c. Rebuttable Presumption Payback

As discussed in section II.A, EPCA establishes a rebuttable presumption that an energy conservation standard is economically justified if the increased purchase cost for a product that meets the standard is less than three times the value of the first-year energy savings resulting from the standard. In

calculating a rebuttable presumption PBP for each of the considered TSLs, DOE used discrete values, and, as required by EPCA, based the energy use calculation on the DOE test procedures for CWH equipment. In contrast, the PBPs presented in section V.B.1.a of this document were calculated using distributions that reflect the range of energy use in the field.

Table V.24 presents the rebuttable presumption PBPs for the considered TSLs for CWH equipment. TSL 1 is the only level at which the rebuttable presumption PBPs are less than or equal to three. See chapter 8 of the final rule TSD for more information on the rebuttable presumption PBP analysis.

TABLE V.24—REBUTTABLE PRESUMPTION PAYBACK PERIODS

Equipment	Trial standard level (years)			
	1	2	3	4
Commercial Gas-Fired Storage and Storage-Type Instantaneous Water Heaters	1.7	7.5	5.6	5.0
Residential-Duty Gas-Fired Storage	2.7	7.6	7.1	6.3
Gas-Fired Instantaneous Water Heaters and Hot Water Supply Boilers *	1.3	9.5	9.1	9.1
Instantaneous, Gas-Fired Tankless	1.3	8.7	8.4	8.4
Instantaneous Water Heaters and Hot Water Supply Boilers	1.3	9.6	9.1	9.1

* This row shows results for the gas-fired instantaneous water heaters and hot water supply boilers equipment class (i.e., both tankless water heaters and hot water supply boilers), and reflects a weighted average result.

2. Economic Impacts on Manufacturers

DOE performed an MIA to estimate the impact of amended energy conservation standards on manufacturers of CWH equipment. The next section describes the expected impacts on manufacturers at each considered TSL. Chapter 12 of the final rule TSD explains the analysis in further detail.

a. Industry Cash Flow Analysis Results

In this section, DOE provides GRIM results from the analysis, which examines changes in the industry that would result from a standard. Table V.25 through Table V.28 of this final rule summarize the estimated financial impacts of potential amended energy conservation standards on manufacturers of CWH equipment, as well as the conversion costs that DOE estimates manufacturers of CWH equipment would incur at each TSL.

The impact of potential amended energy conservation standards was analyzed under two markup scenarios: (1) the preservation of gross margin percentage markup scenario and (2) the preservation of per-unit operating profit markup scenario, as discussed in section IV.J.2.d of this document. The preservation of gross margin percentage scenario provides the upper bound while the preservation of operating profits scenario results in the lower (or more severe) bound to impacts of

potential amended standards on industry.

Each of the modeled scenarios results in a unique set of cash flows and corresponding INPV for each TSL. INPV is the sum of the discounted cash flows to the industry from the base year through the end of the analysis period (2023–2055). The “change in INPV” results refer to the difference in industry value between the no-new-standards case and standards case at each TSL. To provide perspective on the short-run cash flow impact, DOE includes a comparison of free cash flow between the no-new-standards case and the standards case at each TSL in the year before amended standards would take effect. This free cash flow comparison provides an understanding of the magnitude of the required conversion costs relative to the cash flow generated by the industry in the no-new-standards case.

Conversion costs are one-time investments for manufacturers to bring their manufacturing facilities and product designs into compliance with potential amended standards. As described in section IV.J.2.c of this document, conversion cost investments occur between the year of publication of the final rule and the year by which manufacturers must comply with the new standard. The conversion costs can have a significant impact on the short-term cash flow on the industry and

generally result in lower free cash flow in the period between the publication of the final rule and the compliance date of potential amended standards.

Conversion costs are independent of the manufacturer markup scenarios and are not presented as a range in this analysis.

The results in Table V.25 through Table V.28 of this final rule show potential INPV impacts for CWH equipment manufacturers by equipment class. The tables present the range of potential impacts reflecting both the less severe set of potential impacts (preservation of gross margin) and the more severe set of potential impacts (preservation of per-unit operating profit). In the following discussion, the INPV results refer to the difference in industry value between the no-new-standards case and each standards case that results from the sum of discounted cash flows from 2023 (the base year) through 2055 (the end of the analysis period).

Industry Cash Flow for Commercial Gas-Fired Storage Water Heaters and Storage-Type Instantaneous Equipment

The results in Table V.25 of this final rule shows the estimated impacts for commercial gas-fired storage water heaters. Commercial gas-fired storage water heaters represent approximately 69 percent of shipments covered by this rulemaking.

TABLE V.25—MANUFACTURING IMPACT ANALYSIS RESULTS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS

	Units	No-new-standards case	Trial standard level			
			1	2	3	4
INPV	2022\$ millions	154.2	153.3–154.0	139.1–142.7	130.4–136.5	62.0–73.1
Change in INPV	2022\$ millions		(0.9)–(0.1)	(15.0)–(11.4)	(23.7)–(17.6)	(92.1)–(81.0)
	%		(0.6)–(0.1)	(9.7)–(7.4)	(15.4)–(11.4)	(59.8)–(52.6)
Free Cash Flow (2025)	2022\$ millions	12.6	12.2	5.1	1.2	(34.4)
Change in Free Cash Flow	2022\$ millions		(0.4)	(7.5)	(11.5)	(47.1)
	%		(3.1)	(59.3)	(90.6)	(372.3)
Product Conversion Costs	2022\$ millions		1.0	4.9	10.9	84.1
Capital Conversion Costs	2022\$ millions		0.1	12.8	16.9	28.1

TABLE V.25—MANUFACTURING IMPACT ANALYSIS RESULTS FOR COMMERCIAL GAS-FIRED STORAGE WATER HEATERS AND STORAGE-TYPE INSTANTANEOUS WATER HEATERS—Continued

	Units	No-new-standards case	Trial standard level			
			1	2	3	4
Total Conversion Costs	2022\$ millions .....	.....	1.1	17.7	27.8	112.2

At TSL 1, DOE estimates impacts on INPV for commercial gas-fired storage and storage-type instantaneous water heater equipment manufacturers to range from -0.6 percent to -0.1 percent, or a change of -\$0.9 million to -\$0.1 million. At this level, DOE estimates that industry free cash flow would decrease by approximately 3.1 percent to \$12.2 million, compared to the no-new-standards-case value of \$12.6 million in the year before compliance (2025).

DOE estimates 67.3 percent of commercial gas-fired storage water heater and storage-type instantaneous water heater basic models meet or exceed the thermal efficiency and standby loss standards at TSL 1. DOE does not expect the modest increases in thermal efficiency and standby loss requirements at this TSL to require major equipment redesigns or large capital investments. Overall, DOE estimates that manufacturers would incur \$1.0 million in product conversion costs and \$0.1 million in capital conversion costs to bring their equipment portfolios into compliance with a standard set to TSL 1. At TSL 1, conversion costs are a key driver of results. These upfront investments result in a slightly lower INPV in both manufacturer markup scenarios.

At TSL 2, DOE estimates impacts on INPV for manufacturers of this equipment class to range from -9.7 percent to -7.4 percent, or a change in INPV of -\$15.0 million to -\$11.4 million. At this potential standard level, industry free cash flow would decrease by approximately 59.3 percent to \$5.1 million, compared to the no-new-standards case value of \$12.6 million in the year before compliance (2025).

DOE estimates 41 percent of commercial gas-fired storage water heater and storage-type instantaneous water heater basic models meet or exceed the thermal efficiency and standby loss standards at TSL 2. Product and capital conversion costs would increase at this TSL as manufacturers update designs, production equipment, and floor space to meet a thermal efficiency standard that necessitates condensing technology. DOE notes that capital investment would vary by manufacturer due to differences in

condensing heat exchanger designs and differences in existing production capacity. These capital conversion costs include, but are not limited to, investments in tube bending, press dies, machining, enameling, MIG welding, leak testing, quality assurance stations, and conveyer.

DOE estimates that industry would incur \$4.9 million in product conversion costs and \$12.8 million in capital conversion costs to bring their offered commercial gas-fired storage water heaters and storage-type instantaneous water heaters into compliance with a standard set to TSL 2. At TSL 2, conversion costs are a key driver of results. These upfront investments result in a lower INPV in both manufacturer markup scenarios.

At TSL 3, DOE estimates impacts on INPV for commercial gas-fired storage water heater and storage-type instantaneous water heater manufacturers to range from -15.4 percent to -11.4 percent, or a change in INPV of -\$23.7 million to -\$17.6 million. At this potential standard level, DOE estimates industry free cash flow would decrease by approximately 90.6 percent to \$1.2 million, compared to the no-new-standards-case value of \$12.6 million in the year before compliance (2025).

DOE estimates that 34 percent of currently offered commercial gas-fired storage water heater and storage-type instantaneous water heater basic models meet or exceed the thermal efficiency and standby loss standards at TSL 3. At this level, DOE estimates that product conversion costs would increase, as manufacturers would have to redesign a larger percentage of their offerings to meet the higher thermal efficiency levels. Additionally, capital conversion costs would increase, as manufacturers upgrade their laboratories and test facilities to increase capacity for product development and safety testing for their commercial gas-fired storage water heater and storage-type instantaneous water heater offerings. Overall, DOE estimates that manufacturers would incur \$10.9 million in product conversion costs and \$16.9 million in capital conversion costs to bring their commercial gas-fired storage water heater and storage-type

instantaneous water heater portfolio into compliance with a standard set to TSL 3. At TSL 3, conversion costs are a key driver of results. These upfront investments result in lower INPV in both manufacturer markup scenarios.

TSL 4 represents the max-tech thermal efficiency and standby loss levels. At TSL 4, DOE estimates impacts on INPV for commercial gas-fired storage water heater and storage-type instantaneous water heater manufacturers to range from -59.8 percent to -52.6 percent, or a change in INPV of -\$92.1 million to -\$81.0 million. At this TSL, DOE estimates industry free cash flow in the year before compliance (2025) would decrease by approximately 372.3 percent to -\$34.4 million compared to the no-new-standards case value of \$12.6 million.

The impacts on INPV at TSL 4 are significant. DOE estimates less than 1 percent of currently offered basic models meet or exceed the efficiency levels prescribed at TSL 4. DOE expects product conversion costs to be significant at TSL 4, as almost all equipment on the market would have to be redesigned. Furthermore, the redesign process would be more resource intensive and costly at TSL 4 than at other TSLs. Traditionally, manufacturers design their equipment platforms to support a range of models with varying input capacities and storage volumes, and the efficiency typically will vary slightly between models within a given platform. However, at TSL 4, manufacturers would be limited in their ability to maintain a platform approach to designing commercial gas-fired storage and storage-type instantaneous water heaters, because the 99 percent thermal efficiency level represents the maximum achievable efficiency and there would be no allowance for slight variations in efficiency between individual models. At TSL 4, manufacturers would be required to separately redesign each individual model to optimize performance for each specific input capacity and storage volume combination. In manufacturer interviews, some manufacturers raised concerns that they would not have sufficient engineering capacity to

complete necessary redesigns within the 3-year conversion period. If manufacturers require more than 3 years to redesign all models, they would likely prioritize redesigns based on sales volume. Due to the increase in number of redesigns and engineering effort, DOE estimates that product conversion costs would increase to \$84.1 million.

DOE estimates that manufacturers would also incur \$28.1 million in capital conversion costs. In addition to upgrading production lines, DOE

expects manufacturers would need to add laboratory space to develop and test products to meet amended standards at TSL 4 standards. These large upfront investments result in a substantially lower INPV in both manufacturer markup scenarios.

At TSL 4, the large conversion costs result in a free cash flow dropping below zero in the years before the standard year. The negative free cash flow calculation indicates manufacturers may need to access cash

reserves or outside capital to finance conversion efforts.

Industry Cash Flow for Residential-Duty Gas-Fired Storage Water Heaters

The results in Table V.26 of this final rule shows the estimated impacts for residential-duty gas-fired storage water heaters. Residential-duty gas-fired storage water heaters represent approximately 13.5 percent of shipments covered by this rulemaking.

TABLE V.26—MANUFACTURING IMPACT ANALYSIS RESULTS FOR RESIDENTIAL-DUTY GAS-FIRED STORAGE WATER HEATERS

	Units	No-new-standards case	Trial standard level			
			1	2	3	4
INPV	2022\$ millions	9.0	8.4–9.6	7.6–9.6	6.5–11.2	2.3–7.4
Change in INPV	2022\$ millions		(0.5)–0.6	(1.4)–0.7	(2.5)–2.2	(6.7)–(1.5)
	%		(5.8)–6.8	(15.3)–7.4	(27.3)–25.0	(74.7)–(16.9)
Free Cash Flow (2025)	2022\$ millions	0.7	0.5	0.2	(0.2)	(2.4)
Change in Free Cash Flow	2022\$ millions		(0.2)	(0.6)	(0.9)	(3.1)
	%		(26.9)	(78.8)	(125.6)	(429.9)
Product Conversion Costs	2022\$ millions		0.5	0.8	1.2	4.8
Capital Conversion Costs	2022\$ millions		0.1	0.7	1.0	2.5
Total Conversion Costs *	2022\$ millions		0.5	1.4	2.3	7.3

* Product conversion costs + capital conversion costs = total conversion costs. Numbers may not add up exactly due to rounding.

At TSL 1, DOE estimates impacts on INPV for residential-duty gas-fired storage equipment manufacturers to range from – 5.8 percent to 6.8 percent, or a change of –\$0.5 million to \$0.6 million. At this level, DOE estimates that industry free cash flow would decrease by approximately 26.9 percent to \$0.5 million, compared to the no-new-standards-case value of \$0.7 million in the year before compliance (2025).

DOE estimates that 50 percent of currently offered residential-duty gas-fired storage water heater basic models already meet or exceed the UEF standards at TSL 1. DOE does not expect the modest increases in UEF requirements at this TSL to require major equipment redesigns or large capital investments. Overall, DOE estimates that industry would incur \$0.5 million in product conversion costs and \$0.1 million in capital conversion costs to bring their residential-duty commercial gas-fired storage equipment portfolios into compliance with a standard set to TSL 1. At TSL 1, conversion costs are the primary driver of results. These upfront investments result in a moderately lower INPV for the preservation of operating profit scenario and a moderately higher INPV for the preservation of gross margin scenario.

At TSL 2, DOE estimates impacts on INPV for manufacturers of this equipment class to range from – 15.3 percent to 7.4 percent, or a change in INPV of –\$1.4 million to \$0.7 million. At this potential standard level, industry free cash flow would decrease by approximately 78.8 percent to \$0.2 million, compared to the no-new-standards case value of \$0.7 million in the year before compliance (2025).

DOE estimates that 32 percent of currently offered residential-duty gas-fired storage water heater basic models would already meet or exceed the UEF standards at TSL 2. Product and capital conversion costs would increase at this TSL. Manufacturers would meet the UEF levels for residential-duty commercial gas-fired storage equipment by shifting to condensing technology. DOE notes that the capital investment would vary by manufacturer due to differences in condensing heat exchanger designs and differences in existing production capacity.

DOE estimates that industry would incur \$0.8 million in product conversion costs and \$0.7 million in capital conversion costs to bring their residential-duty gas-fired storage water heaters into compliance with a standard set to TSL 2. At TSL 2, conversion costs continue to be the primary driver of results. These upfront investments

result in a lower INPV in both manufacturer markup scenarios.

At TSL 3, DOE estimates impacts on INPV for residential-duty gas-fired manufacturers to range from –27.3 percent to 25.0 percent, or a change in INPV of –\$2.5 million to \$2.2 million. At this potential standard level, DOE estimates industry free cash flow would decrease by approximately 125.6 percent to –\$0.2 million compared to the no-new-standards-case value of \$0.7 million in the year before compliance (2025).

DOE estimates that 27 percent of currently offered residential-duty commercial gas-fired storage water heater basic models would meet or exceed the UEF standards at TSL 3. At this level, DOE estimates that product conversion costs would increase, as manufacturers would have to redesign a larger percentage of their offerings to meet the higher UEF levels and transition to a complete portfolio of condensing offerings. Additionally, capital conversion costs would increase, as manufacturers increase production capacity for condensing equipment. Overall, DOE estimates that manufacturers would incur \$1.2 million in product conversion costs and \$1.0 million in capital conversion costs to bring their residential-duty commercial gas-fired storage water heater portfolio into compliance with a standard set to

TSL 3. At TSL 3, conversion costs are a key driver of results.

TSL 4 represents the max-tech UEF levels. At TSL 4, DOE estimates impacts on INPV for residential-duty commercial gas-fired storage water heater manufacturers to range from -74.7 percent to -16.9 percent, or a change in INPV of -\$6.7 million to -\$1.5 million. At this TSL, DOE estimates industry free cash flow in the year before compliance (2025) would decrease by approximately 429.9 percent to -\$2.4 million compared to the no-new-standards case value of \$0.7 million.

The impacts on INPV at TSL 4 are significant. DOE estimates that approximately 2 percent of currently offered residential-duty gas-fired water heater equipment meet or exceed the

efficiency levels prescribed at TSL 4. DOE expects conversion costs to be significant at TSL 4, as most equipment currently on the market would have to be redesigned and new products would have to be developed to meet a wider range of storage volumes. DOE estimates that product conversion costs would increase to \$4.8 million, as manufacturers would have to redesign a much larger percentage of their offerings to meet max-tech.

DOE estimates that manufacturers would also incur \$2.5 million in capital conversion costs. In addition to upgrading production lines, DOE accounted for the costs to add laboratory space to develop and safety test products that meet max-tech efficiency levels. At TSL 4, conversion costs are high. These upfront investments result

in a lower INPV in both manufacturer markup scenarios.

At TSL 4, the large conversion costs result in a free cash flow dropping below zero in the years before the standard year. The negative free cash flow calculation indicates manufacturers may need to access cash reserves or outside capital to finance conversion efforts.

Industry Cash Flow for Gas-Fired Instantaneous Tankless Water Heaters

The results in Table V.27 of this final rule shows the estimated impacts for gas-fired instantaneous tankless water heaters. Gas-fired instantaneous tankless water heaters represent approximately 8 percent of shipments covered by this rulemaking.

TABLE V.27—MANUFACTURING IMPACT ANALYSIS RESULTS FOR GAS-FIRED INSTANTANEOUS TANKLESS WATER HEATERS

	Units	No-new-standards case	Trial standard level			
			1	2	3	4
INPV	2022\$ millions	8.9	8.3–8.4	7.2–7.5	7.2–7.6	7.2–7.6
Change in INPV	2022\$ millions		(0.5)–(0.5)	(1.7)–(1.4)	(1.7)–(1.3)	(1.7)–(1.3)
	%		(6.0)–(5.6)	(18.6)–(15.6)	(19.0)–(14.2)	(19.0)–(14.2)
Free Cash Flow (2025)	2022\$ millions	0.6	0.3	(0.3)	(0.3)	(0.3)
Change in Free Cash Flow	2022\$ millions		(0.3)	(0.8)	(0.8)	(0.8)
	%		(46.7)	(145.6)	(146.0)	(146.0)
Product Conversion Costs	2022\$ millions		0.7	1.5	1.5	1.5
Capital Conversion Costs	2022\$ millions		0.0	0.7	0.7	0.7
Total Conversion Costs *	2022\$ millions		0.7	2.1	2.1	2.1

* Product conversion costs + capital conversion costs = total conversion costs. Numbers may not add up exactly due to rounding.

At TSL 1, DOE estimates impacts on INPV for gas-fired instantaneous tankless water heaters manufacturers to range from -6.0 percent to -5.6 percent, or a change of approximately -\$0.53 million to -\$0.50 million. At this level, DOE estimates that industry free cash flow would decrease by approximately -46.7 percent to \$0.3 million, compared to the no-new-standards-case value of \$0.6 million in the year before compliance (2025).

DOE estimates that 91 percent of basic models of gas-fired instantaneous tankless water heaters already meet or exceed the thermal efficiency standards at TSL 1. At this level, DOE expects manufacturers of this equipment class to incur product conversion costs to redesign their equipment. DOE does not expect the modest increases in thermal efficiency requirements at this TSL to require capital investments. Overall, DOE estimates that manufacturers would incur \$0.7 million in product conversion costs and no capital conversion costs to bring this equipment portfolio into compliance with a standard set to TSL 1. At TSL 1, product

conversion costs are the key driver of results. These upfront investments result in a lower INPV in both manufacturer markup scenarios.

At TSL 2, DOE estimates impacts on INPV ranges from -18.6 percent to -15.6 percent, or a change in INPV of -\$1.7 million to -\$1.4 million. At this potential standard level, DOE estimates industry free cash flow to decrease by approximately 145.6 percent to -\$0.3 million compared to the no-new-standards-case value of \$0.6 million in the year before compliance (2025).

DOE estimates that 86 percent of basic models of gas-fired instantaneous tankless water heaters already meet or exceed the thermal efficiency standards at TSL 2. DOE estimates that product and capital conversion costs would increase at this TSL. Manufacturers would meet the thermal efficiency levels by using condensing technology. DOE understands that tankless water heater manufacturers produce far more consumer products in significantly higher volumes than commercial offerings, and that these products are manufactured in the same facilities with

shared production lines. DOE expects manufacturers would need to make incremental investments rather than set up new production lines. Overall, DOE estimates that manufacturers would incur \$1.5 million in product conversion costs and \$0.7 million in capital conversion costs to bring their instantaneous gas-fired tankless water heater portfolio into compliance with a standard set to TSL 2.

As discussed in section V.A, TSL 3 and TSL 4 represent max-tech thermal efficiency levels for gas-fired instantaneous tankless water heaters. Therefore, DOE modeled identical impacts to manufacturers of this equipment for both TSL 3 and TSL 4. At these levels, DOE estimates impacts on INPV to range from -19.0 percent to -14.2 percent, or a change in INPV of -\$1.7 million to -\$1.3 million. At these levels, DOE estimates industry free cash flow in the year before compliance (2025) would decrease by approximately 146.0 percent to -\$0.3 million compared to the no-new-standards case value of \$0.6 million. DOE estimates that 64 percent of basic

models of gas-fired instantaneous tankless water heaters already meet or exceed the thermal efficiency standards at TSL 3 and TSL 4.

DOE anticipates modest product conversion costs as manufacturers continue to increase their max-tech offerings at greater input capacities. Overall, DOE estimates that

manufacturers would incur \$1.5 million in product conversion costs and \$0.7 million in capital conversion costs to bring their gas-fired instantaneous tankless portfolio into compliance with a standard set to TSL 3 and TSL 4.

Industry Cash Flow for Instantaneous Circulating Water Heaters and Hot Water Supply Boilers

The results in Table V.28 show the estimated impacts for circulating water heaters and hot water supply boilers. This equipment represents approximately 9 percent of shipments covered by this rulemaking.

TABLE V.28—MANUFACTURING IMPACT ANALYSIS RESULTS FOR CIRCULATING WATER HEATERS AND HOT WATER SUPPLY BOILERS

	Units	No-new-standards case	Trial standard level			
			1	2	3	4
INPV	2022\$ millions	40.8	40.6–40.7	36.3–43.6	30.9–39.7	30.9–39.7
Change in INPV	2022\$ millions		(0.2)–(0.0)	(4.4)–2.8	(9.9)–(1.1)	(9.9)–(1.1)
	%		(0.5)–(0.1)	(10.9)–7.0	(24.3)–(2.7)	(24.3)–(2.7)
Free Cash Flow (2025)	2022\$ millions	2.5	2.4	0.9	(1.5)	(1.5)
Change in Free Cash Flow	2022\$ millions		(0.1)	(1.6)	(4.1)	(4.1)
	%		(3.5)	(63.0)	(161.3)	(161.3)
Product Conversion Costs	2022\$ millions		0.3	1.9	8.5	8.5
Capital Conversion Costs	2022\$ millions		0.0	2.0	2.0	2.0
Total Conversion Costs	2022\$ millions		0.3	3.9	10.5	10.5

At TSL 1, DOE estimates impacts on INPV for instantaneous circulating water heater and hot water supply boiler manufacturers to range from – 0.2 percent to 0.1 percent, or a change of – \$0.2 million to less than 0.1 million. At this level, DOE estimates that industry free cash flow would decrease by approximately 3.5 percent to \$2.4 million, compared to the no-new-standards-case value of \$2.5 million in the year before compliance (2025).

DOE estimates that 58 percent of basic models of this equipment class already meet or exceed the thermal efficiency standards at TSL 1. At this level, DOE expects manufacturers of this equipment class to incur product conversion costs to redesign their equipment. DOE does not expect the modest increases in thermal efficiency requirements at this TSL to require capital investments. Overall, DOE estimates that manufacturers would incur \$0.3 million in product conversion costs and no capital conversion costs to bring this equipment portfolio into compliance with a standard set to TSL 1. At TSL 1, product conversion costs are the key driver of results. These upfront investments result in a slightly lower INPV for the preservation of operating profit scenario and an almost unchanged INPV for the preservation of gross margin scenario.

At TSL 2, DOE estimates impacts on INPV ranges from – 10.9 percent to 7.0 percent, or a change in INPV of – \$4.4 million to \$2.8 million. At this potential standard level, DOE estimates industry

free cash flow to decrease by approximately 63.0 percent to \$0.9 million compared to the no-new-standards-case value of \$2.5 million in the year before compliance (2025).

DOE estimates that 39 percent of basic models of this equipment class already meet or exceed the thermal efficiency standards at TSL 2. DOE estimates that product and capital conversion costs would increase at this TSL. Manufacturers would meet the thermal efficiency levels by using condensing technology. DOE anticipates that manufacturers will begin to incur some product conversion costs associated with design changes to reach condensing levels. Additionally, DOE anticipates manufacturers achieving condensing levels with additional purchased parts (*i.e.*, condensing heat exchanger, burner tube, blower, gas valve). DOE’s capital conversion costs reflect the incremental warehouse space required to store these additional purchased parts.

Overall, DOE estimates that industry would incur \$1.9 million in product conversion costs and \$2.0 million in capital conversion costs to bring their instantaneous circulating water heater and hot water supply boiler portfolio into compliance with a standard set to TSL 2.

As discussed in section V.A, TSL 3 and TSL 4 represent max-tech thermal efficiency levels for circulating water heater and hot water supply boiler equipment. Therefore, DOE modeled identical impacts to manufacturers of

this equipment for both TSL 3 and TSL 4. At these levels, DOE estimates impacts on INPV to range from – 24.3 percent to – 2.7 percent, or a change in INPV of – \$9.9 million to – \$1.1 million. DOE estimates industry free cash flow in the year before compliance (2025) would decrease by approximately 161.3 percent to – \$1.5 million compared to the no-new-standards case value of \$2.5 million. DOE estimates that 29 percent of basic models of this equipment class already meet or exceed the max-tech thermal efficiency standards at these TSLs.

b. Direct Impacts on Employment

To quantitatively assess the potential impacts of amended energy conservation standards on direct employment in the CWH equipment industry, DOE used the GRIM to estimate the domestic labor expenditures and number of direct employees in the no-new-standards case and in each of the standards cases during the analysis period. This analysis includes both production and non-production employees employed by CWH equipment manufacturers. DOE used statistical data from the U.S. Census Bureau 2021 Annual Survey of Manufacturers (“ASM”),¹⁷⁸ the results of the engineering analysis, and interviews with manufacturers to

¹⁷⁸ U.S. Census Bureau, 2018–2021 Annual Survey of Manufacturers: Statistics for Industry Groups and Industries (2021) Available at www.census.gov/programs-surveys/asm/data/tables.html (Last accessed December 16, 2022).

determine the inputs necessary to calculate industry-wide labor expenditures and domestic employment levels. Labor expenditures related to manufacturing of the product are a function of the labor intensity of the product, the sales volume, and an assumption that wages remain fixed in real terms over time.

The total labor expenditures in the GRIM are converted to domestic production worker employment levels by dividing production labor expenditures by the average fully burdened wage per production worker. DOE calculated the fully burdened wage by multiplying the industry production worker hourly blended wage (provided by the ASM) by the fully burdened wage ratio. The fully burdened wage ratio factors in paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. DOE determined the fully burdened ratio from the Bureau of Labor Statistic’s employee compensation data.¹⁷⁹ The estimates of production workers in this section cover workers, including line-supervisors who are directly involved in fabricating and assembling a product within the manufacturing facility.

Workers performing services that are closely associated with production operations, such as materials handling tasks using forklifts, are also included as production labor.

Non-production worker employment levels were determined by multiplying the industry ratio of production worker employment to non-production employment against the estimated production worker employment explained previously. Estimates of non-production workers in this section cover the line supervisors, sales, sales delivery, installation, office functions, legal, and technical employees.

The total direct employment impacts calculated in the GRIM are the sum of the changes in the number of domestic production and non-production workers resulting from the amended energy conservation standards for CWH equipment, as compared to the no-new-standards case. Typically, more efficient equipment is more complex and labor intensive to produce. Per-unit labor requirements and production time requirements trend higher with more stringent energy conservation standards.

DOE estimates that 92 percent of CWH equipment sold in the United

States is currently manufactured domestically. In the absence of amended energy conservation standards, DOE estimates that there would be 168 domestic production workers in the CWH industry in 2026, the year of compliance. DOE notes that Congress authorized \$250 million to Accelerate Electric Heat Pump Manufacturing in America utilizing the Defense Production Act. This program, funded by the Inflation Reduction Act (IRA), will increase use of electric heat pumps, which provide both heating and cooling for buildings and homes, will help lower energy costs for more American families and businesses, and create healthier indoor spaces through American-made clean energy technologies.

DOE’s analysis forecasts that the industry will employ 296 production and non-production workers in the CWH industry in 2026 in the absence of amended energy conservation standards. Table V.29 presents the potential impacts of amended energy conservation standards on U.S. production workers of CWH equipment.

TABLE V.29—DOMESTIC DIRECT EMPLOYMENT IMPACTS FOR CWH MANUFACTURERS IN 2026

	No-new standards case	1	2	3	4
Direct Employment in 2026 (Production Workers + Non-Production Workers	296	300	291	300	307
Changes in Direct Employment .....	.....	4	(5)	4	11

* Numbers in parentheses indicate negative numbers.

** This field presents impacts on domestic direct employment, which aggregates production and non-production workers. Based on ASM census data, DOE assumed the ratio of production to non-production employees stays consistent across all analyzed TSLs, which is 43 percent non-production workers.

In NOPR interviews conducted ahead of the 2016 NOPR notice, several manufacturers that produce high-efficiency CWH equipment stated that a standard that went to condensing levels could require them to hire more employees to increase their production capacity. Others stated that a condensing standard would require additional engineers to redesign CWH equipment and production processes. Due to different variations in manufacturing labor practices, actual direct employment could vary depending on manufacturers’ preference for high capital or high labor practices in response to amended standards. DOE notes that the employment impacts discussed here are independent of the indirect employment impacts to the broader U.S. economy, which are

documented in chapter 15 of the accompanying TSD.

c. Impacts on Manufacturing Capacity

As discussed in further detail in section IV.J.2.c of this document, DOE anticipates manufacturers would incur significant product conversion costs at TSL 4 (max-tech) for all gas-fired storage water heaters, gas-fired circulating water heaters, and hot water supply boilers. Because of the high conversion costs as this level, some manufacturers may not have the capacity to redesign the full range of equipment offerings in the 3-year conversion period. Instead, manufacturers would likely choose to offer a reduced selection of models to limit upfront investments.

Furthermore, none of the three largest manufacturers of commercial gas storage

water heaters produces equipment that can meet the thermal efficiency standard at TSL 4. Currently, only two models from a single manufacturer can meet the thermal efficiency standard at TSL 4. This manufacturer is a small business and does not have the production capacity to meet the demand for the entire industry’s shipments. Similarly, for residential-duty gas-fired storage water heaters, only one manufacturer offers models that can meet the UEF standard at TSL 4.

In written comments regarding TSL 3, two manufacturers with significant market share raised concerns about the ability to adapt products and update production capacity if standards for multiple equipment classes are set to max-tech. A.O. Smith raised concerns about the concurrent challenges of

¹⁷⁹ U.S. Bureau of Labor Statistics. *Employer Costs for Employee Compensation*. December 15,

2022. Available at www.bls.gov/news.release/pdf/ecec.pdf (Last accessed December 16, 2022).

commercial gas-fired instantaneous, circulating product, and hot water supply boilers all having a new minimum standard of 96 percent thermal efficiency. A.O. Smith stated manufacturers will need to quickly shift resources and make significant capital investments to redesign and build these product types to “max-tech” technology within 3 years ahead of compliance with a final rule. (A.O. Smith, No.22 at p.3) Rheem stated increasing the energy conservation standards for commercial water heaters to the proposed near max-tech condensing levels, could significantly reduce equipment offerings from various manufacturers and lessen competition. Rheem attributed the reduction on offerings to a combination of limited compliance period of three years, the magnitude of the equipment and manufacturing changes that would be required, and the number of other rulemakings similarly affecting the water heating industry—specifically the anticipated changes in the energy conservation standards for consumer water heaters, consumer boilers, and pool heaters. (Rheem, No. 24 at p.2)

d. Impacts on Subgroups of Manufacturers

Small manufacturers, niche equipment manufacturers, and

manufacturers exhibiting a cost structure substantially different from the industry average could be affected disproportionately. Using average cost assumptions developed for an industry cash-flow estimate is inadequate to assess differential impacts among manufacturer subgroups.

For the CWH equipment industry, DOE identified and evaluated the impact of amended energy conservation standards on one subgroup—small manufacturers. The SBA defines a “small business” as having 1,000 employees or fewer for NAICS code 333310, “Other Commercial and Service Industry Machinery Manufacturing.” Based on this definition, DOE identified three small, domestic manufacturers of the covered equipment that would be subject to amended standards.

For a discussion of the impacts on the small manufacturer subgroup, see the regulatory flexibility analysis in section VI.B of this document and chapter 12 of the final rule TSD.

e. Cumulative Regulatory Burden

One aspect of assessing manufacturer burden involves looking at the cumulative impact of multiple DOE standards and the regulatory actions of other Federal agencies and States that affect the manufacturers of a covered

product or equipment. While any one regulation may not impose a significant burden on manufacturers, the combined effects of several existing or impending regulations may have serious consequences for some manufacturers, groups of manufacturers, or an entire industry. Assessing the impact of a single regulation may overlook this cumulative regulatory burden. In addition to energy conservation standards, other regulations can significantly affect manufacturers’ financial operations. Multiple regulations affecting the same manufacturer can strain profits and lead companies to abandon product lines or markets with lower expected future returns than competing products. For these reasons, DOE conducts an analysis of cumulative regulatory burden as part of its rulemakings pertaining to appliance efficiency.

Rheem noted that the company faces cumulative regulatory burden from space conditioning and refrigeration rulemakings. (Rheem, No. 24 at p. 7) DOE identified DOE rulemakings affecting Rheem and other CWH manufacturer that are Federal, are product-specific, and that will take effect three years before or after the estimated 2026 compliance date (see Table V.30).

TABLE V.30—COMPLIANCE DATES AND EXPECTED CONVERSION EXPENSES OF FEDERAL ENERGY CONSERVATION STANDARDS AFFECTING COMMERCIAL WATER HEATER MANUFACTURERS

Federal energy conservation standard	Number of manufacturers *	Number of manufacturers affected from today's rule **	Approx. standards year	Industry conversion costs (millions \$)	Industry conversion costs/ product revenue † (%)
Commercial Warm Air Furnaces 81 FR 2420 (January 15, 2016)	14	2	2023	7.5–22.2 (2014\$)	1.7–5.1 ††
Residential Central Air Conditioners and Heat Pumps 82 FR 1786 (January 6, 2017)	30	3	2023	342.6 (2015\$)	0.5
Room Air Conditioners ‡ 87 FR 20608 (April 7, 2022)	30	1	2023	22.8 (2020\$)	0.5
Consumer Pool Heaters ‡ 87 FR 22640 (April 15, 2022)	21	3	2028	33.8 (2020\$)	1.9
Consumer Furnaces ‡ 87 FR 40590 (July 7, 2022)	15	1	2029	150.6 (2020\$)	1.4

* This column presents the total number of manufacturers identified in the energy conservation standard rule contributing to cumulative regulatory burden.
 ** This column presents the number of manufacturers producing CWH equipment that are also listed as manufacturers in the listed energy conservation standard contributing to cumulative regulatory burden.

† This column presents industry conversion costs as a percentage of product revenue during the conversion period. Industry conversion costs are the upfront investments manufacturers must make to sell compliant products/equipment. The revenue used for this calculation is the revenue from just the covered product/equipment associated with each row. The conversion period is the time frame over which conversion costs are made and lasts from the announcement year of the final rule to the standards year of the final rule. The conversion period typically ranges from 3 to 5 years, depending on the energy conservation standard.

†† Low and high conversion cost scenarios were analyzed as part of this direct final rule. The range of estimated conversion expenses presented here reflects those two scenarios.

‡ These rulemakings are in the proposed rule stage and all values are subject to change until finalized.

In written comments, AHRI and Bradford White listed several rulemakings that do not appear in Table V.31. (AHRI, No. 13 at pp. 5–6; Bradford White, No. 23 at p.7) DOE published a March 2022 ECS preliminary analysis for consumer water heaters, a May 2022 ECS preliminary analysis for consumer boilers, and an August 2022 NODA for commercial and industrial pumps. (87 FR 11327; 87 FR 26304; 87 FR 49537)

These rulemakings do not have final rules, nor do they have proposed standard levels or proposed compliance dates. Any estimation of cost or timing at this time would be speculative. DOE does not list test procedures in Table V.32. When applicable, test procedure costs are incorporated into the associated energy conservation standard rulemakings.

AHRI also identified the proposed rule for small electric motors as potential cumulative regulatory burden. DOE notes that those energy conservation standards for small electric motors do not apply to small electric motors that are components of other DOE-regulated products. (42 U.S.C. 6317(b)(3)) Additionally, the analysis for small electric motors takes into consideration important attributes of

motors that affect selection in end use applications.¹⁸⁰ DOE has not included the small electric motor rulemaking in its analysis of cumulative regulatory burden. AHRI also noted that the DOE rulemakings for Federal Commercial and Multi-family High-rise Residential Buildings and Federal Low-rise Residential Buildings Design and Construction may “indirectly affect” CWH manufacturers. The rulemakings do not directly regulate manufacturers of commercial water heaters and are not directly considered in the CRB analysis. However, DOE did account for these rules in its shipments analysis as described in section IV.G.4 of this document.

A.O. Smith noted that manufacturers will potentially make additional investments in response to the ENERGY STAR® program’s recent publication of its final residential water heater version 5.0 specification, which sets a ≥0.86 UEF value for gas-fired residential-duty commercial water heaters effective April 28, 2023. (A.O. Smith, No. 22 at p. 4) DOE does not consider voluntary programs, such as ENERGY STAR®, in its analysis of cumulative regulatory burden.

WM Technologies and Patterson-Kelley both noted that industry has limited resources to monitor and prepare for possible changes in

standards, and that the current regulatory push by the DOE and other Federal agencies is placing tremendous stress upon all industries, especially the heating industry. (WM Technologies, No. 25 at pp. 8–9; Patterson-Kelley, No. 26 at p. 6) DOE acknowledges the commenters concerns and has considered the impacts of this final rule on manufacturers as described throughout this section. Additionally, as noted in section II.A of this document, pursuant to EPCA, DOE is obligated by law to consider amending the energy efficiency standards for certain types of commercial and industrial equipment, including CWH equipment, whenever ASHRAE amends the standard levels or design requirements prescribed in ASHRAE/IES Standard 90.1, and at a minimum, every 6 years. (42 U.S.C. 6313(a)(6)(A)–(C)) DOE also notes that between March 2016 and January 2021, DOE missed legal deadlines for a range of rulemakings. In October 2020, a coalition of non-governmental organizations filed suit under EPCA alleging that DOE has failed to meet rulemaking deadlines for 25 different consumer products and commercial equipment. In September 2022, DOE settled the lawsuit over the missed rulemaking deadlines to review and update energy efficiency standards. As part of the court-approved settlement,

DOE has agreed to a schedule to review these regulations and, as appropriate, update them to improve efficiency requirements. DOE continues to evaluate the impact of rulemakings on manufacturers and welcomes input of the direct cost of monitoring possible changes in standards for incorporation into analyses.

3. National Impact Analysis

This section presents DOE’s estimates of the NES and the NPV of consumer benefits that would result from each of the TSLs considered as potential amended standards.

a. Significance of Energy Savings

To estimate the energy savings attributable to potential amended standards for CWH equipment, DOE compared their energy consumption under the no-new-standards case to their anticipated energy consumption under each TSL. The savings are measured over the entire lifetime of products purchased in the 30-year period that begins in the year of anticipated compliance with amended standards (2026–2055). Table V.33 presents DOE’s projections of the NES for each TSL considered for CWH equipment. The savings were calculated using the approach described in section IV.H of this document.

TABLE V.33—CUMULATIVE NATIONAL ENERGY SAVINGS FOR CWH EQUIPMENT; 30 YEARS OF SHIPMENTS [2026–2055]

	Trial standard level			
	1	2	3	4
	(Quads)			
Primary Energy				
Commercial gas-fired storage and storage-type instantaneous	0.03	0.16	0.25	0.43
Residential-duty gas-fired storage	0.04	0.08	0.12	0.14
Instantaneous gas-fired tankless	0.00	0.01	0.02	0.02
Instantaneous circulating water heaters and hot water supply boilers	0.02	0.19	0.23	0.23
Total Primary Energy	0.10	0.44	0.62	0.82
FFC Energy				
Commercial gas-fired storage and storage-type instantaneous	0.04	0.18	0.28	0.48
Residential-duty gas-fired storage	0.05	0.09	0.13	0.16
Instantaneous gas-fired tankless	0.00	0.02	0.02	0.02
Instantaneous circulating water heaters and hot water supply boilers	0.03	0.21	0.26	0.26
Total FFC Energy	0.12	0.49	0.70	0.92

¹⁸⁰DOE notes that on February 6, 2023, DOE issued a notice of proposed determination in which it initially determined that amended energy

conservation standards for small electric motors would not be cost-effective, and therefore proposed

not to amend its energy conservation standards for small electric motors. 88 FR 7629.

OMB Circular A-4¹⁸¹ requires agencies to present analytical results, including separate schedules of the monetized benefits and costs that show the type and timing of benefits and costs. Circular A-4 also directs agencies to consider the variability of key elements underlying the estimates of benefits and costs. For this rulemaking, DOE undertook a sensitivity analysis using 9 years, rather than 30 years, of

product shipments. The choice of a 9-year period is a proxy for the timeline in EPCA for the review of certain energy conservation standards and potential revision of and compliance with such revised standards.¹⁸² The review timeframe established in EPCA is generally not synchronized with the product lifetime, product manufacturing cycles, or other factors specific to commercial water heaters. Thus, such

results are presented for informational purposes only and are not indicative of any change in DOE's analytical methodology. The NES sensitivity analysis results based on a 9-year analytical period are presented in Table V.34. The impacts are counted over the lifetime of commercial water heaters purchased in 2026–2034.

TABLE V.34—CUMULATIVE NATIONAL ENERGY SAVINGS FOR CWH EQUIPMENT; 9 YEARS OF SHIPMENTS [2026–2034]

	Trial standard level			
	1	2	3	4
	(Quads)			
Primary Energy				
Commercial gas-fired storage and storage-type instantaneous	0.01	0.06	0.09	0.14
Residential-duty gas-fired storage	0.01	0.03	0.04	0.05
Instantaneous gas-fired tankless	0.00	0.00	0.00	0.00
Instantaneous circulating water heaters and hot water supply boilers	0.01	0.05	0.06	0.06
Total Primary Energy	0.03	0.13	0.19	0.25
FFC Energy				
Commercial gas-fired storage and storage-type instantaneous	0.01	0.06	0.10	0.16
Residential-duty gas-fired storage	0.01	0.03	0.04	0.05
Instantaneous gas-fired tankless	0.00	0.00	0.00	0.00
Instantaneous circulating water heaters and hot water supply boilers	0.01	0.05	0.06	0.06
Total FFC Energy	0.04	0.15	0.21	0.28

b. Net Present Value of Consumer Costs and Benefits

DOE estimated the cumulative NPV of the total costs and savings for

consumers that would result from the TSLs considered for CWH equipment. In accordance with OMB's guidelines on regulatory analysis,¹⁸³ DOE calculated NPV using both a 7-percent and a 3-

percent real discount rate. Table V.35 shows the consumer NPV results with impacts counted over the lifetime of equipment purchased in 2026–2055.

TABLE V.35—CUMULATIVE NET PRESENT VALUE OF CONSUMER BENEFITS FOR CWH EQUIPMENT; 30 YEARS OF SHIPMENTS [2026–2055]

Discount rate	Trial standard level*			
	1	2	3	4
	(billion 2022\$)			
3 percent				
Commercial gas-fired storage and storage-type instantaneous	0.15	0.41	0.81	1.51
Residential-duty gas-fired storage	0.16	0.17	0.27	0.38
Instantaneous gas-fired tankless	0.02	0.03	0.04	0.04
Instantaneous circulating water heaters and hot water supply boilers	0.08	0.18	0.30	0.30

¹⁸¹ United States Office of Management and Budget. *Circular A-4: Regulatory Analysis*. September 17, 2003. Available at www.whitehouse.gov/omb/information-for-agencies/circulars/ (last accessed December 13, 2022).

¹⁸² Section 325(m) of EPCA requires DOE to review its standards at least once every 6 years, and requires, for certain products, a 3-year period after

any new standard is promulgated before compliance is required, except that in no case may any new standards be required within 6 years of the compliance date of the previous standards. While adding a 6-year review to the 3-year compliance period adds up to 9 years, DOE notes that it may undertake reviews at any time within the 6 year period and that the 3-year compliance date may yield to the 6-year backstop. A 9-year analysis period may not be appropriate given the variability

that occurs in the timing of standards reviews and the fact that for some products, the compliance period is 5 years rather than 3 years.

¹⁸³ United States Office of Management and Budget. *Circular A-4: Regulatory Analysis*. September 17, 2003. Available at www.whitehouse.gov/omb/information-for-agencies/circulars/ (last accessed December 13, 2022).

TABLE V.35—CUMULATIVE NET PRESENT VALUE OF CONSUMER BENEFITS FOR CWH EQUIPMENT; 30 YEARS OF SHIPMENTS—Continued
[2026–2055]

Discount rate	Trial standard level *			
	1	2	3	4
(billion 2022\$)				
Total NPV at 3 percent	0.41	0.79	1.43	2.25
7 percent				
Commercial gas-fired storage and storage-type instantaneous	0.07	0.13	0.32	0.65
Residential-duty gas-fired storage	0.07	0.04	0.08	0.13
Instantaneous gas-fired tankless	0.01	0.01	0.01	0.01
Instantaneous circulating water heaters and hot water supply boilers	0.03	(0.02)	0.02	0.02
Total NPV at 7 percent	0.18	0.15	0.43	0.81

* A value in parentheses is a negative number.

The NPV results based on the aforementioned 9-year analytical period are presented in Table V.36. The impacts are counted over the lifetime of equipment purchased in 2026–2034. As mentioned previously, such results are presented for informational purposes only and are not indicative of any change in DOE’s analytical methodology or decision criteria.

TABLE V.36—CUMULATIVE NET PRESENT VALUE OF CONSUMER BENEFITS CWH EQUIPMENT; 9 YEARS OF SHIPMENTS
[2026–2034]

Discount rate	Trial standard level *			
	1	2	3	4
(billion 2022\$)				
3 percent				
Commercial gas-fired storage and storage-type instantaneous	0.07	0.04	0.20	0.47
Residential-duty gas-fired storage	0.06	0.02	0.06	0.10
Instantaneous gas-fired tankless	0.01	0.00	0.01	0.01
Instantaneous circulating water heaters and hot water supply boilers	0.03	0.04	0.08	0.08
Total NPV at 3 percent	0.16	0.10	0.35	0.66
7 percent				
Commercial gas-fired storage and storage-type instantaneous	0.04	(0.01)	0.09	0.26
Residential-duty gas-fired storage	0.04	(0.01)	0.01	0.04
Instantaneous gas-fired tankless	0.00	0.00	0.00	0.00
Instantaneous circulating water heaters and hot water supply boilers	0.01	(0.02)	0.00	0.00
Total NPV at 7 percent	0.10	(0.04)	0.11	0.30

* A value in parentheses is a negative number.

c. Indirect Impacts on Employment

DOE estimates that amended energy conservation standards for CWH equipment will reduce energy expenditures for consumers of this equipment, with the resulting net savings being redirected to other forms of economic activity. These expected shifts in spending and economic activity could affect the demand for labor. As described in section IV.N of this document, DOE used an input/output model of the U.S. economy to estimate indirect employment impacts of the TSLs that DOE considered. There are

uncertainties involved in projecting employment impacts, especially changes in the later years of the analysis. Therefore, DOE generated results for near-term timeframes (2026–2030), in which these uncertainties are reduced.

The results suggest that the adopted standards are likely to have a negligible impact on the net demand for labor in the economy. The net change in jobs is so small that it would be imperceptible in national labor statistics and might be offset by other, unanticipated effects on employment. Chapter 16 of the final

rule TSD presents detailed results regarding anticipated indirect employment impacts.

4. Impact on Utility or Performance of Products

As discussed in section III.F.1.d of this document, DOE has concluded that the standards adopted in this final rule will not lessen the utility or performance of the CWH equipment under consideration in this rulemaking. Manufacturers of these products currently offer units that meet or exceed the adopted standards.

5. Impact of Any Lessening of Competition

DOE considered any lessening of competition that would be likely to result from new or amended standards. As discussed in section III.F.1.e of this document, EPCA directs the Attorney General of the United States (“Attorney General”) to determine the impact, if any, of any lessening of competition likely to result from a proposed standard and to transmit such determination in writing to the Secretary within 60 days of the publication of a proposed rule, together with an analysis of the nature and extent of the impact. To assist the Attorney General in making this determination, DOE provided the Department of Justice (“DOJ”) with

copies of the proposed rule and the TSD for review. In its assessment letter responding to DOE, DOJ concluded that the proposed energy conservation standards for CWH equipment are unlikely to have a significant adverse impact on competition. DOE is publishing the Attorney General’s assessment at the end of this final rule.

6. Need of the Nation To Conserve Energy

Enhanced energy efficiency, where economically justified, improves the Nation’s energy security, strengthens the economy, and reduces the environmental impacts (costs) of energy production. Chapter 15 in the final rule TSD presents the estimated impacts on electricity generating capacity, relative

to the no-new-standards case, for the TSLs that DOE considered in this rulemaking.

Energy conservation resulting from potential energy conservation standards for CWH equipment is expected to yield environmental benefits in the form of reduced emissions of certain air pollutants and greenhouse gases. Table V.37 provides DOE’s estimate of cumulative emissions reductions expected to result from the TSLs considered in this rulemaking. The emissions were calculated using the multipliers discussed in section IV.K of this document. DOE reports annual emissions reductions for each TSL in chapter 13 of the final rule TSD. Table V.38 presents cumulative FFC emissions by equipment class.

TABLE V.37—CUMULATIVE EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

	Trial standard level			
	1	2	3	4
Power Sector Emissions				
CO ₂ (million metric tons)	5.7	23.9	33.5	44.0
SO ₂ (thousand tons)	(0.00)	0.02	0.08	0.15
NO _x (thousand tons)	5.07	21.16	29.54	38.71
Hg (tons)	(0.000)	(0.001)	(0.001)	(0.001)
CH ₄ (thousand tons)	0.11	0.48	0.68	0.90
N ₂ O (thousand tons)	0.011	0.047	0.067	0.089
Upstream Emissions				
CO ₂ (million metric tons)	0.8	3.3	4.7	6.1
SO ₂ (thousand tons)	0.00	0.01	0.02	0.03
NO _x (thousand tons)	13	53	74	97
Hg (tons)	(0.000)	(0.000)	(0.000)	(0.000)
CH ₄ (thousand tons)	82	342	478	627
N ₂ O (thousand tons)	0.001	0.006	0.008	0.011
Total FFC Emissions				
CO ₂ (million metric tons)	6.5	27.3	38.2	50.1
SO ₂ (thousand tons)	0.00	0.03	0.10	0.17
NO _x (thousand tons)	18	74	103	135
Hg (tons)	(0.000)	(0.001)	(0.001)	(0.001)
CH ₄ (thousand tons)	82	343	479	628
N ₂ O (thousand tons)	0.012	0.053	0.075	0.100

Negative values refer to an increase in emissions.

TABLE V.38—CUMULATIVE FFC EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055, BY EQUIPMENT CLASS

	Trial standard level			
	1	2	3	4
Total FFC Emissions, Commercial Gas Storage and Storage-Type Instantaneous				
CO ₂ (million metric tons)	2.0	9.8	15.5	26.0
SO ₂ (thousand tons)	0.01	(0.00)	0.03	0.10
NO _x (thousand tons)	5.5	26.7	42.0	70.3
Hg (tons)	0.0000	(0.0004)	(0.0003)	(0.0003)
CH ₄ (thousand tons)	25.5	123.8	194.8	326.0
N ₂ O (thousand tons)	0.004	0.019	0.030	0.052

TABLE V.38—CUMULATIVE FFC EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055, BY EQUIPMENT CLASS—Continued

	Trial standard level			
	1	2	3	4
Total FFC Emissions, Residential-Duty Gas-Fired Storage				
CO ₂ (million metric tons)	2.5	5.1	7.4	8.8
SO ₂ (thousand tons)	0.00	(0.01)	0.00	0.01
NO _x (thousand tons)	6.8	13.9	20.1	23.9
Hg (tons)	(0.0001)	(0.0003)	(0.0003)	(0.0003)
CH ₄ (thousand tons)	31.6	64.5	93.2	110.8
N ₂ O (thousand tons)	0.00	0.01	0.01	0.02
Total FFC Emissions, Instantaneous Gas-Fired Tankless				
CO ₂ (million metric tons)	0.3	0.9	1.1	1.1
SO ₂ (thousand tons)	0.00	0.01	0.01	0.01
NO _x (thousand tons)	0.71	2.30	3.05	3.05
Hg (tons)	0.0000	0.0000	0.0000	0.0000
CH ₄ (thousand tons)	3.29	10.63	14.11	14.11
N ₂ O (thousand tons)	0.00	0.00	0.00	0.00
Total FFC Emissions, Instantaneous Circulating Water Heaters and Hot Water Supply Boilers				
CO ₂ (million metric tons)	1.7	11.5	14.1	14.1
SO ₂ (thousand tons)	(0.02)	0.04	0.06	0.06
NO _x (thousand tons)	4.7	31.2	38.3	38.3
Hg (tons)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
CH ₄ (thousand tons)	21.7	143.9	176.7	176.7
N ₂ O (thousand tons)	0.00	0.02	0.03	0.03

Negative values refer to an increase in emissions.

As part of the analysis for this rule, DOE estimated monetary benefits likely to result from the reduced emissions of CO₂ that DOE estimated for each of the considered TSLs for CWH equipment. Section IV.L of this document discusses the estimated SC-CO₂ values that DOE used. Table V.39 presents the value of CO₂ emissions reduction at each TSL.

TABLE V.39—PRESENT VALUE OF CO₂ EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

TSL	SC-CO ₂ Case			
	Discount rate and statistics			
	5% Average	3% Average	2.5% Average	3% 95th percentile
	(million 2022\$)			
1	67	285	445	867
2	272	1,163	1,817	3,531
3	386	1,642	2,563	4,986
4	517	2,189	3,411	6,650

As discussed in section IV.L, DOE estimated the climate benefits likely to result from the reduced emissions of CH₄ and N₂O that DOE estimated for each of the considered TSLs for CWH equipment. Table V.40 presents the value of the CH₄ emissions reduction at each TSL, and Table V.41 presents the value of the N₂O emissions reduction at each TSL. The time-series of annual values is presented for the selected TSL in chapter 14 of the final rule TSD.

TABLE V.40—PRESENT VALUE OF METHANE EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

TSL	SC-CH ₄ Case			
	Discount rate and statistics			
	5% Average	3% Average	2.5% Average	3% 95th percentile
	(million 2022\$)			
1	39	114	159	303
2	159	469	653	1,241

TABLE V.40—PRESENT VALUE OF METHANE EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055—Continued

TSL	SC-CH ₄ Case			
	Discount rate and statistics			
	5% Average	3% Average	2.5% Average	3% 95th percentile
	(million 2022\$)			
3	224	659	917	1,745
4	300	874	1,214	2,315

TABLE V.41—PRESENT VALUE OF NITROUS OXIDE EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

TSL	SC-N ₂ O Case			
	Discount rate and statistics			
	5% Average	3% Average	2.5% Average	3% 95th percentile
	(million 2022\$)			
1	0.05	0.19	0.30	0.51
2	0.20	0.79	1.22	2.10
3	0.28	1.13	1.76	3.02
4	0.39	1.53	2.36	4.07

DOE is well aware that scientific and economic knowledge about the contribution of CO₂ and other GHG emissions to changes in the future global climate and the potential resulting damages to the global and U.S. economy continues to evolve rapidly. DOE, together with other Federal agencies, will continue to review methodologies for estimating the monetary value of reductions in CO₂ and other GHG emissions. This ongoing review will consider the comments on

this subject that are part of the public record for this and other rulemakings, as well as other methodological assumptions and issues. DOE notes, however, that the adopted standards would be economically justified, even without inclusion of monetized benefits of reduced GHG emissions.

DOE also estimated the monetary value of the economic benefits associated with NO_x and SO₂ emissions reductions anticipated to result from the considered TSLs for CWH equipment. The dollar-per-ton values that DOE used

are discussed in section IV.L of this document. Table V.42 presents the present value for NO_x emissions reduction for each TSL calculated using 7-percent and 3-percent discount rates, and Table V.43 presents similar results for SO₂ emissions reductions. The results in these tables reflect application of the low dollar-per-ton values, which DOE used to be conservative. Results that reflect high dollar-per-ton values are presented in chapter 14 of the final rule TSD.

TABLE V.42—PRESENT VALUE OF NO_x EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

TSL	3% Discount rate	7% Discount rate
	(million 2022\$)	
1	573	240
2	2,330	949
3	3,290	1,356
4	4,390	1,840

TABLE V.43—PRESENT VALUE OF SO₂ EMISSIONS REDUCTION FOR CWH EQUIPMENT SHIPPED IN 2026–2055

TSL	3% Discount rate	7% Discount rate
	(million 2022\$)	
1	(0.40)	(0.11)
2	(1.19)	(0.82)
3	1.87	0.51
4	5.38	2.10

DOE has not considered the monetary benefits of the reduction of Hg for this

final rule. Not all the public health and environmental benefits from the

reduction of greenhouse gases, NO_x, and SO₂ are captured in the values

above, and additional unquantified benefits from the reductions of those pollutants as well as from the reduction of Hg, direct particulate matter (“PM”), and other co-pollutants may be significant.

The benefits of reduced CO₂, CH₄, and N₂O emissions are collectively referred to as climate benefits. The benefits of reduced SO₂ and NO_x emissions are collectively referred to as health benefits. For the time-series of estimated monetary values of reduced emissions, see chapter 14 of the final rule TSD.

7. Other Factors

The Secretary of Energy, in determining whether a standard is

economically justified, may consider any other factors that the Secretary deems to be relevant. (42 U.S.C. 6313(a)(6)(B)(ii)(VII)) No other factors were considered in this analysis.

8. Summary of Economic Impacts

Table V.44 presents the NPV values that result from adding the estimates of the economic benefits resulting from reduced GHG and NO_x and SO₂ emissions to the NPV of consumer benefits calculated for each TSL considered in this rulemaking. The consumer benefits are domestic U.S. monetary savings that occur as a result of purchasing the covered commercial water heaters, and they are measured for

the lifetime of products shipped in 2026–2055. The climate benefits associated with reduced GHG emissions resulting from the adopted standards are global benefits, which are also calculated based on the lifetime of commercial water heaters shipped in 2026–2055. The climate benefits associated with four SC–GHG estimates are shown. DOE does not have a single central SC–GHG point estimate and it emphasizes the importance and value of considering the benefits calculated using all four SC–GHG estimates.

TABLE V.44—NPV OF CONSUMER BENEFITS COMBINED WITH CLIMATE AND HEALTH BENEFITS FROM EMISSIONS REDUCTIONS

Category	TSL 1	TSL 2	TSL 3	TSL 4
3% discount rate for NPV of Consumer and Health Benefits (billion 2022\$)				
5% d.r., Average SC–GHG case	1.09	3.55	5.33	7.46
3% d.r., Average SC–GHG case	1.38	4.75	7.02	9.71
2.5% d.r., Average SC–GHG case	1.59	5.59	8.20	11.27
3% d.r., 95th percentile SC–GHG case	2.15	7.89	11.46	15.61
7% discount rate for NPV of Consumer and Health Benefits (billion 2022\$)				
5% d.r., Average SC–GHG case	0.53	1.54	2.40	3.47
3% d.r., Average SC–GHG case	0.82	2.74	4.09	5.72
2.5% d.r., Average SC–GHG case	1.03	3.57	5.27	7.28
3% d.r., 95th percentile SC–GHG case	1.59	5.88	8.52	11.62

The national operating cost savings are domestic U.S. monetary savings that occur as a result of purchasing CWH equipment, and are measured for the lifetime of products shipped in 2026–2055. The benefits associated with reduced GHG emissions achieved as a result of the adopted standards are also calculated based on the lifetime of CWH equipment shipped in 2026–2055.

C. Conclusion

As noted previously, EPCA specifies that, for any commercial and industrial equipment addressed under 42 U.S.C. 6313(a)(6)(A)(i), DOE may prescribe an energy conservation standard more stringent than the level for such equipment in ASHRAE Standard 90.1, as amended, only if “clear and convincing evidence” shows that a more-stringent standard would result in significant additional conservation of energy and is technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(ii)(II)) In determining whether a standard is economically justified, the Secretary must determine whether the benefits of the standard exceed its burdens by, to the greatest extent practicable, considering the

seven statutory factors discussed previously. (42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII) and 42 U.S.C. 6313(a)(6)(C)(i))

For this final rule, DOE considered the impacts of amended standards for CWH equipment at each TSL, beginning with the max-tech level, to determine whether that level was economically justified. Where the max-tech level was not justified, DOE then considered the next most efficient level and undertook the same evaluation until it reached the highest efficiency level that is both technologically feasible and economically justified and saves a significant amount of energy.

To aid the reader as DOE discusses the benefits and/or burdens of each TSL, tables in this section present a summary of the results of DOE’s quantitative analysis for each TSL. In addition to the quantitative results presented in the tables, DOE also considers other burdens and benefits that affect economic justification. These include the impacts on identifiable subgroups of consumers who may be disproportionately affected by a national standard and impacts on employment.

DOE also notes that the economics literature provides a wide-ranging discussion of how consumers trade off upfront costs and energy savings in the absence of government intervention. Much of this literature attempts to explain why consumers appear to undervalue energy efficiency improvements. There is evidence that consumers undervalue future energy savings as a result of (1) a lack of information, (2) a lack of sufficient salience of the long-term or aggregate benefits, (3) a lack of sufficient savings to warrant delaying or altering purchases, (4) excessive focus on the short term, in the form of inconsistent weighting of future energy cost savings relative to available returns on other investments, (5) computational or other difficulties associated with the evaluation of relevant tradeoffs, and (6) a divergence in incentives (for example, between renters and owners, or builders and purchasers). Having less than perfect foresight and a high degree of uncertainty about the future, consumers may trade off these types of investments at a higher than expected rate between current consumption and uncertain future energy cost savings.

1. Benefits and Burdens of TSLs Considered for CWH Equipment Standards

Table V.45 and Table V.46 summarize the quantitative impacts estimated for each TSL for CWH equipment. The national impacts are measured over the lifetime of each class of CWH

equipment purchased in the 30-year period that begins in the anticipated year of compliance with amended standards (2026–2055). The energy savings, emissions reductions, and value of emissions reductions refer to full-fuel-cycle results. DOE is presenting monetized benefits in accordance with

the applicable Executive Orders and DOE would reach the same conclusion presented in this notice in the absence of the SC–GHG, including the Interim Estimates presented by the Interagency Working Group. The efficiency levels contained in each TSL are described in section V.A of this document.

TABLE V.45—SUMMARY OF ANALYTICAL RESULTS FOR CWH EQUIPMENT TSLs—NATIONAL IMPACTS

Category	TSL 1	TSL 2	TSL 3	TSL 4
Cumulative FFC National Energy Savings (quads)				
Commercial gas-fired storage and storage-type instantaneous	0.04	0.18	0.28	0.48
Residential-duty gas-fired storage	0.05	0.09	0.13	0.16
Instantaneous gas-fired tankless	0.00	0.02	0.02	0.02
Instantaneous circulating water heaters and hot water supply boilers	0.03	0.21	0.26	0.26
Total Quads	0.12	0.49	0.70	0.92
NPV of Consumer Costs and Benefits (billion 2022\$)				
NPV at 3% discount rate				
Commercial gas-fired storage and storage-type instantaneous	0.15	0.41	0.81	1.51
Residential-duty gas-fired storage	0.16	0.17	0.27	0.38
Instantaneous gas-fired tankless	0.02	0.03	0.04	0.04
Instantaneous circulating water heaters and hot water supply boilers	0.08	0.18	0.30	0.30
Total NPV at 3% (billion 2022\$)	0.41	0.79	1.43	2.25
NPV at 7% discount rate				
Commercial gas-fired storage and storage-type instantaneous	0.07	0.13	0.32	0.65
Residential-duty gas-fired storage	0.07	0.04	0.08	0.13
Instantaneous gas-fired tankless	0.01	0.01	0.01	0.01
Instantaneous circulating water heaters and hot water supply boilers	0.03	(0.02)	0.02	0.02
Total NPV at 7% (billion 2022\$)	0.18	0.15	0.43	0.81
Cumulative FFC Emissions Reduction (Total FFC Emissions)				
CO ₂ (million metric tons)	7	27	38	50
SO ₂ (thousand tons)	0.00	0.03	0.10	0.17
NO _x (thousand tons)	18	74	103	135
Hg (tons)	(0.000)	(0.001)	(0.001)	(0.001)
CH ₄ (thousand tons)	82	343	479	628
N ₂ O (thousand tons)	0.01	0.05	0.08	0.10
Present Value of Benefits and Costs (3% discount rate, billion 2022\$)				
Consumer Operating Cost Savings	0.51	1.87	2.76	3.83
Climate Benefits *	0.40	1.63	2.30	3.06
Health Benefits **	0.57	2.33	3.29	4.40
Total Benefits †	1.49	5.83	8.35	11.29
Consumer Incremental Product Costs ‡	0.10	1.08	1.33	1.58
Consumer Net Benefits	0.41	0.79	1.43	2.25
Total Net Benefits	1.38	4.75	7.02	9.71
Present Value of Benefits and Costs (7% discount rate, billion 2022\$)				
Consumer Operating Cost Savings	0.24	0.86	1.28	1.81
Climate Benefits *	0.40	1.63	2.30	3.06
Health Benefits **	0.24	0.95	1.36	1.84
Total Benefits †	0.88	3.44	4.94	6.71
Consumer Incremental Product Costs ‡	0.06	0.70	0.85	1.00
Consumer Net Benefits	0.18	0.15	0.43	0.81
Total Net Benefits	0.82	2.74	4.09	5.72

Note: This table presents the costs and benefits associated with commercial water heaters shipped in 2026–2055. These results include benefits to consumers which accrue after 2055 from the products shipped in 2026–2055.

* Climate benefits are calculated using four different estimates of the social cost of carbon (SC-CO₂), methane (SC-CH₄), and nitrous oxide (SC-N₂O) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate), as shown in Table V.39 through Table V.41. Together these represent the global social cost of greenhouse gases (SC-GHG). For presentational purposes of this table, the climate benefits associated with the average SC-GHG at a 3 percent discount rate are shown; however, DOE emphasizes the importance and value of considering the benefits calculated using all four sets of SC-GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

** Health benefits are calculated using benefit-per-ton values for NO_x and SO₂. DOE is currently only monetizing PM_{2.5} and (for NO_x) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct PM_{2.5} emissions. The health benefits are presented at real discount rates of 3 and 7 percent. See section IV.L of this document for more details.

† Total and net benefits include consumer, climate, and health benefits. For presentation purposes, total and net benefits for both the 3-percent and 7-percent cases are presented using the average SC-GHG with 3-percent discount rate.

‡ Costs include incremental equipment costs as well as installation costs.

TABLE V.46—SUMMARY OF ANALYTICAL RESULTS FOR CWH EQUIPMENT TSLs—MANUFACTURER AND CONSUMER IMPACTS

Category	TSL 1 *	TSL 2 *	TSL 3 *	TSL 4 *
Manufacturer Impacts: INPV (million 2022\$)				
Commercial gas-fired storage and storage-type instantaneous (No-new-standards case INPV = 154.2)	153.3–154.0	139.1–142.7	130.4–136.5	62.0–73.1
Residential-duty gas-fired storage (No-new-standards case INPV = 9.0)	8.4–9.6	7.6–9.6	6.5–11.2	2.3–7.4
Instantaneous gas-fired tankless (No-new-standards case INPV = 8.9)	8.3–8.4	7.2–7.5	7.2–7.6	7.2–7.6
Instantaneous circulating water heaters and hot water supply boilers (No-new-standards case INPV = 40.8)	40.6–40.7	36.3–43.6	30.9–39.7	30.9–39.7
Total INPV (\$) (No-new-standards case INPV = 212.8)	210.7–212.7	190.3–203.5	175.1–195.1	102.7–128.1
Manufacturer Impacts: Industry NPV (% Change)				
Commercial gas-fired storage and storage-type instantaneous	(0.6)–(0.1)	(9.7)–(7.4)	(15.4)–(11.4)	(59.8)–(52.6)
Residential-duty gas-fired storage	(5.8)–6.8	(15.3)–7.4	(27.3)–25.0	(74.7)–(16.9)
Instantaneous gas-fired tankless	(6.0)–(5.6)	(18.6)–(15.6)	(19.0)–(14.2)	(19.0)–(14.2)
Instantaneous circulating water heaters and hot water supply boilers	(0.5)–(0.1)	(10.9)–7.0	(24.3)–(2.7)	(24.3)–(2.7)
Total INPV (% change)	(1.0)–(0.0)	(10.6)–(4.4)	(17.7)–(8.3)	(51.8)–(39.8)
Consumer Average LCC Savings (2022\$)				
Commercial Gas-Fired Storage and Storage-type Instantaneous Water Heaters	267	(85)	367	528
Residential-Duty Gas-Fired Storage	509	(80)	119	370
Gas-Fired Instantaneous Water Heaters and Hot Water Supply Boilers	756	695	898	898
—Instantaneous, Gas-Fired Tankless	295	105	120	120
—Instantaneous Water Heaters and Hot Water Supply Boilers	1,153	1,204	1,570	1,570
Shipment-Weighted Average *	384	49	423	569
Consumer Simple PBP (years)				
Commercial Gas-Fired Storage and Storage-type Instantaneous Water Heaters	2	8	6	5
Residential-Duty Gas-Fired Storage	3	8	7	6
Gas-Fired Instantaneous Water Heaters and Hot Water Supply Boilers	1	10	9	9
—Instantaneous, Gas-Fired Tankless	1	9	9	9
—Instantaneous Water Heaters and Hot Water Supply Boilers	1	10	9	9
Shipment-Weighted Average *	2	8	7	6
Percent of Consumers that Experience a Net Cost				
Commercial Gas-Fired Storage and Storage-type Instantaneous Water Heaters	3	19	17	23
Residential-Duty Gas-Fired Storage	6	43	42	37
Gas-Fired Instantaneous Water Heaters and Hot Water Supply Boilers	1	14	17	17
—Instantaneous, Gas-Fired Tankless	0	10	15	15
—Instantaneous Water Heaters and Hot Water Supply Boilers	2	17	18	18
Shipment-Weighted Average *	3	21	21	24

Parentheses indicate negative (–) values.

* Weighted by shares of each equipment class in total projected shipments in 2026.

DOE first considered TSL 4, which represents the max-tech efficiency levels. At this TSL, the Secretary has determined that the benefits are outweighed by the burdens, as discussed in detail in the following paragraphs.

TSL 4 would save an estimated 0.92 quads of energy, an amount DOE considers significant. Commercial gas-fired storage water heaters and storage-type instantaneous water heaters save

an estimated 0.48 quads while residential-duty gas-fired storage equipment saves 0.16 quads of energy. Instantaneous gas-fired tankless water heaters are estimated to save 0.02 quads of energy, while instantaneous circulating water heaters and hot water supply boilers save an estimated 0.26 quads.

Under TSL 4, the NPV of consumer benefit would be \$0.81 billion using a discount rate of 7 percent, and \$2.25

billion using a discount rate of 3 percent. Much of the consumer benefit is provided by the commercial gas-fired storage water heaters and storage-type instantaneous water heaters, totaling an estimated \$0.65 billion using a 7-percent discount rate, and \$1.51 billion using a 3-percent discount rate. The consumer benefit for residential-duty gas-fired storage water heaters is estimated to be \$0.13 billion at a 7-percent discount rate and \$0.38 billion

at a 3-percent discount rate. The consumer benefit for instantaneous gas-fired tankless water heaters is estimated to be \$0.01 billion at a 7-percent discount rate and \$0.04 at a 3-percent discount rate, and the consumer benefit for instantaneous circulating water heaters and hot water supply boilers is estimated to be \$0.02 billion at a 7-percent discount rate and \$0.30 billion at a 3-percent discount rate.

The cumulative emissions reductions at TSL 4 are 50 million metric tons of CO₂, 0.17 thousand tons of SO₂, 135 thousand tons of NO_x, -0.001 ton of Hg, 628 thousand tons of CH₄, and 0.10 thousand tons of N₂O. The estimated monetary value of the climate benefits from reduced GHG emissions (associated with the average SC-GHG at a 3-percent discount rate) at TSL 4 is \$3.06 billion. The estimated monetary value of the health benefits from reduced NO_x and SO₂ emissions at TSL 4 is \$1.84 billion using a 7-percent discount rate and \$4.40 billion using a 3-percent discount rate.

Using a 7-percent discount rate for consumer benefits and costs, health benefits from reduced SO₂ and NO_x emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated total NPV at TSL 4 is \$5.72 billion. Using a 3-percent discount rate for all benefits and costs, the estimated total NPV at TSL 4 is \$9.71 billion. The estimated total NPV is provided for additional information; however, DOE primarily relies upon the NPV of consumer benefits when determining whether a proposed standard level is economically justified.

At TSL 4, the average LCC impact is a savings of \$528 for commercial gas-fired storage and storage-type instantaneous water heaters, \$370 for residential-duty gas-fired storage water heaters, \$120 for instantaneous gas-fired instantaneous water heaters, and \$1,570 for instantaneous circulating water heaters and hot water supply boilers. The simple PBP is 5 years for commercial gas-fired storage water heaters, 6 years for residential-duty gas-fired storage water heaters, 9 years for instantaneous gas-fired tankless water heaters, and 9 years for instantaneous circulating water heaters and hot water supply boilers. The fraction of consumers experiencing a net LCC cost is 23 percent for commercial gas-fired storage water heaters and storage-type instantaneous water heaters, 37 percent for residential-duty gas-fired storage water heaters, 15 percent for instantaneous gas-fired tankless water heaters, and 18 percent for

instantaneous circulating water heaters and hot water supply boilers.

At TSL 4, the projected change in manufacturer INPV ranges from a decrease of \$110.1 million to a decrease of \$84.6 million, which corresponds to decreases of 51.8 percent and 39.8 percent, respectively. Conversion costs total \$132.2 million.

Commercial gas-fired storage water heaters and storage-type instantaneous equipment currently account for approximately 68 percent of current unit shipments in the CWH industry. The projected change in manufacturer INPV for commercial gas-fired storage water heaters and storage-type instantaneous equipment ranges from a decrease of \$92.1 million to a decrease of \$81.0 million, which corresponds to decreases of 59.8 percent and 52.6 percent, respectively. The potentially large negative impacts on INPV are largely driven by industry conversion costs. In particular, there are substantial increases in product conversion costs at TSL 4 for commercial gas-fired storage water heaters and storage-type instantaneous equipment manufacturers. There are several factors that lead to high product conversion costs for this equipment.

Currently, only two models of this equipment type from a single manufacturer can meet a 99 percent thermal efficiency standard, which represents less than 1 percent of the commercial gas-fired storage water heaters and storage-type instantaneous equipment models currently offered on the market. The two models both have an input capacity of 300,000 Btu/h and share a similar design. The manufacturer of these models is a small business with less than 1 percent market share in the commercial gas storage water heater market. The company's ability to ramp-up production capacity at 99 percent thermal efficiency to serve a significantly larger portion of the market is unclear.

Nearly all existing models would need to be redesigned to meet a 99 percent thermal efficiency standard. Traditionally, manufacturers design their equipment platforms to support a range of models with varying input capacities and storage volumes, and the efficiency typically will vary slightly between models within a given platform. However, at TSL 4, manufacturers would not be able to maintain a platform approach to designing commercial gas-fired storage water heaters because the 99 percent thermal efficiency level represents the maximum achievable efficiency and there would be no allowance for slight variations in efficiency between

individual models. At TSL 4, manufacturers would be required to individually redesign each model to optimize performance for one specific input capacity and storage volume combination. As a result, the industry's level of engineering effort and investment would grow significantly. In manufacturer interviews, some manufacturers raised concerns that they would not have sufficient engineering capacity to complete necessary redesigns within the 3-year conversion period. If manufacturers require more than 3 years to redesign all models, they would likely prioritize redesigns based on sales volume. There is risk that some models become unavailable, either temporarily or permanently.

Product conversion costs for commercial gas-fired storage water heaters and storage-type instantaneous equipment are expected to reach \$84.1 million over the 3-year conversion period. These investment levels are six times greater than typical R&D spending on this equipment class over a three-year period. Compliance with DOE standards could limit other engineering and innovation efforts, such as developing heat pump water heaters for the commercial market, during the conversion period beyond compliance with amended energy conservation standards.

Residential-duty gas-fired storage water heaters account for approximately 14 percent of current unit shipments in the CWH industry. At TSL 4, the projected change in INPV for residential-duty gas-fired storage water heaters ranges from a decrease of \$6.7 million to a decrease of \$1.5 million, which corresponds to decreases of 74.7 percent and 16.9 percent, respectively. Conversion costs total \$7.3 million.

The drivers of negative impacts on INPV for residential-duty gas-fired storage water heaters are largely identical to those identified for the commercial gas-fired storage water heaters. At TSL 4, there is only one manufacturer with a compliant model at this standard level. This represents less than 2 percent of models currently offered in the market. Product conversion costs are expected to reach \$4.8 million over the conversion period as manufacturers have to optimize designs for each specific input capacity and storage volume combination.

Instantaneous gas-fired tankless water heaters account for approximately 9 percent of current unit shipments in the CWH industry. At TSL 4, the projected change in manufacturer INPV for instantaneous gas-fired tankless water heaters ranges from a decrease of \$1.7 million to a decrease of \$1.3 million,

which corresponds to decreases of 19.0 percent and 14.2 percent, respectively. Conversion costs total \$2.1 million.

At TSL 4, approximately 64 percent of currently offered instantaneous gas-fired tankless water heaters models would meet TSL 4 today. While most manufacturers have some compliant models, manufacturers would likely develop cost-optimized models to compete in a market where energy efficiency provides less product differentiation. Product conversion cost are expected to reach \$1.5 million.

Instantaneous circulating water heaters and hot water supply boilers account for approximately 10 percent of current unit shipments in the CWH industry. At TSL 4, the projected change in manufacturer INPV for instantaneous circulating water heaters and hot water supply boilers ranges from a decrease of \$9.9 million to a decrease of \$1.1 million, which corresponds to decreases of 24.3 percent and 2.7 percent, respectively. Conversion cost total \$10.5 million.

At TSL 4, approximately 29 percent of instantaneous circulating water heaters and hot water supply boilers models would meet TSL 4 today. DOE notes that industry offers a large number of models to fit a wide range of installation requirements despite relatively low shipment volumes. Product conversion cost are expected to reach \$8.5 million.

The Secretary concludes that at TSL 4 for CWH equipment, the benefits of energy savings, positive NPV of consumer benefits, emission reductions, and the estimated monetary value of the emissions reductions would be outweighed by the economic burden on some consumers and the impacts on manufacturers, including the potentials for large conversion costs, reduced equipment availability, delayed technology innovation, and substantial reductions in INPV. As previously noted, only one small manufacturer currently produces commercial gas-fired storage water heaters at TSL 4.

Similarly, only one manufacturer currently produces residential-duty gas-fired water heaters at that level. In light of substantial conversion costs, it is unclear whether a sufficient quantity of other manufacturers would undertake the conversions necessary to offer a competitive range of products across the range of sizes and applications required for gas-fired storage water heaters. Consequently, the Secretary has concluded that the current record does not provide a clear and convincing basis to conclude that TSL 4 is economically justified.

DOE then considered TSL 3, which would save an estimated 0.70 quads of

energy, an amount DOE also considers significant. Commercial gas-fired storage and storage-type instantaneous water heaters are estimated to save 0.28 quads while residential-duty gas-fired storage water heaters are estimated to save 0.13 quads of energy. Instantaneous gas-fired tankless water heaters are estimated to save 0.02 quads. Instantaneous circulating gas-fired water heaters and hot water supply boilers are estimated to save 0.26 quads of energy.

Under TSL 3, the NPV of consumer benefit would be \$0.43 billion using a discount rate of 7 percent, and \$1.43 billion using a discount rate of 3 percent. Benefits to consumers of commercial gas-fired storage and storage-type instantaneous equipment are estimated to be \$0.32 billion using a discount rate of 7 percent, and \$0.81 billion using a discount rate of 3 percent. Consumer benefits for residential-duty gas-fired storage equipment are estimated to be \$0.08 billion dollars at a 7-percent discount rate and \$0.27 billion at a 3-percent discount rate. Benefits to consumers of instantaneous gas-fired tankless water heaters are estimated to be \$0.01 billion at a 7-percent discount rate and \$0.04 billion at a 3-percent discount rate, and consumer benefits for instantaneous circulating gas-fired water heaters and hot water supply boilers are estimated to be \$0.02 billion at a 7-percent discount rate and 0.30 billion at a 3-percent discount rate.

The cumulative emissions reductions at TSL 3 are 38 million metric tons of CO₂, 0.10 thousand tons of SO₂, 103 thousand tons of NO_x, -0.001 tons of Hg, 479 thousand tons of CH₄, and 0.08 thousand tons of N₂O. The estimated monetary value of the climate benefits from reduced GHG emissions reduction (associated with the average SC-GHG at a 3-percent discount rate) at TSL 3 is \$2.30 billion. The estimated monetary value of the health benefits from reduced NO_x and SO₂ emissions at TSL 3 is \$1.36 billion using a 7-percent discount rate and \$3.29 billion using a 3-percent discount rate.

Using a 7-percent discount rate for consumer benefits and costs, health benefits from reduced SO₂ and NO_x emissions, and the 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated total NPV at TSL 3 is \$4.09 billion. Using a 3-percent discount rate for all benefits and costs, the estimated total NPV at TSL 3 is \$7.02 billion. The estimated total NPV is provided for additional information; however, DOE primarily relies upon the NPV of consumer benefits when determining

whether a proposed standard level is economically justified.

At TSL 3, the average LCC impact is a savings of \$367 for commercial gas-fired storage and storage-type instantaneous water heaters, \$119 for residential-duty gas-fired storage water heaters, \$120 for instantaneous gas-fired tankless water heaters, and \$1,570 for instantaneous circulating water heaters and hot water supply boilers. The simple PBP is 6 years for commercial gas-fired storage water heaters, 7 years for residential-duty gas-fired storage water heaters, 9 years for instantaneous gas-fired tankless water heaters, and 9 years for instantaneous circulating water heaters and hot water supply boilers. The fraction of consumers experiencing a net LCC cost is 17 percent for commercial gas-fired storage water heaters, 42 percent for residential-duty gas-fired storage water heaters, 15 percent for instantaneous gas-fired tankless water heaters, and 18 percent for instantaneous circulating water heaters and hot water supply boilers.

At TSL 3, the projected change in manufacturer INPV ranges from a decrease of \$37.6 million to a decrease of \$17.7 million, which corresponds to decreases of 17.7 percent and 8.3 percent, respectively. Conversion costs total \$42.7 million.

At TSL 3, nearly all commercial gas-fired storage water heaters and storage-type instantaneous equipment manufacturers have models at a range of input capacities and storage volumes that can meet 95 percent thermal efficiency. Approximately 34 percent of commercial gas-fired storage water heaters and storage-type instantaneous models currently offered would meet TSL 3 today. Additionally, an amended standard at TSL 3 would allow manufacturers to design equipment platforms that support a range of models with varying input capacities and storage volumes, rather than having to optimize designs for each individual input capacity and storage volume combinations.

The change in INPV for commercial gas-fired storage water heaters and storage-type instantaneous equipment ranges from a decrease of \$23.7 million to a decrease of \$17.6 million, which corresponds to decreases of 15.4 percent and 11.4 percent, respectively. Product conversion costs are \$10.9 million and capital conversion costs are \$16.9 million, for a total of approximately \$27.8 million. At this level, product conversion costs are typical of R&D spending over the conversion period.

At TSL 3, multiple residential-duty gas-fired storage water heater manufacturers offer models at a range of

input capacities and storage volumes that can meet a UEF standard at this level today. Approximately 34 percent of current residential-duty gas-fired storage water heater models would meet TSL 3. An amended standard at TSL 3 would allow manufacturers to design equipment platforms that support a range of models with varying input capacities and storage volumes, rather than having to optimize designs for each individual input capacity and storage volume combination.

The projected change in INPV for residential-duty gas-fired storage water heaters ranges from a decrease of \$2.5 million to an increase of \$2.2 million, which corresponds to a decrease of 27.3 percent and an increase of 25.0 percent, respectively. DOE expects conversion costs for this equipment class to reach \$2.3 million.

At TSL 3, approximately 64 percent of instantaneous gas-fired tankless water heaters models would meet TSL 3 today. The projected change in manufacturer INPV for instantaneous gas-fired tankless water heaters ranges from a decrease of \$1.7 million to a decrease of \$1.3 million, which corresponds to decreases of 19.0 percent and 14.2 percent, respectively. Conversion costs total \$2.1 million.

At TSL 3, approximately 39 percent of instantaneous circulating water heaters and hot water supply boilers models would meet TSL 3 today. The projected change in manufacturer INPV for instantaneous circulating water heaters and hot water supply boilers ranges from a decrease of \$9.9 million to a decrease of \$1.1 million, which corresponds to decreases of 24.3 percent and 2.7 percent, respectively. Conversion cost total \$10.5 million.

After considering the analysis and weighing the benefits and burdens, the Secretary concludes that a standard set at TSL 3 for CWH equipment would be economically justified. Notably, the benefits to consumers vastly outweigh the cost to manufacturers. At TSL 3, the NPV of consumer benefits, even measured at the more conservative

discount rate of 7 percent, is 1,000 percent higher than the maximum of manufacturers' loss in INPV. The positive average LCC savings—a different way of quantifying consumer benefits—reinforces this conclusion. The economic justification for TSL 3 is clear and convincing even without weighing the estimated monetary value of emissions reductions. When those emissions reductions are included—representing \$2.3 billion in climate benefits (associated with the average SC-GHG at a 3-percent discount rate), and \$3.3 billion (using a 3-percent discount rate) or \$1.4 billion (using a 7-percent discount rate) in health benefits—the rationale becomes stronger still. DOE notes, however, that it would reach the same conclusion presented in this rule in the absence of the estimated SC-GHG benefits, based on the February 2021 Interim Estimates presented by the IWG.

As stated, DOE conducts the walk-down analysis to determine the TSL that represents the maximum improvement in energy efficiency that is technologically feasible and economically justified as required under EPCA. Although DOE has not conducted a comparative analysis to select the amended energy conservation standards, DOE notes at TSL 3 the conversion cost impacts for commercial gas storage and residential-duty gas-fired storage water heaters are less severe than TSL 4. For commercial gas storage water heaters, nearly all manufacturers have equipment that can meet TSL 3 across a range of input capacities and storage volumes. Similarly, for residential-duty commercial gas water heaters, multiple manufacturers currently produce equipment meeting TSL 3. The concerns of manufacturers being unable to offer a competitive range of equipment across the range of input capacities and storage volumes currently offered would be mitigated at TSL 3.

Although DOE considered proposed amended standard levels for CWH equipment by grouping the efficiency

levels for each equipment category into TSLs, DOE evaluates all analyzed efficiency levels in its analysis. For commercial gas instantaneous water heaters (including tankless and circulating/hot water supply boilers), TSL 3 (*i.e.*, the proposed TSL) includes the max-tech efficiency levels, which is the maximum level determined to be technologically feasible. For commercial gas-fired storage water heaters and residential-duty gas-fired storage water heaters, TSL 3 includes efficiency levels that are one level below the max-tech efficiency level. As discussed previously, at the max-tech efficiency levels for gas-fired storage water heaters and residential-duty gas-fired storage water heaters there is a substantial risk of manufacturers being unable to offer a competitive range of equipment across the range of input capacities and storage volumes currently available. Setting standards at max-tech for these classes could limit other engineering and innovation efforts, such as developing heat pump water heaters for the commercial market, during the conversion period beyond compliance with amended energy conservation standards. The benefits of max-tech efficiency levels for commercial gas-fired storage water heaters and residential-duty gas-fired storage water heaters do not outweigh the negative impacts to consumers and manufacturers. Therefore, DOE concludes that the max-tech efficiency levels are not justified.

Therefore, based on the previous considerations, DOE adopts the energy conservation standards for CWH equipment at TSL 3. The amended energy conservation standards for CWH equipment, which are expressed as thermal efficiency and standby loss for commercial gas-fired storage and commercial gas-fired instantaneous water heaters and hot water supply boilers, and as UEF for residential-duty gas storage water heaters, are shown in Table V.47 and Table V.48.

TABLE V.47—PROPOSED AMENDED ENERGY CONSERVATION STANDARDS FOR COMMERCIAL WATER HEATING EQUIPMENT EXCEPT FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS

Equipment	Size	Energy conservation standards *	
		Minimum thermal efficiency (%)	Maximum standby loss †
Gas-fired storage water heaters and storage-type instantaneous water heaters.	All	95	$0.86 \times [Q/800 + 110(V_r)^{1/2}]$ (Btu/h).
Electric instantaneous water heaters ‡	<10 gal	80	N/A.
	≥10 gal	77	$2.30 + 67/V_m$ (%/h).

TABLE V.47—PROPOSED AMENDED ENERGY CONSERVATION STANDARDS FOR COMMERCIAL WATER HEATING EQUIPMENT EXCEPT FOR RESIDENTIAL-DUTY COMMERCIAL WATER HEATERS—Continued

Equipment	Size	Energy conservation standards*	
		Minimum thermal efficiency (%)	Maximum standby loss †
Gas-fired instantaneous water heaters and hot water supply boilers	<10 gal	96	N/A.
	≥10 gal	96	$Q/800 + 110(V_r)^{1/2}$ (Btu/h).

* V_m is the measured storage volume, and V_r is the rated volume, both in gallons. Q is the nameplate input rate in Btu/h.

† Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if: (1) the tank surface area is thermally insulated to R=12.5 or more, (2) a standing pilot light is not used, and (3) for gas or oil-fired storage water heaters, they have a fire damper or fan-assisted combustion.

‡ Energy conservation standards for electric instantaneous water heaters are included in EPCA. (42 U.S.C. 6313(a)(5)(D)–(E)) The compliance date for these energy conservation standards is January 1, 1994. In this final rule, DOE proposes to codify these standards for electric instantaneous water heaters in its regulations at 10 CFR 431.110. Further discussion of standards for electric instantaneous water heaters is included in section III.B.3 of this final rule.

TABLE V.48—AMENDED ENERGY CONSERVATION STANDARDS FOR RESIDENTIAL-DUTY GAS-FIRED COMMERCIAL WATER HEATERS

Equipment	Specification *	Draw pattern **	Uniform energy factor
Gas-fired Storage	>75 kBtu/h and ≤105 kBtu/h and ≤120 gal and ≤180 °F	Very Small, Low Medium High	0.5374 – (0.0009 × V_r). 0.8062 – (0.0012 × V_r). 0.8702 – (0.0011 × V_r). 0.9297 – (0.0009 × V_r).

* Additionally, to be classified as a residential-duty water heater, a commercial water heater must meet the following conditions: (1) if requiring electricity, use single-phase external power supply; and (2) the water heater must not be designed to heat water at temperatures greater than 180 °F.

** Draw pattern is a classification of hot water use of a consumer water heater or residential-duty commercial water heater, based upon the first-hour rating. The draw pattern is determined using the Uniform Test Method for Measuring the Energy Consumption of Water Heaters in appendix E to subpart B of 10 CFR part 430.

2. Annualized Benefits and Costs of the Adopted Standards

The benefits and costs of the proposed standards can also be expressed in terms of annualized values. The annualized net benefit is (1) the annualized national economic value (expressed in 2022\$) of the benefits from operating products that meet the proposed standards (consisting primarily of operating cost savings from using less energy, minus increases in product purchase costs, and (2) the annualized monetary value of the benefits of GHG and NO_x emission reductions.

Table V.49 shows the annualized values for CWH equipment under TSL 3, expressed in 2022\$. The results under the primary estimate are as follows.

Using a 7-percent discount rate for consumer benefits and costs and health benefits from reduced NO_x and SO₂ emissions, and a 3-percent discount rate case for climate benefits from reduced GHG emissions, the estimated cost of the proposed standards for CWH equipment is \$78 million per year in increased equipment costs, while the estimated annual benefits are \$118 million in reduced equipment operating

costs, \$125 million in climate benefits, and \$125 million in health benefits. In this case, the net benefit amounts to \$289 million per year.

Using a 3-percent discount rate for all benefits and costs, the estimated cost of the proposed standards for CWH equipment is \$72 million per year in increased equipment costs, while the estimated annual benefits are \$149 million in reduced operating costs, \$125 million in climate benefits, and \$178 million in health benefits. In this case, the net benefit would amount to \$380 million per year.

TABLE V.49—ANNUALIZED BENEFITS AND COSTS OF PROPOSED ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT [TSL 3]

Category	Million 2022\$/year		
	Primary estimate	Low-net-benefits estimate	High-net-benefits estimate
3% discount rate			
Consumer Operating Cost Savings	149	144	154
Climate Benefits *	125	124	128
Health Benefits **	178	177	197
Total Benefits †	452	445	479
Consumer Incremental Product Costs ‡	72	72	74

TABLE V.49—ANNUALIZED BENEFITS AND COSTS OF PROPOSED ENERGY CONSERVATION STANDARDS FOR CWH EQUIPMENT—Continued
[TSL 3]

Category	Million 2022\$/year		
	Primary estimate	Low-net-benefits estimate	High-net-benefits estimate
Net Benefits	380	373	405
Change in Producer Cashflow (INPV ‡‡)	(4)–(2)	(4)–(2)	(4)–(2)
7% discount rate			
Consumer Operating Cost Savings	118	115	122
Climate Benefits * (3% discount rate)	125	124	128
Health Benefits **	125	124.4	138.1
Total Benefits †	368	364	388
Consumer Incremental Product Costs ‡	78	78.2	80.0
Net Benefits	289	285	308
Change in Producer Cashflow (INPV ‡‡)	(4)–(2)	(4)–(2)	(4)–(2)

Note: This table presents the costs and benefits associated with consumer pool heaters shipped in 2026–2055. These results include benefits to consumers which accrue after 2055 from the products shipped in 2026–2055. Numbers may not add due to rounding.

* Climate benefits are calculated using four different estimates of the social cost of carbon (SC–CO₂), methane (SC–CH₄), and nitrous oxide (SC–N₂O) (model average at 2.5 percent, 3 percent, and 5 percent discount rates; 95th percentile at 3 percent discount rate). Together these represent the global social cost of greenhouse gases (SC–GHG). For presentational purposes of this table, the climate benefits associated with the average SC–GHG at a 3 percent discount rate are shown; however, DOE emphasizes the importance and value of considering the benefits calculated using all four sets of SC–GHG estimates. To monetize the benefits of reducing GHG emissions, this analysis uses the interim estimates presented in the *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates Under Executive Order 13990* published in February 2021 by the IWG.

** Health benefits are calculated using benefit-per-ton values for NO_x and SO₂. DOE is currently only monetizing PM_{2.5} and (for NO_x) ozone precursor health benefits, but will continue to assess the ability to monetize other effects such as health benefits from reductions in direct PM_{2.5} emissions. The health benefits are presented at real discount rates of 3 and 7 percent. See section IV.L of this document for more details.

† Total and net benefits include consumer, climate, and health benefits. For presentation purposes, total and net benefits for both the 3-percent and 7-percent cases are presented using the average SC–GHG with 3-percent discount rate.

‡ Costs include incremental equipment costs as well as installation costs.

‡‡ Operating Cost Savings are calculated based on the life cycle costs analysis and national impact analysis as discussed in detail below. See sections IV.F and IV.H of this document. DOE’s NIA includes all impacts (both costs and benefits) along the distribution chain beginning with the increased costs to the manufacturer to manufacture the equipment and ending with the increase in price experienced by the consumer. DOE also separately conducts a detailed analysis on the impacts on manufacturers (the MIA). See section IV.J of this document. In the detailed MIA, DOE models manufacturers’ pricing decisions based on assumptions regarding investments, conversion costs, cashflow, and margins. The MIA produces a range of impacts, which is the rule’s expected impact on the INPV. The change in INPV is the present value of all changes in industry cash flow, including changes in production costs, capital expenditures, and manufacturer profit margins. The annualized change in INPV is calculated using the industry weighted average cost of capital value of 9.1% that is estimated in the manufacturer impact analysis (see chapter 12 of the final rule TSD for a complete description of the industry weighted average cost of capital). For commercial water heaters, those values are –\$4 million and –\$2 million. DOE accounts for that range of likely impacts in analyzing whether a TSL is economically justified. See section V.C of this document. DOE is presenting the range of impacts to the INPV under two markup scenarios: the Preservation of Gross Margin scenario, which is the manufacturer markup scenario used in the calculation of Consumer Operating Cost Savings in this table, and the Preservation of Operating Profit Markup scenario, where DOE assumed manufacturers would not be able to increase per-unit operating profit in proportion to increases in manufacturer production costs. DOE includes the range of estimated annualized change in INPV in the above table, drawing on the MIA explained further in Section IV.J of this document, to provide additional context for assessing the estimated impacts of this rule to society, including potential changes in production and consumption, which is consistent with OMB’s Circular A–4 and E.O. 12866. If DOE were to include the INPV into the annualized net benefit calculation for this final rule, the annualized net benefits would range from \$376 million to \$378 million at 3-percent discount rate and would range from \$285 million to \$287 million at 7-percent discount rate. Parentheses () indicate negative values.

VI. Procedural Issues and Regulatory Review

A. Review Under Executive Orders 12866, 13563, and 14094

E.O. 12866, “Regulatory Planning and Review,” as supplemented and reaffirmed by E.O. 13563, “Improving Regulation and Regulatory Review, 76 FR 3821 (Jan. 21, 2011) and E.O. 14094, “Modernizing Regulatory Review,” 88 FR 21879 (April 11, 2023), requires agencies, to the extent permitted by law, to (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult

to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of

compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public. DOE emphasizes as well that E.O. 13563 requires agencies to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs (“OIRA”) in the Office of Management

and Budget (“OMB”) has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. For the reasons stated in the preamble, this final regulatory action is consistent with these principles.

Section 6(a) of E.O. 12866 also requires agencies to submit “significant regulatory actions” to OIRA for review. OIRA has determined that this final regulatory action constitutes a “significant regulatory action” within the scope of section 3(f)(1) of E.O. 12866, as amended by E.O. 14094. Accordingly, pursuant to section 6(a)(3)(C) of E.O. 12866, DOE has provided to OIRA an assessment, including the underlying analysis, of benefits and costs anticipated from the final regulatory action, together with, to the extent feasible, a quantification of those costs; and an assessment, including the underlying analysis, of costs and benefits of potentially effective and reasonably feasible alternatives to the planned regulation, and an explanation why the planned regulatory action is preferable to the identified potential alternatives. These assessments are summarized in this preamble and further detail can be found in the TSD for this rulemaking.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (“IRFA”) and a final regulatory flexibility analysis (“FRFA”) for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel’s website (www.energy.gov/gc/office-general-counsel). As part of the May 2022 CWH ECS NOPR, DOE prepared an IRFA. 87 FR 30722. DOE has prepared the following FRFA for the products that are the subject of this rulemaking.

1. Need for, and Objectives of, the Rule

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and industrial equipment. Title III, Part C of EPCA, added by Public Law 95–619, Title IV, section 441(a) (42 U.S.C. 6311–6317, as codified), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes the classes of CWH equipment that are the subject of this final rule. (42 U.S.C. 6311(1)(K)) EPCA prescribed energy conservation standards for CWH equipment. (42 U.S.C. 6313(a)(5))

Pursuant to EPCA, DOE is to consider amending the energy efficiency standards for certain types of commercial and industrial equipment, including the equipment at issue in this document, whenever ASHRAE amends the standard levels or design requirements prescribed in ASHRAE Standard 90.1, “Energy Standard for Buildings Except Low-Rise Residential Buildings,” (“ASHRAE Standard 90.1”), and at a minimum, every 6 years. DOE must adopt the new ASHRAE efficiency level, unless DOE determines, supported by clear and convincing evidence, that adoption of a more stringent level would produce significant additional conservation of energy would be technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)–(C)) Not later than 2 years after a NOPR is issued, DOE must publish a final rule amending the standard. (42 U.S.C. 6313(a)(6)(C)(iii))

2. Significant Issues Raised in Response to the IRFA

DOE did not receive any comments directly commenting on the Regulatory Flexibility Analysis in response to the IRFA.

3. Description and Estimate of the Number of Small Entities Affected

For manufacturers of CWH equipment, the Small Business Administration (“SBA”) has set a size threshold, which defines those entities classified as “small businesses” for the purposes of the statute. DOE used the SBA’s small business size standards to determine whether any small entities would be subject to the requirements of the rule. See 13 CFR part 121. The equipment covered by this rule are classified under North American Industry Classification System (“NAICS”) code 333310,¹⁸⁴

¹⁸⁴ The business size standards are listed by NAICS code and industry description and are

“Commercial and Service Industry Machinery Manufacturing.” In 13 CFR 121.201, the SBA sets a threshold of 1,000 employees or fewer for an entity to be considered as a small business for this category. DOE’s analysis relied on publicly available databases to identify potential small businesses that manufacture equipment covered in this rulemaking. DOE utilized the CEC Modernized Appliance Efficiency Database System (“MAEDbS”),¹⁸⁵ the DOE Energy Star Database,¹⁸⁶ and the DOE Certification Compliance Database (“CCD”)¹⁸⁷ in identifying manufacturers. For the purpose of this final rule, two analyses are being performed regarding impacts to small businesses: (1) impact of the amended standards and (2) impact of the codification of requirements for electric instantaneous water heater manufacturers.

Regarding manufacturers impacted by the amended standards, DOE identified 15 original equipment manufacturers (“OEM”). DOE screened out companies that do not meet the definition of a “small business” or are foreign-owned and operated. DOE used subscription-based business information tools to determine headcount and revenue of the small businesses. Of these 15 OEMs, DOE identified three companies that are small, domestic OEMs.

Regarding models impacted by the codification of requirements for electric instantaneous water heaters, DOE’s research identified nine OEMs of commercial electric instantaneous water heaters being sold in the U.S. market. Of these nine companies, DOE has identified three as domestic, small businesses. The small businesses do not currently certify any other CWH equipment to DOE’s CCD.

4. Description and Estimate of Compliance Requirements

This final rule proposes to adopt amended standards for gas-fired storage water heaters, gas-fired instantaneous water heaters and hot water supply boilers, and residential-duty gas-fired storage water heaters. Additionally, this

available at www.sba.gov/document/support--table-size-standards (Last accessed April 21, 2023).

¹⁸⁵ MAEDbS can be accessed at www.cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx (Last accessed December 19, 2022).

¹⁸⁶ Energy Star certified product can be found in the Energy Star database accessed at www.energystar.gov/productfinder/product/certified-commercial-water-heaters/results (Last accessed December 19, 2022).

¹⁸⁷ Certified equipment in the CCD are listed by product class and can be accessed at www.regulations.doe.gov/certification-data/#q=Product_Group_s%3A* (Last accessed December 19, 2022).

final rule seeks to codify energy conservation standards for electric instantaneous water heaters from EPCA into the CFR.

To determine the impact on the small OEMs, product conversion costs and capital conversion costs were estimated. Product conversion costs are investments in research, development, testing, marketing, and other non-capitalized costs necessary to make product designs comply with amended energy conservation standards. Capital conversion costs are one-time investments in plant, property, and equipment made in response to new and/or amended standards. DOE's estimates of conversion costs increased between the NOPR and the final rule. As noted in section IV.J.2.c of this final rule, DOE updated its conversion cost analysis for the final rule to reflect written comments submitted in response to the NOPR and feedback received from additional manufacturer

interviews conducted at the request of industry. Additionally, DOE updated its analysis to reflect changes to industry model availability that occurred between the NOPR analysis and final rule analysis. These changes result in different costs to small manufacturers between the IRFA and FRFA.

In reviewing all commercially available models in DOE's Compliance Certification Database, the three small manufacturers account for approximately 4 percent of industry model offerings. Of the three small manufacturers, the first manufacturer exclusively manufactures gas-fired instantaneous tankless water heaters and will remain unimpacted by the proposed standards as 100 percent of models meet TSL 3 or higher. There are no anticipated capital conversion costs or production conversion costs required to meet the adopted standards.

The second manufacturer exclusively manufactures hot water supply boilers

and 76 percent of its models are unimpacted by the proposed standards. DOE estimates that this manufacturer will incur approximately \$50,000 in capital conversion costs and \$210,000 in product conversion costs to meet proposed standards. The combined conversion costs represent less than 1 percent of the firm's estimated revenue during the conversion period.

The third manufacturer primarily manufactures gas-fired storage water heaters and residential-duty gas fired storage water heaters. For this manufacturer, 33 percent of their models are unimpacted by the proposed standards. DOE estimates that this manufacturer will incur approximately \$0.6 million in capital conversion costs and \$0.9 million in product conversion costs to meet proposed standards. The combined conversion costs represent approximately 4.8 percent of the firm's estimated revenue during the conversion period.

TABLE VI.1—SUMMARY OF SMALL MANUFACTURER IMPACTS

	Conversion costs (\$ millions)	Annual revenue (\$ millions)	Conversion period revenue (\$ millions)	Conversion costs/conversion period revenue
Manufacturer A	0	27	81	0.0
Manufacturer B	0.2	219	657	0.0
Manufacturer C	1.6	10.9	32.7	4.8

In addition to amending standards, in this rulemaking, DOE is codifying standards for electric instantaneous CWH equipment from EPCA into the CFR.

EPCA prescribes energy conservation standards for several classes of CWH equipment manufactured on or after January 1, 1994. (42 U.S.C. 6313(a)(5)) DOE codified these standards in its regulations for CWH equipment at 10 CFR 431.110. However, when previously codifying these standards from EPCA, DOE inadvertently omitted the standards put in place by EPCA for electric instantaneous water heaters. In the final rule, DOE is codifying these standards in its regulations at 10 CFR 431.110. This final rule does not propose certification requirements for electric instantaneous water heaters. Thus, DOE estimates no additional paperwork costs on manufacturers of electric instantaneous water heater equipment as a result of the final rule.

5. Significant Alternatives to the Rule

The discussion in the previous section analyzes impacts on small businesses that would result from the adopted standards, represented by TSL 3. In reviewing alternatives to the

adopted standards, DOE examined energy conservation standards set at lower efficiency levels. While TSL 1 and TSL 2 would reduce the impacts on small business manufacturers, it would come at the expense of a reduction in energy savings.

TSL 2 would save 0.49 quads of energy with the projected change in manufacturer INPV ranging from -10.6 percent to -4.4 percent. TSL 2 has energy savings that are 30 percent lower than TSL 3. TSL 1 would save 0.12 quads of energy with the projected change in manufacturer INPV ranging from -1.0 percent to less than 0.1 percent. TSL 1 has energy savings that are 83 percent lower than TSL 3.

Establishing standards at TSL 3 balances the benefits of the energy savings at TSL 3 with the potential burdens placed on CWH equipment manufacturers, including small business manufacturers. Accordingly, DOE is not adopting one of the other TSLs considered in the analysis, or the other policy alternatives examined as part of the regulatory impact analysis and included in chapter 17 of the final rule TSD.

Additional compliance flexibilities may be available through other means.

Manufacturers subject to DOE's energy efficiency standards may apply to DOE's Office of Hearings and Appeals for exception relief under certain circumstances. Manufacturers should refer to 10 CFR part 1003 for additional details.

C. Review Under the Paperwork Reduction Act

Manufacturers of CWH equipment must certify to DOE that their products comply with any applicable energy conservation standards. In certifying compliance, manufacturers must test their products according to the DOE test procedures for CWH equipment, including any amendments adopted for those test procedures. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including CWH equipment. (See generally 10 CFR part 429). The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act ("PRA"). This requirement has been approved by OMB under OMB control number 1910-1400. The public

reporting burden for the certification is estimated to average 35 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

D. Review Under the National Environmental Policy Act of 1969

Pursuant to the National Environmental Policy Act of 1969 (“NEPA”), DOE has analyzed this final rule in accordance with NEPA and DOE’s NEPA implementing regulations. 10 CFR part 1021. DOE has determined that this rule qualifies for categorical exclusion under 10 CFR part 1021, subpart D, appendix B5.1 because it is a rulemaking that establishes energy conservation standards for consumer products or industrial equipment, none of the exceptions identified in B5.1(b) apply, no extraordinary circumstances exist that require further environmental analysis, and it meets the requirements for application of a categorical exclusion. *See* 10 CFR 1021.410. Therefore, DOE has determined that promulgation of this rule is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA and does not require an environmental impact assessment or an environmental impact statement.

E. Review Under Executive Order 13132

E.O. 13132, “Federalism,” 64 FR 43255 (Aug. 10, 1999), imposes certain requirements on Federal agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. The Executive order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the states and to carefully assess the necessity for such actions. The Executive order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR

13735. DOE has examined this rule and has determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the equipment that is the subject of this final rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (*See* 42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297.) Therefore, no further action is required by E.O. 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of E.O. 12988, “Civil Justice Reform,” imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity, (2) write regulations to minimize litigation, (3) provide a clear legal standard for affected conduct rather than a general standard, and (4) promote simplification and burden reduction. 61 FR 4729 (Feb. 7, 1996). Regarding the review required by section 3(a), section 3(b) of E.O. 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation (1) clearly specifies the preemptive effect, if any, (2) clearly specifies any effect on existing Federal law or regulation, (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction, (4) specifies the retroactive effect, if any, (5) adequately defines key terms, and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of E.O. 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or if it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this final rule meets the relevant standards of E.O. 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (“UMRA”) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law 104–4, sec. 201 (codified at 2 U.S.C. 1531). For a

regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any 1 year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect them. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820. DOE’s policy statement is also available at www.energy.gov/sites/prod/files/gcprod/documents/umra_97.pdf.

This rule does not contain a Federal intergovernmental mandate, nor is it expected to require expenditures of \$100 million or more in any 1 year by the private sector. As a result, the analytical requirements of UMRA do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

Pursuant to E.O. 12630, “Governmental Actions and Interference with Constitutionally Protected Property Rights,” 53 FR 8859 (March 18, 1988), DOE has determined that this rule would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations

Act, 2001 (44 U.S.C. 3516, note) provides for Federal agencies to review most disseminations of information to the public under information quality guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). Pursuant to OMB Memorandum M-19-15, Improving Implementation of the Information Quality Act (April 24, 2019), DOE published updated guidelines, which are available at www.energy.gov/sites/prod/files/2019/12/f70/DOE%20Final%20Updated%20IQA%20Guidelines%20Dec%202019.pdf. DOE has reviewed this final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

E.O. 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OIRA at OMB, a Statement of Energy Effects for any significant energy action. A "significant energy action" is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under E.O. 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of OIRA as a significant energy action. For any significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

DOE has concluded that this regulatory action, which sets forth amended energy conservation standards for CWH equipment, is not a significant energy action because the standards are not likely to have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as such by the Administrator at OIRA. Accordingly, DOE has not prepared a Statement of Energy Effects on this final rule.

L. Information Quality

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy ("OSTP"), issued its Final Information Quality Bulletin for Peer Review ("the

Bulletin"). 70 FR 2664 (Jan. 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal government, including influential scientific information related to agency regulatory actions. The purpose of the Bulletin is to enhance the quality and credibility of the Federal government's scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are "influential scientific information," which the Bulletin defines as "scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions." 70 FR 2664, 2667.

In response to OMB's Bulletin, DOE conducted formal peer reviews of the energy conservation standards development process and the analyses that are typically used and prepared a report describing that peer review.¹⁸⁸ Generation of this report involved a rigorous, formal, and documented evaluation using objective criteria and qualified and independent reviewers to make a judgment as to the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. Because available data, models, and technological understanding have changed since 2007, DOE has engaged with the National Academy of Sciences to review DOE's analytical methodologies to ascertain whether modifications are needed to improve DOE's analyses. DOE is in the process of evaluating the resulting report.¹⁸⁹

M. Congressional Notification

As required by 5 U.S.C. 801, DOE will report to Congress on the promulgation of this rule prior to its effective date. The report will state that it has been determined that the rule is a "major rule" as defined by 5 U.S.C. 804(2).

VII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this final rule.

¹⁸⁸ The 2007 "Energy Conservation Standards Rulemaking Peer Review Report" is available at the following website: energy.gov/eere/buildings/downloads/energy-conservation-standards-rulemaking-peer-review-report-0 (last accessed December 14, 2022).

¹⁸⁹ The report is available at www.nationalacademies.org/our-work/review-of-methods-for-setting-building-and-equipment-performance-standards.

List of Subjects in 10 CFR Part 431

Administrative practice and procedure, Confidential business information, Energy conservation test procedures, Incorporation by reference, and Reporting and recordkeeping requirements.

Signing Authority

This document of the Department of Energy was signed on July 27, 2023, by Francisco Alejandro Moreno, Acting Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on September 15, 2023.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

For the reasons set forth in the preamble, DOE amends part 431 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations, to read as set forth below:

PART 431—ENERGY EFFICIENCY PROGRAM FOR COMMERCIAL AND INDUSTRIAL EQUIPMENT

- 1. The authority citation for part 431 continues to read as follows:

Authority: 42 U.S.C. 6291–6317; 28 U.S.C. 2461 note.

- 2. Amend § 431.102 by revising the definition of "Storage-type instantaneous water heater" to read as follows:

§ 431.102 Definitions concerning commercial water heaters, hot water supply boilers, unfired hot water storage tanks, and commercial heat pump water heaters.

* * * * *

Storage-type instantaneous water heater means an instantaneous water heater that includes a storage tank with a rated storage volume greater than or equal to 10 gallons.

* * * * *

- 3. Amend § 431.105 by revising paragraph (a) to read as follows:

§ 431.105 Materials incorporated by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the DOE must publish a document in the **Federal Register** and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at DOE and at the National Archives and Records Administration (NARA). Contact DOE at: the U.S. Department of Energy, Office of Energy

Efficiency and Renewable Energy, Building Technologies Program, 1000 Independence Avenue SW, EE-5B, Washington, DC 20024, (202) 586-9127, *Buildings@ee.doe.gov*, *www.energy.gov/eere/buildings/building-technologies-office*. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations.html* or email: *fr.inspection@nara.gov*. The material may be obtained from the sources in the following paragraphs of this section.

* * * * *

■ 4. Revise § 431.110 to read as follows:

§ 431.110 Energy conservation standards and their effective dates.

(a) Each commercial storage water heater, instantaneous water heater, and hot water supply boiler (excluding residential-duty commercial water heaters) must meet the applicable energy conservation standard level(s) as specified in the table to this paragraph. Any packaged boiler that provides service water that meets the definition of “commercial packaged boiler” in subpart E of this part, but does not meet the definition of “hot water supply boiler” in subpart G of this part, must meet the requirements that apply to it under subpart E of this part.

TABLE 1 TO § 431.110(a)—COMMERCIAL WATER HEATER ENERGY CONSERVATION STANDARDS

Equipment	Size	Energy conservation standards ^a			
		Minimum thermal efficiency (equipment manufactured on and after October 9, 2015) (%)	Minimum thermal efficiency (equipment manufactured on and after October 6, 2026) (%)	Maximum standby loss (equipment manufactured on and after October 29, 2003) ^b	Maximum standby loss (equipment manufactured on and after October 6, 2026) ^b
Electric storage water heaters	All	N/A	N/A	0.30 + 27/V _m (%/h)	0.30 + 27/V _m (%/h)
Gas-fired storage water heaters and storage-type instantaneous water heaters.	All	80	95	Q/800 + 110(V _r) ^{1/2} (Btu/h)	0.86 × [Q/800 + 110(V _r) ^{1/2}] (Btu/h)
Oil-fired storage water heaters	All	80	80	Q/800 + 110(V _r) ^{1/2} (Btu/h)	Q/800 + 110(V _r) ^{1/2} (Btu/h)
Electric instantaneous water heaters ^c	<10 gal	80	80	N/A	N/A
	≥10 gal	77	77	2.30 + 67/V _m (%/h)	2.30 + 67/V _m (%/h)
Gas-fired instantaneous water heaters and hot water supply boilers.	<10 gal	80	96	N/A	N/A
	≥10 gal	80	96	Q/800 + 110(V _r) ^{1/2} (Btu/h)	Q/800 + 110(V _r) ^{1/2} (Btu/h)
Oil-fired instantaneous water heater and hot water supply boilers.	<10 gal	80	80	N/A	N/A
	≥10 gal	78	78	Q/800 + 110(V _r) ^{1/2} (Btu/h)	Q/800 + 110(V _r) ^{1/2} (Btu/h)

^a V_m is the measured storage volume, and V_r is the rated storage volume, both in gallons. Q is the rated input in Btu/h, as determined pursuant to 10 CFR 429.44.
^b Water heaters and hot water supply boilers with a rated storage volume greater than 140 gallons need not meet the standby loss requirement if:
 (1) The tank surface area is thermally insulated to R-12.5 or more, with the R-value as defined in § 431.102
 (2) A standing pilot light is not used; and
 (3) For gas-fired or oil-fired storage water heaters, they have a flue damper or fan-assisted combustion.
^c The compliance date for energy conservation standards for electric instantaneous water heaters is January 1, 1994.

(b) Each unfired hot water storage tank manufactured on and after October

29, 2003, must have a minimum thermal insulation of R-12.5.

energy conservation standard level(s) as follows:

(c) Each residential-duty commercial water heater must meet the applicable

TABLE 2 TO § 431.110(c)—RESIDENTIAL-DUTY COMMERCIAL WATER HEATER ENERGY CONSERVATION STANDARDS

Equipment	Specifications ^a	Draw pattern	Uniform energy factor ^b	
			Equipment manufactured before October 6, 2026	Equipment manufactured after October 6, 2026
Gas-fired storage	>75 kBtu/hr and ≤105 kBtu/hr and ≤120 gal	Very Small	0.2674 – (0.0009 × V _r)	0.5374 – (0.0009 × V _r)
		Low	0.5362 – (0.0012 × V _r)	0.8062 – (0.0012 × V _r)
		Medium	0.6002 – (0.0011 × V _r)	0.8702 – (0.0011 × V _r)
		High	0.6597 – (0.0009 × V _r)	0.9297 – (0.0009 × V _r)
Oil-fired storage	>105 kBtu/hr and ≤140 kBtu/hr and ≤120 gal	Very Small	0.2932 – (0.0015 × V _r)	0.2932 – (0.0015 × V _r)
		Low	0.5596 – (0.0018 × V _r)	0.5596 – (0.0018 × V _r)
		Medium	0.6194 – (0.0016 × V _r)	0.6194 – (0.0016 × V _r)
		High	0.6470 – (0.0013 × V _r)	0.6470 – (0.0013 × V _r)
Electric instantaneous	>12 kW and ≤58.6 kW and ≤2 gal	Very Small	0.80	0.80
		Low	0.80	0.80
		Medium	0.80	0.80
		High	0.80	0.80

^a Additionally, to be classified as a residential-duty commercial water heater, a commercial water heater must meet the following conditions: (1) If the water heater requires electricity, it must use a single-phase external power supply; and (2) The water heater must not be designed to heat water to temperatures greater than 180 °F.
^b V_r is the rated storage volume (in gallons), as determined pursuant to 10 CFR 429.44.

Note: The following letter will not appear in the Code of Federal Regulations.

BILLING CODE 6450-01-P



U.S. Department of Justice

Antitrust Division

*RFK Main Justice Building
950 Pennsylvania Avenue, NW
Washington, DC 20530-0001*

July 18, 2022

Ami Grace-Tardy
Assistant General Counsel for Legislation, Regulation and
Energy Efficiency
U.S. Department of Energy
Washington, DC 20585
Ami.Grace-Tardy@hq.doe.gov

Dear Assistant General Counsel Grace-Tardy:

I am responding to your June 1, 2022, letters seeking the views of the Attorney General about the potential impact on competition of proposed energy conservation standards for commercial water heating equipment.

Your request was submitted under Section 325(o)(2)(B)(i)(V) of the Energy Policy and Conservation Act, as amended (EPCA), 42 U.S.C. 6295(o)(2)(B)(i)(V) and 42 U.S.C. 6316(a), which requires the Attorney General to make a determination of the impact of any lessening of competition that is likely to result from the imposition of proposed energy conservation standards. The Attorney General's responsibility for responding to requests from other departments about the effect of a program on competition has been delegated to the Assistant Attorney General for the Antitrust Division in 28 CFR § 0.40(g). The Assistant Attorney General for the Antitrust Division has authorized me, as the Policy Director for the Antitrust Division, to provide the Antitrust Division's views regarding the potential impact on competition of proposed energy conservation standards on his behalf.

In conducting its analysis, the Antitrust Division examines whether a proposed standard may lessen competition, for example, by substantially limiting consumer choice or increasing industry concentration. A lessening of competition could result in higher prices to manufacturers and consumers. We have reviewed the proposed standards contained in the Notice of Proposed Rulemaking (87 Fed. Reg. 30610, May 19, 2022). We have also reviewed public comments and information provided by industry participants and have listened to the Webinar of the Public Meeting held on June 23, 2022.

Based on the information currently available, we do not believe that the proposed energy conservation standards for commercial water heating equipment are likely to have a significant adverse impact on competition.

Sincerely,

/s/

David G.B. Lawrence
Director of Policy

[FR Doc. 2023-20392 Filed 10-5-23; 8:45 am]

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Part III

Department of Energy

10 CFR Part 430

Energy Conservation Program: Energy Conservation Standards for
Consumer Furnace Fans; Proposed Rule

DEPARTMENT OF ENERGY**10 CFR Part 430****[EERE–2021–BT–STD–0029]****RIN 1904–AE64****Energy Conservation Program: Energy Conservation Standards for Consumer Furnace Fans**

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notification of proposed determination and request for comment.

SUMMARY: The Energy Policy and Conservation Act, as amended (“EPCA”), prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including consumer furnace fans. EPCA also requires the U.S. Department of Energy (“DOE”) to periodically determine whether more-stringent, amended standards would be technologically feasible and economically justified, and would result in significant energy savings. In this notification of proposed determination (“NOPD”), DOE has initially determined that it could not conclude that amended standards would be cost effective, and thus, is not proposing to amend its energy conservation standards for these products. DOE requests comment on this proposed determination and the associated analyses and results.

DATES:

Meeting: DOE will hold a webinar upon request. Please request a public webinar no later than October 20, 2023. See section VII, “Public Participation,” for webinar registration information, participant instructions, and information about the capabilities available to webinar participants.

Comments: Written comments and information are requested and will be accepted on or before December 5, 2023.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at www.regulations.gov under docket number EERE–2021–BT–STD–0029. Follow the instructions for submitting comments.

Alternatively, interested persons may submit comments, identified by docket number EERE–2021–BT–STD–0029, by any of the following methods:

(1) **Email:**

ConsumerFurnFan2021STD0029@ee.doe.gov. Include the docket number EERE–2021–BT–STD–0029 in the subject line of the message.

(2) **Postal Mail:** Appliance and Equipment Standards Program, U.S.

Department of Energy, Building Technologies Office, Mailstop EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1445. If possible, please submit all items on a compact disc (“CD”), in which case it is not necessary to include printed copies.

(3) **Hand Delivery/Courier:** Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L’Enfant Plaza SW, 6th Floor, Washington, DC 20024. Telephone: (202) 287–1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimiles (“faxes”) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section VII of this document.

Docket: The docket, which includes **Federal Register** notices, public meeting attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at www.regulations.gov. All documents in the docket are listed in the www.regulations.gov index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

The docket web page can be found at www.regulations.gov/docket/EERE-2021-BT-STD-0029. The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section VII, “Public Participation,” for further information on how to submit comments through www.regulations.gov.

FOR FURTHER INFORMATION CONTACT:

Ms. Julia Hegarty, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Email: ApplianceStandardsQuestions@ee.doe.gov.

Mr. Matthew Schneider, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (240) 597–6265. Email: matthew.schneider@hq.doe.gov.

For further information on how to submit a comment or review other public comments and the docket contact the Appliance and Equipment Standards Program staff at (202) 287–1445 or by email: ApplianceStandardsQuestions@ee.doe.gov.

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I. Synopsis of the Proposed Determination

The Energy Policy and Conservation Act, Public Law 94–163, as amended (“EPCA”),¹ authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part B of EPCA² established the Energy Conservation Program for Consumer Products Other Than Automobiles. (42 U.S.C. 6291–6309) These products include consumer furnace fans, the subject of this NOPD. (42 U.S.C. 6295(f)(4)(D))

DOE is issuing this NOPD pursuant to the EPCA requirement that not later than 6 years after issuance of any final rule establishing or amending a standard, DOE must publish either a notification of determination that standards for the product do not need to be amended, or a notice of proposed rulemaking (“NOPR”) including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6295(m))

For this proposed determination, DOE analyzed consumer furnace fans subject to standards specified in 10 CFR 430.32(y). DOE first analyzed the technological feasibility of more energy

efficient consumer furnace fans. For those consumer furnace fans for which DOE determined higher standards to be technologically feasible, DOE evaluated whether higher standards would be cost effective by conducting life-cycle cost (“LCC”) and payback period (“PBP”) analyses. In addition, DOE estimated energy savings that would result from potential energy conservation standards by conducting a national impacts analysis (“NIA”), in which it estimated the net present value (“NPV”) of the total costs and benefits experienced by consumers.

Based on the results of the analyses, summarized in section V of this document, DOE has tentatively determined that current standards for consumer furnace fans do not need to be amended.

II. Introduction

The following section briefly discusses the statutory authority underlying this proposed determination, as well as some of the historical background relevant to the establishment of standards for consumer furnace fans.

A. Authority

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part B of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles. These products include consumer furnace fans, the subject of this document. (42 U.S.C. 6295(f)(4)(D)) Specifically, EPCA authorized DOE to establish energy conservation standards for electricity used for purpose of circulating air through duct work. (*Id.*)

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) the establishment of Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6291), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), energy conservation standards (42 U.S.C. 6295), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

Subject to certain criteria and conditions, DOE is required to develop test procedures to measure the energy efficiency, energy use, or estimated annual operating cost of each covered product. (42 U.S.C. 6295(o)(3)(A) and 42 U.S.C. 6295(r)) Manufacturers of covered products must use the

prescribed DOE test procedure as the basis for certifying to DOE that their products comply with the applicable energy conservation standards adopted under EPCA and when making representations to the public regarding the energy use or efficiency of those products. (42 U.S.C. 6293(c) and 42 U.S.C. 6295(s)) Similarly, DOE must use these test procedures to determine whether the products comply with standards adopted pursuant to EPCA. (42 U.S.C. 6295(s)) The DOE test procedures for consumer furnace fans appear at title 10 of the Code of Federal Regulations (“CFR”) part 430, subpart B, appendix AA.

Federal energy conservation requirements generally supersede State laws or regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6297(a)–(c)) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions set forth under EPCA. (See 42 U.S.C. 6297(d))

Pursuant to the amendments contained in the Energy Independence and Security Act of 2007 (EISA 2007), Public Law 110–140, any final rule for new or amended energy conservation standards promulgated after July 1, 2010, is required to address standby mode and off mode energy use. (42 U.S.C. 6295(gg)(3)) Specifically, when DOE adopts a standard for a covered product after that date, it must, if justified by the criteria for adoption of standards under EPCA (42 U.S.C. 6295(o)), incorporate standby mode and off mode energy use into a single standard, or, if that is not feasible, adopt a separate standard for such energy use for that product. (42 U.S.C. 6295(gg)(3)(A)–(B)) However, DOE has previously determined that there is no need to address standby and off mode energy use in the standards for consumer furnace fans, as the standby mode and off mode energy use associated with furnace fans is accounted for by the standards and test procedures for the products in which furnace fans are used (*i.e.*, consumer furnaces and consumer central air conditioners and heat pumps). 79 FR 499, 504. DOE maintained the same approach in the proposed amended test procedure for consumer furnace fans (the “May 2022 TP NOPR”). 87 FR 29576.

DOE must periodically review its already established energy conservation standards for consumer furnace fans no later than 6 years from the issuance of a final rule establishing or amending a standard for consumer furnace fans. (42

¹ All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Public Law 116–260 (Dec. 27, 2020), which reflect the last statutory amendments that impact Parts A and A–1 of EPCA.

² For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

U.S.C. 6295(m)) This 6-year look-back provision requires that DOE publish either a determination that standards do not need to be amended or a NOPR, including new proposed standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6295(m)(1)) EPCA further provides that, not later than 3 years after the issuance of a final determination not to amend standards, DOE must publish either a notification of determination that standards for the product do not need to be amended, or a NOPR including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6295(m)(3)(B)) DOE must make the analysis on which a determination is based publicly available and provide an

opportunity for written comment. (42 U.S.C. 6295(m)(2)) A determination that amended standards are not needed must be based on consideration of whether amended standards will result in significant conservation of energy, are technologically feasible, and are cost effective. (42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) Under 42 U.S.C. 6295(o)(2)(B)(i)(II), an evaluation of cost-effectiveness requires DOE to consider savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered products that are likely to result from the standard.

(42 U.S.C. 6295(n)(2) and 42 U.S.C. 6295(o)(2)(B)(i)(II)) DOE is publishing this NOPD in satisfaction of the 6-year review requirement in EPCA. (42 U.S.C. 6295(m))

B. Background

1. Current Standards

In a final rule published on July 3, 2014 (“July 2014 Final Rule”), DOE prescribed the current energy conservation standards for consumer furnace fans manufactured on and after July 3, 2019. 79 FR 38130. These standards are set forth in DOE’s regulations at 10 CFR 430.32(y) and are repeated in Table II.1.

TABLE II.1—FEDERAL ENERGY CONSERVATION STANDARDS FOR CONSUMER FURNACE FANS

Furnace fan product class	Fan energy rating (“FER”) (watts/1000 cubic feet per minute (“cfm”))
Non-Weatherized, Non-Condensing Gas (“NWG–NC”)	FER = 0.044 * Q _{max} + 182.
Non-Weatherized, Condensing Gas (“NWG–C”)	FER = 0.044 * Q _{max} + 195.
Weatherized, Non-Condensing Gas (“WG–NC”)	FER = 0.044 * Q _{max} + 199.
Non-Weatherized, Non-Condensing Oil Furnace Fan (“NWO–NC”)	FER = 0.071 * Q _{max} + 382.
Non-Weatherized Electric Furnace/Modular Blower Fan (“NWEF/NWMB”)	FER = 0.044 * Q _{max} + 165.
Mobile Home Non-Weatherized, Non-Condensing Gas Furnace Fan (“MH–NWG–NC”)	FER = 0.071 * Q _{max} + 222.
Mobile Home Non-Weatherized, Condensing Gas Furnace Fan (“MH–NWG–C”)	FER = 0.071 * Q _{max} + 240.
Mobile Home Electric Furnace/Modular Blower Fan (“MH–EF/MB”)	FER = 0.044 * Q _{max} + 101.
Mobile Home Non-Weatherized Oil Furnace Fan (“MH–NWO”)	Reserved.
Mobile Home Weatherized Gas Furnace Fan (“MH–WG”)	Reserved.

2. History of Standards Rulemakings for Consumer Furnace Fans

DOE established energy conservation standards at 10 CFR 430.32(y) for furnace fans through a final rule published in the **Federal Register** on July 3, 2014 (“July 2014 Final Rule”). 79 FR 38130. As discussed in section II.A of this document, EPCA authorized DOE to establish energy conservation standards for electricity used for purpose of circulating air through duct work. (42 U.S.C. 6295(f)(4)(D)) While the statutory language allows for regulation of the electricity use of any electrically-powered device applied to residential central heating, ventilation, and air conditioning (“HVAC”) systems for the purpose of circulating air through duct work, in the July 2014 Final Rule DOE established standards only for certain furnace fans used in furnaces and modular blowers. 79 FR 38130, 38146. Compliance with the prescribed standards established for consumer furnace fans in the July 2014 Final Rule was required as of July 3,

2019. DOE’s energy conservation standards for furnace fans use the fan energy rating (“FER”) metric, which is the ratio of the electrical energy consumption to airflow, expressed as watts per 1,000 cubic feet per minute of airflow (“W/1000 cfm”). 10 CFR 430.32(y). In evaluating whether amended standards for furnace fans are warranted, DOE used the test procedure for determining FER is established at 10 CFR part 430 subpart B appendix AA, *Uniform Test Method for Measuring the Energy Consumption of Furnace Fans* (“appendix AA”). In parallel to this rulemaking, DOE is considering whether amendments are warranted for the current test procedure for furnace fans. On May 13, 2022, DOE published a notice of proposed rulemaking (“NOPR”) concerning the test procedure for furnace fans (“May 2022 TP NOPR”). 87 FR 29576.

In support of the present review of the consumer furnace fans energy conservation standards, DOE published a request for information (“RFI”), which identified various issues on which DOE

sought comment to inform its determination of whether the standards need to be amended on November 23, 2021 (the “November 2021 RFI”). 86 FR 66465. The following year, on November 1, 2022, DOE published a notice of availability of the preliminary technical support document (the “November 2022 Preliminary Analysis”) in the **Federal Register**. 87 FR 65687. In the November 2022 Preliminary Analysis, DOE assessed potential amended standard levels for consumer furnace fans.

On September 20, 2022, a consent decree was issued for *NRDC et al. v. DOE and New York et al. v. DOE* that mandated that a final agency action pertaining to energy conservation standards (*i.e.*, a final rule amending energy conservation standards or a final determination not to amend standards) must be issued by October 31, 2024.

DOE received comments in response to the November 2022 Preliminary Analysis from the interested parties listed in Table II.2.

TABLE II.2—NOVEMBER 2022 PRELIMINARY ANALYSIS COMMENTS

Commenter(s)	Reference in this NOPD	Comment No. in the docket	Commenter type
Air Conditioning, Heating and Refrigeration Institute	AHRI	23	Trade Association.
Appliance Standards Awareness Project, American Council for an Energy-Efficient Economy, National Consumer Law Center, Natural Resources Defense Council.	Joint Commenters	20	Efficiency Organization.
Carrier Global Corporation	Carrier	19	Manufacturer.
Charles Beach	Beach	16	Individual.
Daikin Comfort Technologies	Daikin	* 26	Manufacturer.
Lennox International Inc	Lennox	24	Manufacturer.
Morrison Products Inc	Morrison	27	Manufacturer.
Nidec Motors	Nidec	* 26	Manufacturer.
Northwest Energy Efficiency Alliance	NEEA	25	Efficiency Organization.
Pacific Gas and Electric Company, San Diego Gas and Electric, Southern California Edison.	CA IOUs	21	Utility.
Rheem Manufacturing Company	Rheem	* 26	Manufacturer.
Trane Technologies	Trane	22	Manufacturer.
Weil-McLain Technologies	Weil-McLain	* 26	Manufacturer.

* Comment No. 26 corresponds to the transcript for the webinar held December 5, 2022. These commenters made oral comments during the public meeting that are summarized and discussed in this document.

Any oral comments provided during the webinar that are not substantively addressed by written comments are summarized and cited separately throughout this NOPD. A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.³

C. Deviation From Appendix A of the Process Rule

In accordance with section 3(a) of 10 CFR part 430, subpart C, appendix A (“appendix A”), DOE notes that it is deviating from the provision in the appendix A regarding the pre-NOPR and NOPR stages for an energy conservation standards rulemaking.

Section 6(f)(2) of the appendix A specifies that the length of the public comment period for a NOPR will be not less than 75 calendar days. For this NOPD, DOE has opted instead to provide a 60-day comment period, as required by EPCA. 42 U.S.C. 6295(p). DOE is opting to deviate from the 75-day comment period because stakeholders have already been afforded an opportunity to provide comments on this rulemaking. As noted previously, DOE requested comment on various issues pertaining to this standards rulemaking in the November 2021 RFI, a November 2022 preliminary analysis, and collectively provided stakeholders with more than a 90 days to comment. 86 FR 66465 and 87 FR 65687. Therefore, DOE believes a 60-day comment period is appropriate and will

provide interested parties with a meaningful opportunity to comment on the proposed determination.

III. General Discussion

DOE developed this proposed determination after considering comments, data, and information from interested parties that represent a variety of interests. This notice addresses issues raised by these commenters.

A. General Comments

1. Comments Opposing Amended Standards for Furnace Fans

In response to the November 2022 Preliminary Analysis, several commenters expressed opposition to amending standards for consumer furnace fans.

Trane commented that it does not support adopting efficiency level (“EL”) 1 for consumer furnace fan standards because the assumptions used in the TSD are flawed and when corrected will result in much smaller energy savings, higher consumer costs, and undue burden to manufacturers who will need to redesign all furnaces to adopt backward-inclined impellers. (Trane, No. 22 at p. 1) Trane commented that EL 1 analyzed in the November 2022 Preliminary Analysis fails to meet: (1) the energy savings threshold because the energy savings outlined in the TSD are overstated; (2) the technological feasibility requirement because there is a need for additional technology development before EL 1 is feasible; and (3) the economic justification criteria. Specifically, Trane stated that EL 1 is not economically justified for the following reasons: (1) the negative economic impact will be significant in

terms of manufacturer redesign costs (for relatively small energy savings); (2) consumers will face higher product and installation costs; (3) consumers will encounter negative lifetime operating cost savings and energy savings will be lower than DOE predicted; (4) there will be negative impacts on safety and efficiency due to changes in airflow patterns (impacting utility or performance); and (5) the potential for lessening of competition will be increased because units with backward-inclined impellers do not currently exist. Trane therefore commented that the use of EL 1 should not be considered for furnace fans. (*Id.* at p. 4) Morrison commented that DOE’s values for the product cost increase were underestimated, the energy savings were overestimated, and the resulting benefit to consumers would be half of the values that DOE projects. Therefore, Morrison concluded that DOE underestimated the LCC and PBP in the November 2022 Preliminary Analysis, and that the actual numbers will reflect a net cost for more consumers than currently projected. (Morrison, No. 27 at p. 4) Lennox recommended DOE conclude that no new furnace fan standards are warranted for the NWG–NC, NWG–C, and WG–NC product classes due to very high levels of consumers experiencing net costs from potential amended standards. Lennox noted that for NWG–NC and NWG–C, 44 percent and 48 percent, respectively, of consumers experience a net cost, while for WG–NC, 26 percent of consumers experience a net cost. Lennox also commented that for the NWO–NC product class, although the payback period and percent of consumers experiencing a net cost are favorable for

³ The parenthetical reference provides a reference for information located in the docket. (Docket No., which is maintained at www.regulations.gov). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

EL 1, the energy savings associated with these products is minimal (0.00003 quads) and does not meet the criteria of significant energy savings, and therefore amended standards are not likely warranted. (Lennox, No. 24 at p. 2) Lennox also commented that the feasible technologies available for furnace fans have not changed since the last furnace fan standards rulemaking in 2019, but equipment costs have increased over the same time period due to inflation and supply chain issues. Lennox stated that many consumers have been adversely impacted by the COVID-19 pandemic, and increasing furnace fan equipment costs with new efficiency standards is both ill-advised and economically unjustified at this time. (*Id.* at p. 2)

AHRI stated that while the simple payback period of many maximum technology feasible (“max-tech”) furnace fans appears to be favorable, almost every class of fan provides minimal average cost savings to consumers and projections showing that, in all but one case, over 44 percent of consumers will experience a net cost. AHRI commented that this cost, combined with AHRI’s concerns about the misrepresentation of the cost of products with a backward-inclined impeller, lead AHRI to expect that the true percentage of affected consumers will be higher than stated. (AHRI, No. 23 at p. 3)

Morrison recommended that DOE consider the timing and length of analysis periods for complex rulemaking documents, as the public comment period for this rulemaking was at a time of year in which under-staffing is common, and, as a result, Morrison stated that it is unable to guarantee the thoroughness and attention to detail of its response to this rulemaking. (Morrison, No. 27 at p. 6)

As discussed in section II.A of this document, DOE must periodically review its already established energy conservation standards for consumer furnace fans no later than 6 years from the issuance of a final rule establishing or amending a standard for consumer furnace fans. This 6-year look-back provision requires that DOE publish either a determination that standards do not need to be amended or a NOPR, including new proposed standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6295(m)(1)) Additionally, EPCA provides specific statutory criteria for amending energy conservation standards. EPCA generally requires a public notice-and-comment process (*see* 42 U.S.C. 6295(p)), which affords members of the public the opportunity to comment on the

rulemaking and all documents are made publicly available at www.regulations.gov. As part of the process for this rulemaking, DOE carefully considers the benefits and burdens of amended standards to determine whether the amended standards are the maximum standard levels that are technologically feasible and economically justified, and would conserve a significant amount of energy, as required by EPCA (see 42 U.S.C. 6295(o)(2)–(3)). Section IV of this document outlines DOE’s approach to analyzing various potential amended standard levels, which was conducted in accordance with the statutory requirements outlined in EPCA (and described above) for determining whether to establish or amend standards. Section V of this document provides the results of those analyses, as well as a detailed explanation of DOE’s weighing of the benefits and burdens and the rationale for proposing not to amend standards for consumer furnace fans at this time based on the criteria specified in EPCA. Morrison stated that having separate measures of energy efficiency for furnaces and furnace fans may risk confusing consumers as to which efficiency label they should choose when purchasing equipment, in turn increasing the potential for wasted energy. (Morrison, No. 27 at p. 2) Lennox similarly commented that when consumers consider energy efficiency while purchasing residential furnaces, they evaluate the annual fuel utilization efficiency (“AFUE”) metric for consumer furnaces. Lennox commented that furnace fans typically account for less than 2 percent of the overall energy use of a residential furnace system in heating operation, and DOE furnace fan standards are not a focus of the consumer purchase decision. (Lennox, No. 24 at p. 8)

In response, DOE notes that EPCA directed DOE to consider and prescribe energy conservation standards or energy use standards for electricity used for the purposes of circulating air through ductwork. (42 U.S.C. 6295(f)(4)(D)) The AFUE metric used for furnaces does not account for the electricity used by the furnace fan to move air through ductwork. Therefore, to satisfy the requirements of EPCA, DOE established the FER test method and metric to account for the electrical energy consumption for circulating air through ductwork and will maintain AFUE and FER as separate metrics for consumer furnaces and consumer furnace fans, respectively.

2. Comments Expressing Support for Amended Standards for Furnace Fans

In response to the November 2022 Preliminary Analysis, several commenters encouraged DOE to amend standards for consumer furnace fans.

The CA IOUs commented that DOE’s analyses show significant lifetime-operating-cost savings and short-payback periods for the NWO-NC, MH-NWG-NC, MH-NWG-C, and MH-NWO-NC product classes. (CA IOUs, No. 21 at p. 1) The CA IOUs stated that they support DOE’s finding that brushless permanent magnet (“BPM”) motors are cost-effective for all product classes. (*Id.* at p. 1)

NEEA recommended that DOE adopt a BPM standard level for all equipment classes, including those DOE proposed in the expansion and for any additional classes that DOE could cover. NEEA commented that by raising the standard to BPM motors beyond non-weatherized gas furnaces, DOE would ensure that there are fewer applications where inefficient furnace fans are being used in the market. NEEA further commented that the market for BPM motors is mature, and the adoption of additional product classes should not negatively impact manufacturers. (NEEA, No. 24 at p. 3)

As part of the rulemaking process, DOE carefully considers the benefits and burdens of potential amended standards to determine whether the potential amended standards are the maximum standard levels that are technologically feasible and economically justified, and would conserve a significant amount of energy, as required by EPCA (see 42 U.S.C. 6295(o)(2)–(3)). Section IV of this document outlines DOE’s approach to analyzing various potential amended standard levels, and section V of this document provides the results of those analyses, as well as a detailed explanation of DOE’s weighing of the benefits and burdens and the rationale for proposing not to amend standards for consumer furnace fans.

B. Product Classes and Scope of Coverage

When evaluating and establishing energy conservation standards, DOE divides covered products into product classes by the type of energy used or by capacity or other performance-related features that justify differing standards. In making a determination whether a performance-related feature justifies a different standard, DOE must consider such factors as the utility of the feature to the consumer and other factors DOE determines are appropriate. (42 U.S.C.

6295(q)) The scope of coverage and product classes for this proposed determination are discussed in further detail in section IV.A.1 and IV.A.4, respectively. This proposed determination covers consumer furnace fans defined as an electrically-powered device used in a consumer product for the purpose of circulating air through ductwork. 10 CFR 430.2.

C. Test Procedure

EPCA sets forth generally applicable criteria and procedures for DOE's adoption and amendment of test procedures. (42 U.S.C. 6293) Manufacturers of covered products must use these test procedures to certify to DOE that their product complies with energy conservation standards and to quantify the efficiency of their product. (42 U.S.C. 6295(s) and 42 U.S.C. 6293(c)) The test procedure for determining FER is established at 10 CFR part 430 subpart B appendix AA, *Uniform Test Method for Measuring the Energy Consumption of Furnace Fans* ("appendix AA"). On May 13, 2022, DOE published the May 2022 TP NOPR, which proposed to amend the test procedure for consumer furnace fans. 87 FR 29576. Specifically, the May 2022 TP NOPR proposed the following changes: (1) Specify testing instructions for furnace fans incapable of operating at the required external static pressure ("ESP"). (2) Incorporate by reference the most recent versions of industry standards, ASHRAE 103–2017 and ASHRAE 37–2009 (RA 2019), in 10 CFR 430.3. (3) Define dual-fuel furnace fans and exclude them from the scope of appendix AA. (4) Change the term "default airflow control settings" to "specified airflow control settings." (5) Add provisions to directly measure airflow. (6) Revise the ambient temperature conditions allowed during testing to between 65 degrees Fahrenheit ("°F") and 85 °F for all units (both condensing and non-condensing). (7) Assign an allowable range of relative humidity during testing to be between 20 percent and 80 percent. *Id.* at 25979. DOE is still considering comments received in response to the May 2022 TP NOPR and has not yet finalized any updates to the test procedure.

D. Technological Feasibility

1. General

In evaluating potential amendments to energy conservation standards, DOE conducts a screening analysis based on information gathered on all current technology options and prototype designs that could improve the efficiency of the products or equipment

that are the subject of the determination. As the first step in such an analysis, DOE develops a list of technology options for consideration in consultation with manufacturers, design engineers, and other interested parties. DOE then determines which of those means for improving efficiency are technologically feasible. DOE considers technologies incorporated in commercially available products or in working prototypes to be technologically feasible. Sections 6(b)(3)(i) and 7(b)(1) of appendix A to 10 CFR part 430 subpart C ("Process Rule").

After DOE has determined that particular technology options are technologically feasible, it further evaluates each technology option in light of the following additional screening criteria: (1) practicability to manufacture, install, and service; (2) adverse impacts on product utility or availability; (3) adverse impacts on health or safety; and (4) unique-pathway proprietary technologies. Sections 6(b)(3)(ii)–(v) and 7(b)(2)–(5) of the Process Rule. Section IV.A.4 of this document discusses the results of the screening analysis for consumer furnace fans, particularly the designs DOE considered, those it screened out, and those that are the basis for the standards considered in this proposed determination.

2. Maximum Technologically Feasible Levels

As when DOE proposes to adopt a new or amended standard for a type or class of covered product, in this analysis it must determine the maximum improvement in energy efficiency or maximum reduction in energy use that is technologically feasible for such a product. (42 U.S.C. 6295(p)(1)) Accordingly, in the engineering analysis, DOE determined the maximum technologically feasible improvements in energy efficiency for consumer furnace fans, using the design parameters for the most efficient products available on the market or in working prototypes. The max-tech levels that DOE determined for this analysis are described in section IV.B of this proposed determination.

E. Cost Effectiveness

In making a determination of whether amended energy conservation standards are needed, EPCA requires DOE to consider the cost effectiveness of amended standards in the context of the savings in operating costs throughout the estimated average life of the covered product compared to any increase in the price of, or in the initial charges for, or

maintenance expenses of, the covered product that are likely to result from a standard. (42 U.S.C. 6295(o)(2)(B)(i)(II))

In determining cost effectiveness of amending standards for consumer furnace fans, DOE conducted LCC and PBP analyses that estimate the costs and benefits to users from potential standards. To further inform DOE's consideration of the cost effectiveness of potential amended standards, DOE considered the NPV of total costs and benefits estimated as part of the NIA. The inputs for determining the NPV of the total costs and benefits experienced by consumers are (1) total annual installed cost, (2) total annual operating costs (energy costs and repair and maintenance costs), and (3) a discount factor to calculate the present value of costs and savings.

F. Energy Savings

1. Determination of Savings

For each efficiency level ("EL") evaluated, DOE projected energy savings from application of the EL to the consumer furnace fans purchased in the 30-year period that begins in the assumed year of compliance with the potential standards (2030–2059). The savings are measured over the entire lifetime of the consumer furnace fans purchased in the previous 30-year period. DOE quantified the energy savings attributable to each EL as the difference in energy consumption between each standards case and the no-new-standards case. The no-new-standards case represents a projection of energy consumption that reflects how the market for a product would likely evolve in the absence of amended energy conservation standards. DOE used its NIA spreadsheet model to estimate national energy savings (NES) from potential amended or new standards for consumer furnace fans. The NIA spreadsheet model (described in section IV.G of this document) calculates energy savings in terms of site energy, which is the energy directly consumed by products at the locations where they are used. For electricity, DOE reports NES in terms of primary energy savings, which is the savings in the energy that is used to generate and transmit the site electricity. DOE also calculates NES in terms of full-fuel-cycle (FFC) energy savings. The FFC metric includes the energy consumed in extracting, processing, and transporting primary fuels (*i.e.*, coal, natural gas, petroleum fuels), and thus presents a more complete picture of the impacts of

energy conservation standards.⁴ DOE's approach is based on the calculation of an FFC multiplier for each of the energy types used by covered products or equipment. For more information on FFC energy savings, see section IV.G of this document.

2. Significance of Savings

In determining whether amended standards are needed, DOE must consider whether such standards will result in significant conservation of energy. (42 U.S.C. 6295(m)(1)(A)) The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking.⁵ For example, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis.

G. Additional Considerations

Pursuant to EPCA, absent DOE publishing a notification of determination that energy conservation standards for furnace fans do not need to be amended, DOE must issue a NOPR that includes new proposed standards. (42 U.S.C. 6295(m)(1)(B)). The new proposed standards in any such NOPR must be based on the criteria established under 42 U.S.C. 6295(o) and follow the procedures established under 42 U.S.C. 6295(p). (42 U.S.C. 6295(m)(1)(B)). The criteria in 42 U.S.C. 6295(o) require that standards be designed to achieve the maximum improvement in energy efficiency, which the Secretary determines is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A)). In deciding whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i)). DOE must make this determination after receiving comments on the proposed standard, and by considering, to the greatest extent practicable, the following seven statutory factors:

(1) The economic impact of the standard on manufacturers and

consumers of the products subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges for, or maintenance expenses of the covered products that are likely to result from the standard;

(3) The total projected amount of energy (or as applicable, water) savings likely to result directly from the standard;

(4) Any lessening of the utility or the performance of the covered products likely to result from the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;

(6) The need for national energy and water conservation; and

(7) Other factors the Secretary considers relevant. (42 U.S.C. 6295(o)(2)(B)(i)(I)–(VII))

IV. Methodology and Discussion of Related Comments

This section addresses the analyses DOE has performed for this proposed determination with regard to consumer furnace fans. Separate subsections address each component of DOE's analyses. DOE used several analytical tools to estimate the impact of potential energy conservation standards. The first tool is a spreadsheet that calculates the LCC savings and PBP of potential energy conservation standards. The NIA uses a second spreadsheet set that provides shipments projections and calculates NES and net present value of total consumer costs and savings expected to result from potential energy conservation standards. These spreadsheet tools are available on the website: www.regulations.gov/docket/EERE-2021-BT-STD-0029.

A. Market and Technology Assessment

DOE develops information in the market and technology assessment that provides an overall picture of the market for the products concerned, including the purpose of the products, the industry structure, manufacturers, market characteristics, and technologies used in the products. This activity includes both quantitative and qualitative assessments, based primarily on publicly available information. The subjects addressed in the market and technology assessment for this proposed determination include (1) a determination of the scope and product classes, (2) manufacturers and industry structure, (3) existing efficiency programs, (4) shipments information, (5) market and industry trends, and (6)

technologies or design options that could improve the energy efficiency of consumer furnace fans. The key findings of DOE's market assessment are summarized in the following sections.

1. Scope of Coverage

In this analysis, DOE relied on the definition of consumer furnace fans in 10 CFR 430.2, which defines a consumer furnace fan as an electrically-powered device used in a consumer product for the purpose of circulating air through ductwork. Any product meeting the definition of consumer furnace fans is included in DOE's scope of coverage, though not all products within the scope of coverage may be subject to standards.

For this NOPD, DOE evaluated products within the same scope as those products for which DOE initially established energy conservation standards in the final rule published on July 3, 2014 ("July 2014 Final Rule"). 79 FR 38130. Products evaluated in this NOPD include:

- Furnace fans used in weatherized and non-weatherized gas furnaces, oil furnaces, and electric furnaces; and
- Modular blowers.

Consistent with the approach taken in the July 2014 Final Rule, products not addressed in this rulemaking include:

- Furnace fans used in other products, such as split-system central air conditioner ("CAC") and heat pump indoor units, through-the-wall indoor units, small duct high-velocity indoor units, energy recovery ventilators, heat recovery ventilators, draft inducer fans, exhaust fans, or hydronic air handlers; and
- Fans used in any non-ducted products, such as whole-house ventilation systems without ductwork, CAC condensing unit fans, room fans, and furnace draft inducer fans because these products do not circulate air through ductwork.

DOE has previously determined that the DOE test procedure for furnace fans is not currently equipped to address fans contained in CACs, heat pumps, or other products. 79 FR 38130, 38149. Therefore, DOE has not established standards covering such products. (42 U.S.C. 6295(o)(3)) Any products that are non-ducted or that do not move air through ductwork (e.g., draft inducer fans) would not meet the definition of a furnace fan and are therefore out of scope of the existing regulations.

In response to the November 2022 Preliminary Analysis, AHRI commented that fans used in packaged units should be excluded from the analysis as the energy use is already accounted for in the products' seasonal energy efficiency

⁴ The FFC metric is discussed in DOE's statement of policy and notice of policy amendment. 76 FR 51282 (Aug. 18, 2011), as amended at 77 FR 49701 (Aug. 17, 2012).

⁵ The numeric threshold for determining the significance of energy savings established in a final rule published on February 14, 2020 (85 FR 8626, 8670) was subsequently eliminated in a final rule published on December 13, 2021 (86 FR 70892).

ratio (“SEER”) rating. AHRI stated that including these products in the analysis of the overall quad savings would double count their contribution because they are accounted for in prior rulemakings. (AHRI, No. 23 at p. 4) Morrison commented that it does not see the need for DOE to include fans used in packaged units within the furnace fans rulemaking, as their energy use is already accounted for in SEER and heating seasonal performance factor (“HSPF”) ratings and excluding them from the rulemaking would prevent unnecessary repetition across rulemaking documents. (Morrison, No. 27 at p. 2) In response, DOE notes that for certain packaged units—WG—NC—there are existing standards at 10 CFR 430.32. In the July 2014 Final Rule, DOE assessed these products and established energy conservation standards for them. 79 FR 38130, 38209. As discussed in section II.A of this document, DOE must periodically review its already established energy conservation standards for consumer furnace fans no later than 6 years from the issuance of a final rule establishing or amending a standard for consumer furnace fans. (42 U.S.C. 6295(m)) In accordance with these provisions, DOE evaluated these products for this NOPD. DOE notes that the base-case efficiency distribution of fans used in the analysis includes presence of more-efficient furnace fans (e.g., with BPM motors) in homes with higher-efficiency packaged units due to impacts from previous rulemakings. Because the energy savings considered from the furnace fan efficiency levels are measured relative to the base-case efficiencies, the savings calculated in this analysis are over and above those counted in previous rulemakings. Therefore, savings have not been double counted.

The CA IOUs further commented that DOE has previously noted that the provisions in 42 U.S.C. 6295(f)(4)(D) can encompass any electrically-powered devices used in residential HVAC products, including furnaces, and recommended that DOE investigate the savings opportunity for regulating furnace fans in air handlers. (*Id.*) Finally, the CA IOUs commented that many residential air handlers are offered for sale with permanent split-capacitor-equipped fans and are likely unable to meet the current rating for fan energy conservation standards applicable to furnace fans. They added that manufacturers readily offer air handlers with BPM motors and, therefore, a baseline technology option incorporating a BPM motor is likely

feasible for air handlers. (*Id.* at pp. 5–6)

For the reasons discussed in the May 2022 TP NOPR, DOE is not proposing to include fans used in other types of HVAC products, including air-handlers, within the scope of coverage of appendix AA. 87 FR 29576, 29580. In the May 2022 TP NOPR, DOE tentatively concluded that the electrical energy consumption of fans used in the aforementioned types of HVAC products are accounted for by the seasonal energy efficiency ratio 2 (“SEER2”) and heating seasonal performance factor 2 (“HSPF2”) metrics measured by the test procedure for CACs and heat pumps at appendix M1 to subpart B of part 430 (“appendix M1”). 87 FR 29576, 29580. Therefore, DOE did not include air handlers in the scope of the test procedure rulemaking and likewise did not include them in this furnace fans rulemaking.

NEEA commented that it supported expanding coverage of furnace fans to include NWO—NC products in the analysis because of the persistence of this product class on the market and so the regulations would be more inclusive of the entire market and prevent any unfair advantage due to a gap in the regulations. NEEA also recommended that DOE include mobile home non-weatherized, non-condensing furnace fans as a covered product class, which, along with including NWO—NC, would encourage the transition to BPM motors across the furnace fan market. (NEEA, No. 24 at pp. 1–2) NEEA recommended that DOE add additional classes, such as non-weatherized, condensing oil (“NWO—C”) and weatherized, condensing gas (“WG—C”), to cover the entire consumer furnace fans market. (*Id.* at p. 2) Lennox commented that it finds the market impact of MH—NWO or WG—C furnace fans to be extremely low with minimal energy saving potential. (Lennox, No. 24 at p. 4)

DOE notes that, because it is not proposing amended standards at this time, it is not proposing to assign new standards to any product classes and will retain those classes for which standards currently exist, as shown in Table II.1. For NWO—NC furnace fans, standards currently exist and these products were included in this analysis. DOE also analyzed MH—NWO—NC furnace fans for the purposes of making this proposed determination. For other types of furnace fans, such as NWO—C and WG—C furnace fans, DOE is only aware of a very small number of products on the market. DOE has tentatively concluded that given the nascent and developing state of these products it would be premature to

analyze proposed energy conservation standards at this time. Additional information on the product classes analyzed for this NOPD is included in section IV.A.4 of this document.

2. Technology Options

In the November 2022 Preliminary Analysis, DOE identified several technology options that would be expected to improve the efficiency of consumer furnace fans, as measured by the DOE test procedure. Specifically, DOE identified the following technology options as having the potential to improve the FER rating of consumer furnace fans (as measured in accordance with appendix AA), and considered these technology options further in the screening analysis:

- Housing design modifications
- Multi-stage heating components and controls⁶
- Airflow path design
- Constant-torque BPM (“CT—BPM”) and constant-airflow BPM (“CA—BPM”) motors
- Inverter controls for permanent split capacitor (“PSC”) motors
- Higher-efficiency fan blades

These technology options are described in detail in section 3.3.2 of the TSD accompanying the November 2022 Preliminary Analysis. In response to the November 2022 Preliminary Analysis, DOE received several comments related to these technology options. Several commenters supported DOE’s tentative decision to analyze CT—BPM and CA—BPM motors together as a single design option because these motors appear to have comparable efficiency as measured by DOE’s test procedure.

Lennox commented that CT—BPM and CA—BPM motors have similar efficiencies. Lennox stated that while there can be minor differences in the efficiency of BPM motors, they fall within a very narrow band for potential improvement. Lennox commented that the primary differences in performance are that a CT—BPM motor will result in reduced airflow as static pressure increases, whereas a CA—BPM motor will increase speed and power consumption to maintain airflow up to the limit of the motor capability. Lennox commented that motor efficiency as applied is more of a topographical map than a single point of operation and that BPM motors maintain efficiency

⁶ Although multi-stage heating components and controls were included in the list of technologies that can improve FER, DOE stated that DOE has tentatively found that multi-stage heating controls may not significantly improve furnace fan efficiency as measured by FER. See chapter 3 and chapter 5 of the Preliminary Analysis TSD.

performance over their operating range. (Lennox, No. 24 at p. 5)

Additionally, AHRI commented that constant torque and constant airflow motors are similarly constructed but operate differently. AHRI commented that, given consistent external static pressure and airflow, AHRI assumes the two motor types would perform comparably within the expected margins of error. (AHRI, No. 23 at pp. 4–5) Carrier also commented that it agrees with DOE’s assumption that CT–BPM and CA–BPM motors have comparable efficiencies and stated that the motors use similar construction despite being operated differently. Carrier commented that if a furnace with a CT–BPM motor were compared to a furnace with a similarly sized CA–BPM motor where both were operated at the same external static pressure and airflow, these motor types would consume the same amount of energy. (Carrier, No. 19 at p. 2) In response to Lennox, AHRI, and Carrier, DOE notes that it continued to analyze CT–BPM and CA–BPM motors together as a single design option for this current analysis.

Beach recommended that DOE include efficiency testing and standards in rudimentary equipment configuration descriptions. Beach recommended that DOE outline where and how the fan motor is placed within the equipment to avoid efficiency degradation at the spot where full furnace air flow deposits airstream dust and material on the motor windings. Beach commented that filter bypass, at a minimum, applies. (Beach, No. 16 at p. 1)

In response to comments from Beach, DOE notes that its energy conservation standards are in terms of FER, which is a performance-based metric that captures the estimated annual electrical energy consumption of the furnace fan normalized by: (a) the estimated total number of annual fan operating hours and (b) the airflow in the maximum airflow-control setting. DOE does not prescribe any design requirements for furnace fans and therefore specifying the placement and installation of the furnace fan within a furnace unit is out of the scope of DOE’s regulations.

In the November 2022 Preliminary Analysis TSD, DOE stated that it tentatively did not consider two-stage and multi-stage technology options as a design pathway for improving FER in the engineering analysis based on manufacturer feedback, certification data, and testing. DOE requested data or comment regarding the relationship between staging and FER.

In response, AHRI commented that without performing a controlled study, it is difficult to properly compare a

single-stage product to a two-stage product. AHRI commented that variables such as airflow design and temperature rise can affect the comparison, adding that it would be incorrect to generalize that one control type would have a distinct advantage over another. (AHRI, No. 23 at p. 5) Carrier commented that there is not adequate data to conclude whether single-stage and multi-stage controls result in different FER ratings. Carrier commented that comparison between the two control types is not straightforward due to multiple design characteristics that make each furnace model unique. Carrier stated that a controlled study is needed to eliminate variables that are unique to each model, such as airflow design and temperature rise selected. (Carrier, No. 19 at p. 2) Carrier also commented that it generally has not found multi-staging to improve FER ratings and that it does not believe one control type has a distinct advantage over the other. (*Id.*)

Trane commented that the assumption that FER values for a multi-stage furnace and a single-stage furnace are equal contradicts the 2014 TSD (EERE–2010–BT–STD–001–0111), which states that multi-staging was a technology option that significantly differed from the single-stage furnace. Trane commented that this difference affects the energy use equations, as the FER was calculated with a multi-stage furnace and energy use was calculated with a single-stage furnace. (Trane, No. 22 at p. 3)

Morrison questioned whether the lack of a benefit from multi-staging is due to FER not appropriately capturing real energy use. Morrison commented that, based on research presented in Canada’s C823 efforts, average furnaces are oversized and rarely run at full capacity, leading them to use more fan energy than necessary. Morrison stated that part load operation would reduce the energy impact from oversizing and hence reduce fan energy use, and stated it is unclear why this option has been deemed not to be of benefit. (Morrison, No. 27 at p. 2)

DOE agrees with commenters that there are uncertainties related to the effectiveness of two-stage or multi-stage in improving FER. However, DOE has not received any additional data to support or disprove any impacts on FER between single and multi-stage units. Therefore, DOE has retained multi-stage heating components and controls as a technology option in the current analysis but, as discussed in section IV.B.1.a of this document, DOE did not consider two-stage or multi-stage operation as a design pathway for

improving FER in the engineering analysis.

3. Impact From Other Rulemakings

Lennox commented that DOE needs to consider the total cumulative regulatory burden for consumer furnaces, as there are multiple concurrent DOE, EPA, and other regulatory actions undergoing updates. (Lennox, No. 24 at pp. 8–9) Lennox stated that DOE’s consideration of cumulative regulatory burden has often been cursory and provided a list of relevant regulations: “2023 DOE Energy Conservation Standards (“ECS”) change for central air conditioners; 2023 DOE Energy Conservation Standard change for commercial air conditioners; 2023 DOE ECS for commercial warm air furnaces (“CWAf’s”); EPA phase-down to lower GWP refrigerants to meet the American Innovation and Manufacturing (“AIM”) Act objectives; DOE ECS Furnace Standards rulemaking; National and Regional Cold Climate Heat Pump Specifications; DOE ECS for Three-Phase, Below 65,000 Btu/h; DOE Test Procedure for VRF Systems; EPA Energy Star 6.0+ for Residential HVAC; and EPA Energy Star 4.0 for Light Commercial HVAC.” (*Id.*) Lennox stated that proposing amended consumer furnace fan standards would contribute to the significant cumulative regulatory burden. (*Id.* at p. 9) Lennox commented that DOE needs to thoroughly consider the total cumulative regulatory burden association with any consideration of amended FER standards. Lennox commented that furnace manufacturers are in the midst of unprecedented regulatory change regarding equipment they manufacture. Lennox commented that these significant cumulative regulatory burdens provide another reason why DOE should not add additional burden by tightening consumer furnace fan regulations. Lennox reiterated that the fans are components in furnaces already regulated by DOE. (*Id.* at pp. 8–9)

AHRI asserted that DOE did not consider the impact of other ongoing rulemakings (*e.g.*, the notice of proposed rulemaking for consumer furnaces). (AHRI, No. 23 at p. 1) Morrison stated that it supports the comments submitted by AHRI advocating for the HVAC industry, as the burden for furnace manufacturers to meet compliance will be high. Morrison commented that the added burden of furnace fan ratings will challenge imminent regulations and an industry overloaded with regulations already underway, and that the schedule of regulations impedes manufacturers from attempting new

product development and innovation. (Morrison, No. 27 at pp. 1–2)

DOE is not proposing to amend the energy conservation standards for consumer furnace fans and therefore does not expect this rulemaking to contribute to the cumulative regulatory burden of manufactures.

Lennox also commented that it opposes DOE expanding the regulatory scope for electric motors into air-over motors, synchronous motors and inverter-only motors, and expanded scope electric motors (ESEMs), in particular when those motors are contained in already-regulated heating, ventilation, air conditioning, and refrigeration (“HVACR”) products. Lennox commented that DOE should continue to exempt air-over and inverter-only motors (including AC and synchronous motors) from component-level energy conservation standards regulation when these motors are used in HVACR equipment already regulated at the systems level. Lennox stated that DOE notes in the October 2022 Electric Motor Test Procedure Final Rule (87 FR 63588) that an industry test procedure DOE incorporated by reference is “not applicable to air-over electric motors that are synchronous electric motors and to air-over electric motors that are inverter-only” (10 CFR 431.25(I)). AHRI commented that DOE should refer to the comments made by NEMA on the energy conservation standards for Fans and Blowers on the issues surrounding setting multiple standards for the same product under different rulemakings in regards to the interaction between the furnace fan rulemaking and the ESEMs rulemaking. (AHRI, No. 23 at p. 5)

In the ESEM rulemaking, DOE is considering including expanded scope electric motors including certain permanent split capacitor (PSC) motors that exceed 0.25 horsepower and are single-speed. DOE understands that the vast majority of furnace fans use either electrically commutated motors (*i.e.*, “ECMs” which are also referred to as BPM motors in this rulemaking) or are multiple-speed PSC motors, both of which are out of the preliminary scope of the ESEM rulemaking. Thus, furnace fans using BPM motors or multiple-speed PSC motors will not be impacted by the ESEM rulemaking.⁷

Screening Analysis

DOE uses the following five screening criteria to determine which technology options are suitable for further

consideration in an energy conservation standards rulemaking:

(1) *Technological feasibility.* Technologies that are not incorporated in commercial products or in commercially viable, existing prototypes will not be considered further.

(2) *Practicability to manufacture, install, and service.* If it is determined that mass production of a technology in commercial products and reliable installation and servicing of the technology could not be achieved on the scale necessary to serve the relevant market at the time of the projected compliance date of the standard, then that technology will not be considered further.

(3) *Impacts on product utility.* If a technology is determined to have a significant adverse impact on the utility of the product to subgroups of consumers, or result in the unavailability of any covered product type with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as products generally available in the United States at the time, it will not be considered further.

(4) *Safety of technologies.* If it is determined that a technology would have significant adverse impacts on health or safety, it will not be considered further.

(5) *Unique-pathway proprietary technologies.* If a technology has proprietary protection and represents a unique pathway to achieving a given efficiency level, it will not be considered further, due to the potential for monopolistic concerns. 10 CFR part 430, subpart C, appendix A, sections 6(b)(3) and 7(b).

In summary, if DOE determines that a technology, or a combination of technologies, fails to meet one or more of the listed five criteria, it will be excluded from further consideration in the engineering analysis.

a. Screened-Out Technologies

In the November 2022 Preliminary Analysis, DOE tentatively screened out housing design modifications and changes to airflow path designs from its analysis. In response, Lennox agreed with DOE’s determination to screen out housing designs and airflow paths that could impact the thermal performance of the furnace and decrease consumer utility. (Lennox, No. 24 at p. 5) Carrier also indicated agreement with DOE’s decision to screen out improved housing designs and airflow path designs due to their impact on overall

product size, stating that they could adversely impact consumer utility and the practicality of making replacement installations. Additionally, Carrier agreed there is no quantitative data suggesting specific housing design changes provide efficiency improvements in the same cabinet width. (Carrier, No. 19 at p. 3)

The Joint Commenters commented that additional design options that increase efficiency beyond a backward-inclined impeller are currently available on the market. The Joint Commenters stated that airflow path and fan housing improvements represent potential options for improving furnace fan efficiency but noted that DOE screened out these design modifications since they could impact the thermal performance of the furnace. The Joint Commenters acknowledged this concern, but noted that one of the models exceeding EL 1 is used in a condensing furnace with an AFUE of 97 percent, suggesting manufacturers may be able to optimize the furnace fan efficiency without negatively impacting the efficiency of the furnace itself. The Joint Commenters recommended that DOE continue investigating furnace fan efficiencies and how certain design features on the current market permit furnace fan FER levels below those analyzed in the TSD. (Joint Commenters, No. 20 at pp. 2–3)

As discussed in section IV.A.2 of this document, airflow path and fan housing improvements can improve furnace fan efficiencies. However, as discussed in chapter 4 of the November 2022 Preliminary Analysis TSD, DOE does not have data that quantifies the impact of housing design modifications on FER. Additionally, DOE has found that the airflow path design can impact the performance of the larger furnace system with possible changes to the furnace efficiency as measured in AFUE. Though condensing furnaces can achieve lower FERs, DOE currently lacks the data necessary to conclude that these options will not reduce utility to consumers, and therefore has continued to screen out these technologies for this analysis.

Several commenters also suggested that backward-inclined impeller should be screened out of the current analysis. AHRI, Trane, Lennox, and Daikin raised concerns about the technological feasibility of backward-inclined impellers. AHRI commented that further analysis of backward-inclined impellers is needed, stating that while backward-inclined impellers can be considered a

⁷ See Docket EERE–2020–BT–STD–0007.

mature technology in some products, it is nascent at best for consumer furnaces. AHRI commented that the analysis performed in the TSD does not capture the current state of this technology. (AHRI, No. 23 at pp. 2–3) Trane commented that the necessary backward-inclined impeller is not available for purchase and is therefore unavailable for furnace manufacturers for use in testing. (Trane, No. 22 at p. 2) Lennox commented that backward-inclined impellers are nascent technology for consumer furnaces and may not be practical for many installations. Lennox commented that DOE's analysis does not accurately portray the current state of this technology regarding residential furnace fans. Lennox stated that current furnace designs are much more compact than when DOE conducted research regarding backward-inclined impellers and there is now less space to accommodate furnace fans. Lennox commented that including backward-inclined impellers would require changes to the housing design and airflow patterns, which DOE screened out in the TSD. Lennox further commented that backward-inclined impellers are not a one-size-fits-all application. Lennox stated that changing the airflow design would require redesign and retesting on a model-by-model basis to ensure proper operation, compliance with safety standards, and product reliability. (Lennox, No. 24 at pp. 5–6) Daikin commented that replacing a forward-curved impeller with a backward-curved impeller may change the ESP of the unit and require that the unit use a larger blower wheel. Daikin commented that increasing the blower wheel diameter requires a change to the blower housing design, which was a technology option DOE screened out in the preliminary analysis. Daikin recommended that DOE evaluate the impact of backward-inclined impellers on furnace ESP. (Daikin, No. 26 at pp. 21–22) Rheem requested to know whether DOE had considered the impact of the backward-inclined impeller system on other furnace components, such as the evaporator coil or other accessories. (Rheem, No. 26 at p. 23) In contrast to these comments, Carrier stated that it uses backward-inclined impellers in non-weatherized gas

furnaces that have 14-inch cabinets and AFUE ratings of 95 percent or higher. (Carrier, No. 19 at p. 1)

Manufacturers also raised concerns about potential impacts on the utility and safety of furnaces if backward-inclined impellers are used as a technology option. Carrier commented that its experiences suggest backward-inclined impellers significantly change the air profile through the furnace and, to maintain safety and reliability, the airflow must be redirected, adding that this can reduce the performance improvement from the impeller change. Carrier further commented that in applications where a larger impeller diameter cannot be accommodated, the increased rotational speed increases the operation noise of the furnace, adding that the noise generated from fan operation is an important performance selection criterion to consumers. (Carrier, No. 19 at p. 3) Lennox commented that backward-inclined impellers present many design challenges. Lennox noted that backward-inclined impellers must have significantly higher tip speeds, which require either a larger impeller diameter or higher rotational speed. However, Lennox commented that the required speed increase is outside the normal range of motors applied in furnace fans and would be likely to increase sound levels and reduce consumer utility. (Lennox, No. 24 at p. 6)

In response to these concerns, DOE notes that, even if there are only a limited number of commercially available product designs that incorporate backward-inclined impellers, they are sufficient to demonstrate technological feasibility as defined by EPCA. 10 CFR part 430, subpart C, appendix A, sections 6(b)(3)(i). Similarly, because these technologies are used in commercialized designs, DOE has determined that they can be implemented safely and reliably and with a noise level that is acceptable to consumers. DOE agrees, however, that there may be potential costs associated with potential redesign and retesting to ensure safety and to ensure acceptable noise levels, and this issue is discussed further in section IV.H of this document.

Therefore, for the current analysis, DOE tentatively screened out housing design modifications and changes to airflow path designs from its analysis

but did not screen out backward-inclined impellers.

b. Remaining Technologies

After reviewing each technology, DOE did not screen out the following technology options and considers them as design options in the engineering analysis:

- (1) Multi-stage heating components and controls
- (2) High-efficiency fan motors (*i.e.*, use of BPM fan motors for product classes that currently use PSC motors)
- (3) Inverter controls for PSC motors
- (4) Higher-efficiency fan blades (backward-inclined impellers)

DOE determined that these technology options are technologically feasible because they are being used or have previously been used in commercially available products or working prototypes. DOE also finds that all of the remaining technology options meet the other screening criteria (*i.e.*, practicable to manufacture, install, and service and do not result in adverse impacts on consumer utility, product availability, health, or safety).

4. Product Classes

In general, when evaluating and establishing energy conservation standards, DOE divides the covered product into classes by (1) the type of energy used, (2) the capacity of the product, or (3) any other performance-related feature that affects energy efficiency and justifies different standard levels, considering factors such as consumer utility. (42 U.S.C. 6295(q))

DOE currently categorizes furnace fans into 10 product classes. EPCA specifies criteria for product class separation which include: (1) the type of energy consumed; (2) capacity; or (3) other performance-related features that justify a higher or lower energy conservation standard. 42 U.S.C. 6295(q) The 10 product classes currently established by DOE are differentiated by performance related features, including internal structure and application-specific design differences, as presented in Table IV.1. For this NOPD, DOE maintained these 10 classes, with the exception of a change to the mobile home non-weatherized oil furnace fan (MH-NWO) class discussed hereinafter.

TABLE IV.1—EXISTING FURNACE FAN PRODUCT CLASSES

Product class
Non-weatherized, Non-condensing Gas Furnace Fan (NWG–NC).
Non-weatherized, Condensing Gas Furnace Fan (NWG–C).
Mobile Home Non-Weatherized, Non-condensing Gas Furnace Fan (MH–NWG–NC).
Mobile Home Non-Weatherized, Condensing Gas Furnace Fan (MH–NWG–C).
Mobile Home Electric Furnace/Modular Blower Fan (MH–EF/MB).
Non-Weatherized, Non-Condensing Oil Furnace Fan (NWO–NC).
Weatherized Non-Condensing Gas Furnace Fan (WG–NC).
Electric Furnace/Modular Blower Fan (EF/MB).
Mobile Home Weatherized Non-Condensing Gas Furnace Fan (MH–WG).*
Mobile Home Non-Weatherized Oil Furnace Fan (MH–NWO).*

*DOE created the MH–NWO and MH–MG product classes in the July 2014 Final Rule, but these classes do not currently have energy conservation standards.

Each product class title includes descriptors that indicate the internal structure and application-specific performance related features of its included products. As directed by EPCA, DOE must specify a different standard level for a type or class of products that has the same function or intended use if DOE determines that products within such group: (A) consume a different kind of energy from that consumed by other covered products within such type (or class); or (B) have a capacity or other performance-related feature which other products within such type (or class) do not have and such feature justifies a higher or lower standard. (42 U.S.C. 6295(q)(1)) Weatherized and non-weatherized are descriptors that indicate whether the HVAC product is installed outdoors or indoors, respectively. Design constraints are different for products installed indoors compared to outdoors, which impact furnace fan performance because furnace fan energy consumption is dependent on clearances and airflow path. Weatherized products are packaged products that also include an internal evaporator coil, while non-weatherized products are not shipped with an evaporator coil but may be designed to be paired with one. The presence of an evaporator coil increases internal static pressure and impacts furnace fan performance and energy consumption. Weatherization (*i.e.*, the ability to be installed outdoors) is therefore a performance-related feature as outlined by EPCA.

Condensing refers to the presence of a secondary, condensing heat exchanger in addition to the primary combustion heat exchanger in certain furnaces. The presence of a secondary heat exchanger improves the AFUE of a consumer furnace but also increases internal static pressure. As a result, DOE expects that furnace fans used in condensing units will consume more electrical energy

than similar, non-condensing units, and therefore use with condensing technology constitutes a performance-related feature for this product. Mobile home products meet certain design requirements that allow them to be installed in mobile homes. They require direct venting and are typically installed without return air ducting. As a result, furnace fans used in mobile home products consume a different amount of electric energy than furnace fans installed in similar HVAC products that are designed for site-built applications. Therefore, the ability to be installed in mobile home applications is a performance-related feature under EPCA.

Descriptors like gas, oil, or electric indicate the type of fuel that the HVAC product uses to produce heat, which determines the type and geometry of the primary heat exchanger used in the HVAC product. Each heat exchanger geometry could result in a unique internal static pressure and therefore, have differing impacts on furnace fan performance and energy consumption and are considered performance-related features.

In the July 2014 Final Rule, DOE created product classes for MH–NWO furnace fans and MH–WG furnace fans, but DOE did not analyze or prescribe standards for either product class because of the lack of available data for those product classes. 79 FR 38130, 38150. DOE is not aware of any products that would be considered MH–WG furnace fans at this time. However, DOE has become aware of a limited number of MH–NWO furnace fans that have been introduced to the market. The MH–NWO furnace fans that DOE identified are all used in non-condensing furnaces, so DOE analyzed a subset of the previously established but unanalyzed class—mobile home non-weatherized, oil, non-condensing (MH–NWO–NC) furnace fans. DOE specifically considered MH–NWO–NC furnace fans because, as with furnace

fans used in gas-fired products, DOE tentatively concluded that suitability for use with condensing technology would be a performance related feature that would justify further separating MH–NWO furnace fans into condensing and non-condensing classes. Furnace fans used in oil-fired products that are non-condensing as compared to those that are condensing would have different performance due to likely differences in internal structure of condensing products (if any were to be developed). As such, suitability for use with condensing technology in a furnace fan is a performance-related feature under EPCA. As DOE is not aware of any condensing MH–NWO products, DOE did not analyze them for this NOPD analysis and instead focused on MH–NWO–NC furnace fans. In summary, DOE considered the product classes shown in the following list in its analysis.

- (1) Non-weatherized, Non-condensing Gas Furnace Fan (NWG–NC)
- (2) Non-weatherized, Condensing Gas Furnace Fan (NWG–C)
- (3) Mobile Home Non-weatherized, Non-condensing Gas Furnace Fan (MH–NWG–NC)
- (4) Mobile Home Non-weatherized, Condensing Gas Furnace (MH–NWG–C)
- (5) Mobile Home Electric Furnace/Modular Blower Fan (MH–EF/MB)
- (6) Non-weatherized, Non-condensing Oil Furnace Fan (NWO–NC)
- (7) Weatherized Non-Condensing Gas Furnace Fan (WG–NC)
- (8) Electric Furnace/Modular Blower (EF/MB)
- (9) Mobile Home Non-Weatherized, Non-Condensing Oil Furnace Fan (MH–NWO–NC)

B. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of consumer furnace fans. There are two elements to consider in the engineering

analysis; the selection of efficiency levels to analyze (*i.e.*, the “efficiency product”) and the determination of product cost at each efficiency level (*i.e.*, the “cost analysis”). In determining the performance of higher-efficiency products, DOE considers technologies and design option combinations not eliminated by the screening analysis. For each product class, DOE estimates the baseline cost, as well as the incremental cost for the product at efficiency levels above the baseline. The output of the engineering analysis is a set of manufacturer production costs (“MPCs”) in cost-efficiency “curves” that are used in downstream analyses (*i.e.*, the LCC and PBP analyses and the NIA).

1. Efficiency Analysis

DOE typically uses one of two approaches to develop energy efficiency levels for the engineering analysis: (1) relying on observed efficiency levels in the market (*i.e.*, the efficiency-level approach), or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.*, the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing products (in other words, based on the range of efficiencies and efficiency level “clusters” that already exist on the market). Using the design option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the

efficiency-level approach (based on actual products on the market) may be extended using the design option approach to interpolate to define “gap fill” levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the “max-tech” level (particularly in cases where the “max tech” level exceeds the maximum efficiency level currently available on the market).

Although FER data exists in DOE’s Compliance Certification Database (“CCD”) for furnace fans currently subject to efficiency standards, DOE has determined through testing that for many furnace fan models, the rated FER values may not be representative of the model’s actual performance. During confidential manufacturer interviews, several manufacturers confirmed that they rate the FER of their furnace fan products conservatively. Therefore, an efficiency level approach was not possible because the FER ratings of products currently available are largely not representative of their actual performance. Thus, DOE chose a design option approach to identify efficiency levels for the analysis in this proposed determination.

a. Baseline Efficiency Level

For each product class, DOE generally selects a baseline model as a reference point for each class, and measures changes resulting from potential energy conservation standards against the baseline. The baseline model in each product class represents the characteristics of a product typical of that class (*e.g.*, capacity, physical size). Generally, a baseline model is one that just meets current energy conservation standards, or, if no standards are in place, the baseline is typically the most common or least efficient unit on the market. For consumer furnace fans, the energy conservation standard sets a

maximum energy usage requirement and therefore a baseline furnace fan’s rated FER is just below or at the maximum FER threshold.

DOE used baseline units for comparison in several analyses, including the engineering analysis, LCC analysis, PBP analysis, and NIA. To determine energy savings that will result from an amended energy conservation standard, DOE compared energy use at each of the higher efficiency levels to the energy consumption of the baseline unit. Similarly, to determine the changes in price to the consumer that will result from an amended energy conservation standard, DOE compared the prices of baseline units to the prices of units at each higher efficiency level.

The identification of baseline units requires establishing the baseline efficiency level. In cases where there is an existing standard, DOE defines baseline units as units with efficiencies equal to the current Federal energy conservation standards. For MH–NWO–NC furnace fan product class, which does not currently have energy conservation standards, DOE developed the baseline equation by modifying the current energy conservation standards for the NWO–NC product class to account for the lower ESP experienced by mobile home units compared to other units. Specifically, DOE multiplied the y-intercept (382) by 0.75, which was the conversion factor determined in the analysis for the July 2014 Final Rule that was previously used to calculate the MH–NWG–NC baseline based on the NWG–NC baseline.⁸

Table IV.2 presents the maximum FER (*i.e.*, the baseline level) for each product class of consumer furnaces analyzed in this preliminary analysis, as well as the typical characteristics of products at that level.

TABLE IV.2—BASELINE EFFICIENCY LEVEL FER AND ASSOCIATED DESIGN OPTION FOR EACH PRODUCT CLASS

Product class	Maximum FER	Design option
Non-Weatherized, Non-Condensing Gas Furnace Fan	0.044 * Q _{Max} + 182 ...	BPM Motor w/Forward Inclined Impeller.
Non-Weatherized, Condensing Gas Furnace Fan	0.044 * Q _{Max} + 195 ...	BPM Motor w/Forward Inclined Impeller.
Weatherized, Non-Condensing Gas Furnace Fan	0.044 * Q _{Max} + 199 ...	BPM Motor w/Forward Inclined Impeller.
Non-Weatherized, Non-Condensing Oil Furnace Fan	0.071 * Q _{Max} + 382 ...	Improved PSC Motor w/Forward Inclined Impeller.
Non-Weatherized Electric Furnace Fan/Modular Blower Fan	0.044 * Q _{Max} + 165 ...	BPM Motor w/Forward Inclined Impeller.
Manufactured Home, Non-Weatherized, Non-Condensing Gas Furnace Fan.	0.071 * Q _{Max} + 222 ...	Improved PSC Motor w/Forward Inclined Impeller.
Manufactured Home, Non-Weatherized, Condensing Gas Furnace Fan	0.071 * Q _{Max} + 240 ...	Improved PSC Motor w/Forward Inclined Impeller.
Manufactured Home, Non-Weatherized Electric Furnace Fan/Modular Blower Fan.	0.044 * Q _{Max} + 101 ...	BPM Motor w/Forward Inclined Impeller.

⁸ Chapter 5 of the TSD accompanying the July 2014 Final Rule includes additional details about

how this conversion factor was calculated. See docket no. EERE–2010–BT–STD–0011.

TABLE IV.2—BASELINE EFFICIENCY LEVEL FER AND ASSOCIATED DESIGN OPTION FOR EACH PRODUCT CLASS—
Continued

Product class	Maximum FER	Design option
Manufactured Home, Non-Weatherized Non-Condensing Oil Furnace Fan.	0.071 * Q _{Max} + 287 ...	Improved PSC Motor w/Forward Inclined Impeller.

Products in the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, and MH–EF/MB products classes are currently subject to the standards set in the July 2014 Final Rule, in which the efficiency levels adopted were understood at that time to reflect models with CT–BPM motors and multi-stage operation. Products in the NWO–NC and MH–NWG–NC product classes are currently subject to the standards set in the July 2014 Final Rule in which the efficiency level adopted were understood to correspond to the performance associated with models including improved PSC motors and single-stage operation. Baseline products in the MH–NWO–NC product class were also found to correspond to performance associated with models including improved PSC motors and single-stage operation, based on DOE’s market findings for mobile-home oil-fired units certified in DOE’s CCD for consumer furnaces.

Many furnaces include multi-stage or modulating heating controls. However, based on current furnace fan market data as well as feedback received during manufacturer interviews, it is unclear if these features impact furnace fan efficiency as measured by FER (*see* section IV.A.2). Therefore, DOE did not include the costs of multi-stage or modulating heating controls in the baseline design (*i.e.*, DOE’s MPC estimates reflect single-stage units). However, DOE did develop separate cost values for multi-stage or modulating heating controls that can be applied to the above costs to represent the addition of multi-stage or modulating heating controls (*see* section IV.B.2.b of this document). These additional cost values are used in DOE’s LCC and PBP analyses in order to represent typical furnace fan cost distributions.

In addition, the baseline motor technology is either BPM or PSC, depending on the product class. Manufacturers may choose a CABPM motor instead of a CTBPM, despite its relatively higher cost, to add comfort utility to their product. This additional comfort may be marketed as a premium feature. Therefore, DOE included the cost of a CT–BPM motor in the MPCs for furnace fans with BPM motors. DOE also developed cost values to represent

the cost increase for CA–BPM motors relative to CT–BPM motors (*see* section IV.B.2.b of this document). These values were applied in the LCC analysis to represent the distribution of BPM blower motor technologies expected on the market because, although DOE is not differentiating between CA–BPM motors and CT–BPM motors in terms of furnace fan efficiency, manufacturers and consumers may consider CA–BPM motors to be a premium feature that may offer comfort-related consumer utility benefits.

In developing the cost-efficiency relationship, teardowns of baseline units were used as a reference point for determining the cost-efficiency relationship of units with lower (more efficient) FERs. DOE compared the design features incorporated into products at the baseline efficiency to the features of units with higher energy efficiencies in order to determine the changes in manufacturing, installation, and operating costs that occur as FER decreases.

In response to the November 2022 Preliminary Analysis, Morrison commented that DOE’s estimation of FER values is conservative, based on data from OEMs and DOE, both of which indicate that analysis from 2014 is not representative of current furnace fan function and composition. (Morrison, No. 27 at p. 2) Lennox commented that the use of BPM motors is required to meet current furnace fan efficiency standards for most consumer furnace fan categories and use of BPM motors is identified by DOE as the current baseline. (Lennox, No. 24 at p. 8)

AHRI commented that baseline mobile home non-weatherized gas furnace fan technology is not representative of the market. AHRI stated that, in many cases, the current FER rating for mobile home non-weatherized gas furnace fans cannot be met using a PSC motor, adding that these products already incorporate a BPM motor to meet Federal minimum standards. AHRI added that because mobile home non-weatherized gas furnace fans already incorporate BPM motors to meet the current levels, BPM motors will not be able to meet the FER minimums proposed at EL 1. (AHRI, No.

23 at p. 3) AHRI recommended that DOE validate the analysis performed for mobile home non-weatherized gas furnace fan to ensure the baseline and subsequent ELs are correct. (*Id.*)

The Joint Commenters stated that current standards for both weatherized and non-weatherized non-condensing gas furnace fans were intended to effectively require use of efficient BPM motors, but stated that DOE’s analysis shows some non-condensing gas furnace fans utilizing PSC motors can meet the current standards. The Joint Commenters noted that one currently available furnace/furnace fan model utilizes a PSC motor and is marketed as having a small footprint and DOE should investigate how this model and others are able to meet the current standards with presumably less efficient motors. (Joint Commenters, No. 20 at p. 2)

The CA IOUs commented that they agree with DOE’s decision to use the costs associated with constant-torque BPM and single-stage controls for its cost analysis for EL 1, adding that DOE has found several furnace fans on the market that meet EL 1. (CA IOUs, No. 21 at p. 2) The CA IOUs also noted that a 2017 California Codes and Standards Enhancement report evaluated air handlers sold with heat pumps and confirmed that while cabinet and blower design can affect internal resistance to airflow, a PSC motor can adversely affect fan efficacy. (*Id.* at p. 5)

In response, DOE notes that it has developed baseline efficiency levels that are representative of the baseline technologies used in the current furnace fan market. While the FER ratings reported in CCMS are generally likely to be conservative estimates, DOE has conducted testing to understand the impacts of the technology options identified in section IV.A.2 on furnace fan efficiency, and has developed efficiency levels that reflect those impacts. DOE agrees with commenters that the use of BPM motors is necessary to meet the baseline for some product classes, as outlined in Table IV.2, but notes that some product classes can meet the baseline efficiency level using an improved PSC motor. In response to AHRI’s comments, although DOE recognizes that many mobile home

furnaces use BPM motors, DOE is aware of mobile home furnaces on the market that use an improved PSC motor and meet the current FER standards. DOE thus concludes that FER standards can be achieved using this technology and has maintained improved PSC motors as a part of the baseline design option for mobile home furnaces. Conversely, DOE's market data shows that no non-weatherized gas furnaces currently on the market use PSC motors; DOE therefore concludes that a BPM motor continues to be an appropriate baseline motor design for this class.

b. Intermediate Efficiency Levels

DOE analyzed intermediate efficiency levels for NWO-NC, MH-NWG-NC, MH-NWG-C, and MH-NWO-NC classes of consumer furnace fans. As discussed in section IV.B.1.c, DOE did not identify any efficiency levels between baseline and max-tech for the NWG-NC, NWG-C, WG-NC, NWEF/NWMB, and MH-EF/MB classes. The intermediate efficiency levels identified are representative of efficiency levels where major technological changes occur (*i.e.*, replacing PSC motors with BPM motors). As discussed in section IV.B.1.a of this document, DOE has tentatively found that CT-BPM motors and CA-BPM motors have comparable impacts on FER ratings, and DOE has therefore only analyzed a single efficiency level reflecting the implementation of BPM motors. Additionally, DOE has tentatively used the assumption of a 12-percent reduction in FER for improved PSC motors and a 46-percent reduction in FER for models with a CT-BPM and multi-staging from the baseline used in the 2014 Final Rule (79 FR 38130, 38159) to calculate a 39-percent reduction in FER from improved PSC (the current baseline) to CT-BPM with multi-staging. The 39-percent reduction in FER is implemented into the current analysis to represent the reduction in FER from improved PSC to a model with a CT-BPM (regardless of staging) because DOE has tentatively decided not to include staging as a technology option that improves FER.

In response to the November 2022 Preliminary Analysis, Lennox commented that the efficiency levels and design options associated with the use of forward curved impellers and BPM motors are reasonable. (Lennox, No. 24 at p. 7)

The Joint Commenters commented that models with lower FERs than EL 1 are available in each of the major furnace fan product classes. The Joint Commenters commented that, based on results in the CCD, both condensing and

non-condensing non-weatherized furnace fans with efficiencies exceeding EL 1 are available across a broad range of airflows. The Joint Commenters stated that, as DOE acknowledged in the TSD, many manufacturers rate their furnace fans conservatively, which suggests the number of higher-efficiency furnace fans available on the market is understated. (Joint Commenters, No. 20 at pp. 1–2) Additionally, the Joint Commenters encouraged DOE to analyze an EL associated with improved BPM motor efficiency. The Joint Commenters stated that a range of BPM motor efficiencies currently exist on the market but added that DOE did not analyze improved motor efficiency as a potential design option. The Joint Commenters encouraged DOE to gather additional information from motor manufacturers to characterize the FER reductions achievable with the most efficient BPM motors available, and to analyze an EL associated with these higher efficiency BPM motors for the next stage of the rulemaking. (*Id.* at p. 3)

DOE is not aware of any data showing the relationship between improved motor efficiency and FER ratings. DOE welcomes data exploring this relationship and may include efficiency levels corresponding to the use of more efficient BPM motors in a future analysis but did not include this additional efficiency level in the current analysis due to the lack of data.

c. Maximum Technology Efficiency Levels

As part of DOE's analysis, the maximum available efficiency level is the highest efficiency unit currently available on the market. DOE also defines a "max-tech" efficiency level to represent the maximum possible efficiency for a given product. DOE identified the max-tech design for all consumer furnace fans product types as incorporating a BPM motor with a backward-inclined impeller.

BPM motors are described in sections IV.B.1.a and IV.B.1.b of this chapter. For furnace fan models that use PSC motors, BPM motors can offer an improvement in efficiency and reduce FER. Backward-inclined impellers, in comparison to forward-inclined impellers used in the majority of furnace fans on the market, have been found to have a higher efficiency under certain operating conditions. In chapter 5 of the TSD accompanying the November 2022 Preliminary Analysis, DOE explained that it has tentatively used the same assumptions about the percent reduction in FER associated with implementing backward-inclined

impellers as in the July 2014 Final Rule (*i.e.*, a 10-percent reduction in FER compared to models that include forward-inclined impellers). 79 FR 38130, 38159.

In response to the November 2022 Preliminary Analysis, several commenters raised concerns about the assumption that a backward-inclined impellers will reduce FER by 10 percent. Several commenters suggested that the impact of backward-inclined impellers on FER may vary by application. Carrier commented that DOE correctly concluded in the TSD that the efficiency improvement of a backward-inclined impeller is not uniform across the entire range of operation. Carrier stated that this lack of uniformity can require limiting the operating range, which reduces the furnace utility, or leads to unrealized efficiency improvements in application. Carrier stated that it believes backward-inclined impellers are not a technologically feasible design option in some models because they do not improve efficiency and in other models they reduce furnace utility. Carrier stated that its non-weatherized 95-percent-plus AFUE 14-inch-width gas furnaces use backward-inclined impellers to meet the current FER standards. (Carrier, No. 19 at pp. 3–4) Carrier commented that it completed extensive research and evaluated the impact of this technology in many furnace variations and suggested that DOE's technology assessment does not fully account for the design challenges of using backward-inclined impellers in consumer furnaces. Carrier commented that the improvement in fan efficiency is not uniform across model sizes within a product family due to design changes needed to address the safety and reliability⁹ of the furnaces. Carrier requested that DOE continue its study of backward-inclined impeller technology to better understand the efficiency improvement variation across product sizes before concluding a uniform reduction in FER for a product class. Carrier also stated that because its models that incorporate backward-inclined impeller use the maximum technology design options, any reduction in the FER limit would eliminate them from the market. (*Id.* at pp. 1–3)

AHRI commented that it is aware of products on the market which use proprietary backward-inclined impeller designs that are not capable of meeting the FER that DOE has associated with

⁹ Carrier's comments related to safety and reliability concerns are discussed in section IV.A.4.a of this document.

that design option. AHRI further commented that these products are some of the highest-efficiency products on the market and stated that if the FER requirement is moved to a max-tech level, both furnace fan availability and high-efficiency furnace availability will be affected. (AHRI, No. 23 at pp. 5–6)

The CA IOUs requested that DOE conduct additional research on backward-inclined fan performance to ensure the projected energy savings. The CA IOUs further requested that DOE collect current data on the performance of backward-inclined impellers in furnaces to compare with forward-curved fans available in 2023. The CA IOUs commented that DOE's calculations appeared to be based on research that may not reflect the current performance of forward-curved fans and instead overstates the performance of backward-inclined fans on the market. The CA IOUs commented that DOE's findings of 10-percent energy savings expected from backward-inclined fans were first presented in the 2014 TSD and were based on 2003 GE testing of a single backward-inclined prototype against a single forward curved fan. The CA IOUs commented that a follow-up LBNL report found that the construction of the forward-curved fan tested in 2003 was substandard and contained large gaps between the impeller and housing and misalignment between the impeller and inlet. The CA IOUs pointed out that furnace fans in 2003 had no performance requirements and that with the advent of furnace fan regulation, forward-curved fan design has improved while backward-inclined fans currently available are not noticeably better than the prototype tested in 2003. The CA IOUs presented data showing the performance of one manufacturer's forward-curved and backward-inclined fans and commented that additional research is needed to confirm the efficiency difference before DOE considers using backward-inclined fans. (CA IOUs, No. 21 at pp. 2–5)

Morrison stated that the GE fan referenced by DOE (as the basis of the backward inclined impeller analysis) was used in LBNL research and had limited benefit when compared to a forward-curved fan. Furthermore, Morrison commented that more information was needed regarding claims in the TSD that the use of EBM fans resulted in a 15–30-percent improvement. Morrison stated that DOE used an estimated 10-percent FER improvement from the 2014 rulemaking, but that would be relative to older designs made prior to changes seen in furnace fans since 2019. Morrison stated that consumer furnace fans have been

improved since then to improve energy use. (Morrison, No. 27 at p. 2) No commenters submitted data supporting an alternative FER reduction value to associate with backward-inclined impellers. Therefore, DOE continued to rely on the best data available, which is what DOE used to arrive at the assumption that backward-inclined impellers uniformly reduce the FER of consumer furnace fans by a 10-percent reduction in the July 2014 Final Rule. With respect to Morrison's comments that the furnace fan designs have changed since 2014, DOE notes that the estimate of a 10-percent reduction is not relative to the baseline design, but instead is relative to an equivalent furnace fan with a forward curved impeller and thus still applies. In other words, in the July 2014 Final Rule, DOE estimated that implementing a backward-inclined impeller in place of a forward-inclined impeller would reduce FER by 10 percent in a furnace fan with a constant-airflow BPM motor and multi-staging; it was not relative to a baseline furnace with a PSC motor and single-stage operation. 79 FR 38130, 38159. (As previously discussed, for this analysis DOE did not find evidence of significant differentiation in FER among multi-stage models as compared to single-stage models, or between constant-airflow and constant-torque BPM motors.) However, the concerns and uncertainties raised by commenters in the above paragraphs contribute to DOE's tentative decision not to adopt standards at max-tech levels for furnace fans at this time. For additional discussion regarding backward-inclined impellers, see section IV.H of this document.

In response to DOE's consideration of backward-inclined impellers at the max-tech level in the November 2022 Preliminary Analysis, commenters discussed a number of concerns with implementing the technology.

AHRI commented that there is no one-size-fits-all design for incorporating backward-inclined impellers into current products. AHRI stated that changes in the airflow design will require redesign and retesting on a model-by-model basis to ensure both proper operation and compliance with safety standards. (AHRI, No. 23 at p. 5) AHRI commented that the issues associated with moving from a forward-inclined impeller to a backward-inclined impeller will require safety testing and redesign. AHRI further commented that these additional costs are not accounted for in the analysis. (*Id.* at p. 3)

Trane commented that, based on its research, a backward-inclined impeller

is not compatible with current furnace dimensions, which are not large enough to accommodate a backward-inclined impeller. Trane added that it cannot be assumed that furnace design changes will have no impact on energy use and equipment utility when a backward-inclined impeller is used in the existing housing. Furthermore, Trane commented that, based on its research, the issues of the inlet cone design and clearances to the moving impeller remain a concern and require attention. (Trane, No. 22 at p. 2)

Trane commented that adopting EL 1 would require replacing the current forward-inclined impeller with a backward-inclined impeller. Trane added that its research showed a 7-year development cycle for the blower system technology needed to adopt EL 1. Trane commented that this same research surfaced concerns with the ability to manufacture a high-speed (~1800 RPM max) blower wheel with close tolerances with the inlet cones, and significant leakage of high-pressure air from the exhaust portion of the housing back into the low-pressure input region if typical 0.25-in gaps are implemented. Trane commented that improvements from only retrofitting the impeller were less than 10 percent unless blower housing modifications were made. Trane commented that its determination regarding the impellers was based on a study completed more than 20 years ago, "Final Report for the Variable Speed Integrated Intelligent HVAC Blower, Final Report for BP-2" (June 1, 2003). (Trane, No. 22 at p. 2)

Trane acknowledged that DOE's findings were based on the EBM-Papst furnace model, which has a backward-inclined impeller blower system. Trane commented that the EBM-Papst system is not an impeller change, but a different blower system that produces a different air flow pattern from the forward-inclined impeller and is thus not able to be tested according to the same standards as a furnace fan with a forward-inclined impeller. Trane commented that for all manufacturers to adopt this system would require all safety, performance, and AFUE testing to be performed in order to put it into production, and furthermore, due to its need for an inlet orifice, this system limits the furnace's return air location to a single location (*i.e.*, left side, right side, or bottom). Trane added that higher air flow furnaces often need more than a single side return to perform properly for CFM and watts, and therefore adopting the EBM-Papst approach would not be possible for many furnace fan manufacturers. Trane commented that, for the reasons stated

above and because it would reduce the utility of the furnace, the EBM-Papst system is unsuitable as a basis for comparison for adopting EL 1 among furnace fan manufacturers. (*Id.*) Furthermore, Trane commented that adapting all furnace fans to accommodate the EBM-Papst system would reduce the utility of the furnace and increase the installation time needed to move components to reach the return air location required by the system. Trane commented that the EBM-Papst system should have been analyzed as a separate EL level. (Trane, No. 22 at pp. 2–3)

Trane commented that testing would be required ahead of introducing the impeller change in order to determine the effects this difference would have on heat exchanger temperatures, furnace efficiency, and safety limit operation. Trane commented that according to DOE, housing design modifications were eliminated from consideration due to the resulting reduction in utility that such a change produces. Trane commented that the same logic should apply to an impeller change that creates a substantially different discharge velocity distribution. (Trane, No. 22 at p. 3)

Lennox commented that the application of backward-inclined impellers would require changes in the housing design and airflow patterns that DOE has already screened out in the TSD. Lennox further commented that changes in the airflow design will require redesign and retesting on a model-by-model basis to ensure proper operation, compliance with safety standards, and product reliability. (Lennox, No. 24 at p. 7)

AHRI commented that backward-inclined impellers require a larger diameter than the forward-inclined impellers they are intended to replace, stating that backward-inclined impellers will not fit in the cabinet of a fan with a forward-inclined impeller. They further commented that most all models will have to be redesigned to accommodate the larger impeller, adding that it will lead to housing design and airflow path modifications. AHRI stated DOE has acknowledged that modifications of housing design and airflow path have an adverse impact on furnace efficiency. (AHRI, No. 23 at p. 3)

AHRI commented that furnace cabinets are limited in size due to the dimensions of the installation space. AHRI stated that smaller-sized furnaces are at a disadvantage when it comes to meeting the required FER level because of the relationship between the furnace input level and the width of the furnace. AHRI commented that a change to the efficiency level to include backward-inclined impellers, coupled with the proposed future change to the minimum AFUE, would likely eliminate the smallest cabinet sizes from the marketplace without replacement furnace options or with reduced choices for consumers in cases where the smallest size model is required. (AHRI, No. 23 at p. 6)

The CA IOUs suggested that DOE refrain from implementing energy conservation standards that would require the use of backward inclined fans, as the CA IOUs could not identify furnaces incorporating backward-inclined fans available for purchase. (CA IOUs, No. 21 at p. 2)

In response, as discussed previously and as several commenters acknowledge, DOE is aware of backward-inclined impellers being used in other sectors of the HVAC industry and also in a small number of consumer furnace fan models available today. Therefore, DOE has found this design option to be technologically feasible. DOE identified and examined the models that currently use backward inclined impellers and did not identify any significant differences in cabinet dimensions, overall construction, or any indication of installation constraints as compared to similar models using a forward-curved impeller. As a result, DOE maintained backward-inclined impellers as a design option at max-tech for this analysis. However, given the limited number of consumer furnace fan models that this technology is currently used in, DOE recognizes that there are some uncertainties with applying it to the entire consumer furnace fans market and across the entire range of capacities, as pointed out by several commenters. As discussed in section V.C of this document, DOE is proposing not to amend standards and therefore use of a backward inclined impeller would not be required. While this decision is primarily based on the cost effectiveness of this design option at this time, DOE has also considered some analytical uncertainties, as discussed in sections IV.H and V.C of this document.

d. Summary of Efficiency Levels Analyzed

The efficiency levels and associated technologies analyzed for each class of consumer furnace fan are shown in Table IV.3 through Table IV.11.

TABLE IV.3—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR NWG–NC FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.044 * Q_{Max} + 182$	BPM Motor w/Forward-Curved Impeller	N/A
1—Max-tech	$0.04 * Q_{Max} + 164$	BPM Motor w/Backward-Inclined Impeller	10

TABLE IV.4—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR NWG–C FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.044 * Q_{Max} + 195$	BPM Motor w/Forward-Curved Impeller	N/A
1—Max-tech	$0.04 * Q_{Max} + 176$	BPM Motor w/Backward-Inclined Impeller	10

TABLE IV.5—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR WG–NC FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.044 * Q_{Max} + 199$	BPM Motor w/Forward-Curved Impeller	N/A
1—Max-tech	$0.04 * Q_{Max} + 179$	BPM Motor w/Backward-Inclined Impeller	10

TABLE IV.6—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR NWEF/NWMB FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.044 * Q_{Max} + 165$	BPM Motor w/Forward-Curved Impeller	N/A
1—Max-tech	$0.04 * Q_{Max} + 149$	BPM Motor w/Backward-Inclined Impeller	10

TABLE IV.7—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR MH–EF/MB FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.044 * Q_{Max} + 101$	BPM Motor w/Forward-Curved Impeller	N/A
1—Max—Tech	$0.04 * Q_{Max} + 91$	BPM Motor w/Backward-Inclined Impeller	10

TABLE IV.8—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR MH–NWG–NC FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.071 * Q_{Max} + 222$	Improved PSC Motor	N/A
1	$0.044 * Q_{Max} + 137$	BPM Motor w/Forward-Curved Impeller	39
2—Max-tech	$0.04 * Q_{Max} + 123$	BPM Motor w/Backward-Inclined Impeller	45

TABLE IV.9—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR MH–NWG–C FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.071 * Q_{Max} + 240$	Improved PSC Motor	N/A
1	$0.044 * Q_{Max} + 148$	BPM Motor w/Forward-Curved Impeller	39
2—Max-tech	$0.04 * Q_{Max} + 133$	BPM Motor w/Backward-Inclined Impeller	45

TABLE IV.10—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL FOR NWO–NC FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.071 * Q_{Max} + 382$	Improved PSC Motor	N/A
1	$0.044 * Q_{Max} + 236$	BPM Motor w/Forward -Curved Impeller	39
2—Max-tech	$0.04 * Q_{Max} + 212$	BPM Motor w/Backward-Inclined Impeller	45

TABLE IV.11—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL MH–NWO–NC FANS

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
0—Baseline	$0.071 * Q_{Max} + 287$	Improved PSC Motor	N/A
1	$0.044 * Q_{Max} + 176$	BPM Motor w/Forward -Curved Impeller	39

TABLE IV.11—EFFICIENCY LEVELS AND TECHNOLOGIES USED AT EACH EFFICIENCY LEVEL MH–NWO–NC FANS—Continued

EL	FER equation	Description of technologies typically incorporated	Percent reduction in FER from baseline
2—Max-tech	0.04 * Q _{Max} + 158	BPM Motor w/Backward-Inclined Impeller	45

2. Cost Analysis

The cost analysis portion of the Engineering Analysis is conducted using one or a combination of cost approaches. The selection of cost approach depends on a suite of factors, including the availability and reliability of public information, characteristics of the regulated product and the availability and timeliness of purchasing the consumer furnace fans on the market. The cost approaches are summarized as follows:

- *Physical teardowns:* Under this approach, DOE physically dismantles a commercially available product, component-by-component, to develop a detailed bill of materials for the product.

- *Catalog teardowns:* In lieu of physically deconstructing a product, DOE identifies each component using parts diagrams (available from manufacturer websites or appliance repair websites, for example) to develop the bill of materials for the product.

- *Price surveys:* If neither a physical nor catalog teardown is feasible (for example, for tightly integrated products such as fluorescent lamps, which are infeasible to disassemble and for which parts diagrams are unavailable) or cost-prohibitive and otherwise impractical (e.g., large commercial boilers), DOE conducts price surveys using publicly available pricing data published on major online retailer websites and/or by soliciting prices from distributors and other commercial channels.

In the present case, DOE conducted its cost analysis using a combination of physical and catalog teardowns to assess how manufacturing costs change with increased product efficiency. DOE estimated the MPC associated with each efficiency level to characterize the cost-efficiency relationship of improving consumer furnace fan performance. The MPC estimates are not for the entire HVAC product. Because consumer furnace fans are a component of the HVAC product in which they are integrated, the MPC estimates include costs only for the components of the HVAC product that impact FER.

Products were selected for physical teardown analysis that have characteristics of typical products on the market at a representative input

capacity of 80,000 Btu/h for the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, MH–NWG–NC, MH–NWG–C, MH–EF/MB, and MH–WG product classes and 105,000 Btu/h for the NWO–NC and MH–NWO product classes (determined based on market data and discussions with manufacturers). Selections spanned a range of FER efficiency levels and designs and included most manufacturers. The resulting bill of materials provides the basis for the manufacturer production cost (“MPC”) estimates.

To account for manufacturers’ non-production costs and profit margin, DOE applies a multiplier (the manufacturer markup) to the MPC. The resulting manufacturer selling price (“MSP”) is the price at which the manufacturer distributes a unit into commerce. DOE developed an average manufacturer markup by examining the annual Securities and Exchange Commission (“SEC”) 10–K reports filed by publicly-traded manufacturers primarily engaged in HVAC manufacturing and whose combined product range includes consumer furnace fans. DOE refined its understanding of manufacturer mark-ups by using information obtained during manufacturer interviews. The manufacturer mark-ups were used to convert the MPCs into MSPs. Further information on this analytical methodology is presented in the following subsections.

a. Teardown Analysis

To assemble bills of materials (“BOMs”) and to calculate manufacturing costs for the different components in consumer furnace fans, multiple units were disassembled into their base components, and DOE estimated the materials, processes, and labor required to manufacture each individual component, a process referred to as a “physical teardown.” Using the data gathered from the physical teardowns, each component was characterized according to its weight, dimensions, material, quantity, and the manufacturing processes used to fabricate and assemble it.

For supplementary catalog teardowns, product data were gathered, such as dimensions, weight, and design features

from publicly available information, such as manufacturer catalogs. Such “virtual teardowns” allowed DOE to estimate the major physical differences between a product that was physically disassembled and a similar product that was not. For this NOPD, data from a total of 61 physical and virtual teardowns of consumer furnace fans were used to calculate industry MPCs in the engineering analysis.

The manufacturers of units chosen for teardowns have large market shares in the particular product classes for which their teardown units are categorized. Whenever possible, DOE examined multiple models from a given manufacturer that capture different design options and used them as direct points of comparison. DOE examined products with PSC, CT–BPM, and CA–BPM indoor blower motors, as well as products using single-stage, two-stage, and modulating combustion systems. As further discussed in section IV.B.2.b of this document, cost values were developed for some of these technologies to estimate the manufacturing cost of changing designs from one technology to another (i.e., using a CA–BPM instead of a CT–BPM, or two-stage combustion instead of single-stage combustion).

b. Cost Estimation Method

The costs of individual models are estimated using the content of the BOMs (i.e., relating to materials, fabrication, labor, and all other aspects that make up a production facility) to generate MPCs. The resulting MPCs include costs such as overhead and depreciation, in addition to materials and labor costs. DOE collected information on labor rates, tooling costs, raw material prices, and other factors to use as inputs into the cost estimates. For purchased parts, DOE estimates the purchase price based on volume-variable price quotations and detailed discussions with manufacturers and component suppliers. Furnace fans are a component of HVAC products that include other products not associated with the cost and/or efficiency of the furnace fan. Therefore, DOE focused its engineering analysis on the components that comprise the furnace fan assembly, including:

- Fan motor and integrated controls (as applicable);
- HVAC product control board;
- Impeller;
- Single-staging or multi-staging components and controls;
- Fan housing; and
- Components used to direct or guide airflow.

For parts fabricated in-house, the prices of the underlying “raw” metals (e.g., tube, sheet metal) are estimated on the basis of 5-year averages to smooth out spikes in demand. For purchased parts, DOE estimated the purchase prices paid to the OEMs of these parts, based on discussions with manufacturers during confidential interviews. Whenever possible, DOE obtained price quotes directly from the component suppliers used by furnace fan manufacturers whose products were examined in the engineering analysis. DOE determined that the components in Table IV.12 are generally purchased from outside suppliers.

TABLE IV.12—PURCHASED FURNACE FAN COMPONENTS

Assembly	Purchased sub-assemblies or components
Fan Assembly.	Fan motor.

TABLE IV.12—PURCHASED FURNACE FAN COMPONENTS—Continued

Assembly	Purchased sub-assemblies or components
Controls	Motor capacitor (when applicable). Impeller. PCB. Multi-Staging Components (when applicable).

Raw materials, such as plastic resins and insulation materials, are estimated on a current-market basis. The costs of raw materials are determined based on manufacturer interviews, quotes from suppliers, and secondary research. Past results are updated periodically and/or inflated to present-day prices using indices from resources such as MEPS Intl.,¹⁰ PolymerUpdate,¹¹ the U.S. geologic survey (“USGS”),¹² and the Bureau of Labor Statistics (“BLS”).¹³ To smooth out spikes in demand, these prices are estimated on the basis of 5-year averages spanning from 2018 through 2022. Other “raw” materials such as plastic resins, insulation materials, etc. are estimated on a current-market basis. For non-metal raw material prices, DOE used prices based on current market data, rather than a 5-year average, because non-metal raw

materials typically do not experience the same level of price volatility as metal raw materials.

Certain factory parameters, such as fabrication rates, labor rates, and wages, also affect the cost of each unit produced. DOE factory parameter assumptions were based on internal expertise and manufacturer feedback. Table IV.13 lists the factory parameter assumptions used in the cost model for both high-volume and low-volume manufacturers. For the engineering analysis, these factory parameters, including production volume, are the same at every efficiency level. The production volume used at each efficiency level corresponds with the average production volume, per manufacturer. These assumptions are generalized to represent typical production and are not intended to model a specific factory. For the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, MH–NWG–NC, MH–NWG–C, and MH–EF/MB product classes, high production volume parameters were assumed due to these classes having generally high production volumes or using enough of the same major components as other high production volume classes. For NWO–NC and MH–NWO product classes, low production parameters were assumed.

TABLE IV.13—FACTORY PARAMETER ASSUMPTIONS

Parameter	High-volume furnace fan estimate	Low-volume furnace fan estimate
Actual Annual Production Volume (units/year)	1,250,000	5,000.
Purchased Parts Volume	500,000 units/year.	5,000 units/year.
Work Days Per Year (days)	250	250.
Assembly Shifts Per Day (shifts)	2	1.
Fabrication Shifts Per Day (shifts)	2	2.
Fabrication Labor Wages (\$/h)	16	16.
Assembly Labor Wages (\$/h)	16	16.
Length of Shift (hrs)	8	8.
Average Equipment Installation Cost (% of purchase price)	10%	10%.
Fringe Benefits Ratio	50%	50%.
Indirect to Direct Labor Ratio	33%	33%.
Average Scrap Recovery Value	30%	30%.
Worker Downtime	10%	10%.
Building Life (in years)	25	25.
Burdened Assembly Labor Wage (\$/h)	24	24.
Burdened Fabrication Labor Wage (\$/h)	24	24.
Supervisor Span (workers/supervisor)	25	25.
Supervisor Wage Premium (over fabrication and assembly wage)	30%	30%.

In response to the November 2022 Preliminary Analysis, Morrison

commented that labor costs and supervisory costs are not reflective of

the current reality, adding that basic factory jobs pay well over \$20/hour.

¹⁰ For more information on MEPS Intl, please visit www.mepsinternational.com/gb/en (Last accessed March 21, 2023).

¹¹ For more information on PolymerUpdate, please visit www.polymerupdate.com (Last accessed March 21, 2023).

¹² For more information on USGS metal price statistics, please visit www.usgs.gov/centers/national-minerals-information-center/commodity-statistics-and-information (Last accessed March 21, 2023).

¹³ For more information on the BLS producer price indices, please visit www.bls.gov/ppi/ (Last accessed March 21, 2023).

Morrison commented that development, testing, and requalification costs need to be added. Morrison further commented that the costs from the engineering results are only for the fan components, adding that fan and housing changes will change heat exchanger performance/safety controls. (Morrison, No. 27 at p. 3)

In response to the comments from Morrison, DOE notes that the factory parameters outlined in chapter 5 of the November 2022 Preliminary Analysis TSD, including labor and supervisory costs, are developed based on manufacturer feedback. Available data indicates that the values provided in Table IV.13 are representative of the industry average, but DOE acknowledges that they may vary depending on a variety of factors. DOE welcomes additional feedback and data regarding these costs that would better reflect the current market. With respect to development, testing, and requalification costs, DOE notes that

those costs are typically accounted for in the manufacturer impact analysis portion of DOE rulemakings. However, because DOE is not proposing to amend standards in this rulemaking, the manufacturer impact analysis was not conducted for this NOPD.

Constant Airflow BPM Blower Motor Cost Values

As discussed in section IV.B.1.a of this document, for the NWG-NC, NWG-C, WG-NC, MWEF/NWMB, and MH-WF/MB product classes, the current baseline motor technology is a BPM motor, and specifically a CT-BPM motor. DOE’s research suggests that the predominant BPM indoor blower motors sold on the market today are either a constant-torque or constant-airflow design. Both types of motors rely on electronic variable-speed motor systems that are typically mounted in an external chassis to the back of the motor. CA-BPM motors utilize feedback control to adjust torque based on ESP in order to maintain a desired airflow. This

differentiates them from CT-BPM motors that will maintain torque and likely decrease airflow output in environments with high ESPs. Additionally, CA-BPM motors use feedback control to vary their output to maintain pre-programmed air flows. DOE has tentatively found that there are no significant differences in measured FER performance between furnace fans using CA-BPM and CT-BPM motors; however, CA-BPM motors are sometimes chosen for other benefits, such as increased consumer comfort. CA-BPM fan motors typically cost more than CT-BPM motors while not improving FER. Therefore, as discussed in section IV.B.1.a, DOE considered the baseline design to include CT-BPM motors for the NWG-NC, NWG-C, WG-NC, NWEF/NWMB, and MH-EF/MB classes. However, to better represent costs to consumers, DOE has developed cost values for CA-BPM that are applied in the LCC analysis to a portion of furnace fan installations.

TABLE IV.14—INCREMENTAL COST ADDERS FOR BPM MOTORS

Product class	Incremental cost increase for CT-BPM to CA-BPM (2022\$)
NWG-C, NWG-NC, WG-NC, NWEF/NWMB, MH-NWG-NC, MH-NWG-C, and MH-EF/MB	\$28.07
NWO-NC, MH-NWO-NC	83.67

Multi-Stage Furnaces

As discussed in section IV.A.2 of this document, DOE has identified a number of furnace fans in two-stage and modulating furnaces that are rated at the same relative FER as single-stage furnaces. DOE has tentatively determined consumers choose to purchase multi-stage products for the additional thermal comfort offered by furnaces with multiple stages of heating output. During teardowns, DOE examined multi-stage furnace designs to analyze the production cost differential for manufacturers to switch from single-stage to two-stage or modulating combustion. DOE determined a market-share weighted-average marginal cost increase of \$21.07 for the NWG-C, NWG-NC, WG-NC, NWEF/NWMB, MH-NWG-NC, MH-NWG-C, and MH-EF/MB classes to change a furnace from a single-stage to a two-stage design. DOE determined that oil units with multi-staging were rare and thus not representative of the market, so adders were not developed for the NWO-NC and MH-NWO-NC product classes.

Where applicable, the additional cost to change to a two-stage furnace includes the added cost of a two-stage gas valve, two-speed inducer assembly, additional pressure switch, and additional controls and wiring. As with the blower motor costs discussed above, the additional cost of a multi-stage burner is accounted for in the LCC analysis based on the market penetration of such designs for furnaces.

Scaling to Alternative Input Capacities

DOE also developed equations generate adders for scaling the MPC results at the representative capacity to the full range of input capacities available on the market for each motor type. DOE performed regression analyses on the discrete MPCs for each teardown and their respective input capacities—which spanned a range of capacities and airflows and encompassed a range of motor sizes—to generate an equation for each motor technology that reflects the relationship between these parameters. These parameters were derived separately for

high-volume (NWGF-C, NWGH-NC, MH-NWGF-NC, MH-NWGF-C, and WGF-NC) and low-volume (NWO-NC and MH-NWO-NC) product classes. These equations, which are presented in Table IV.15, are used in the LCC analysis (see section IV.E of this document) to analyze the impacts on furnace fans over the full range of input capacities. To estimate the MPC at a given input, first the appropriate adder is calculated using the equation and then the result added to or subtracted from (as applicable) the MPC at the representative input capacity.

In the November 2022 Preliminary Analysis, DOE also estimated the relationship between consumer furnace fan cost and furnace fan motor airflow. However, DOE did not do so for this NOPD analysis because, upon reviewing market data, DOE found that scaling only by input capacity sufficiently represented the entire furnace fan market (including across the range of airflows) so it was unnecessary to also scale by airflow.

TABLE IV.15—EQUATIONS FOR SCALING MPCs TO ADDITIONAL INPUT CAPACITIES

Input capacity MPC adder equation: MPC adder = slope * (representative capacity (kBtu/h)—input capacity (kBtu/h))		
	NWGF-C, NWGF-NC, MH-NWGF-NC, MH-NWGF-C, WGF-NC	NWOF-NC and MH-NWOF-NC
Motor Technology	Slope	Slope
PSC	0.0650	0.7031
Constant-torque BPM	0.1395	0.6272
Constant-airflow BPM	0.1603	1.0069

Backward-Inclined Impellers

For the max-tech efficiency levels, DOE estimated the cost to manufacture a backward inclined impeller by using manufacturer feedback along with photographs and specifications found in research reports to determine cost model inputs to estimate the MPCs of the backward-inclined impeller. These costs were scaled to different capacities by evaluating the impact of the backward-inclined impeller on the overall furnace system, depending on the average cabinet width at that capacity. DOE estimated the manufacturing cost of implementing a backward inclined impeller and compared it to the cost of using the forward inclined impellers that are ubiquitous in furnace fans currently on the market to develop “adders” for backward inclined impellers. The cost adder for backward-inclined impellers at each capacity were applied at the max-tech level to estimate the MPC and are outlined in Table IV.16 of this document.

TABLE IV.16—BACKWARD-INCLINED IMPELLER ADDER

Input capacity (kBtu/h)	High volume (2022\$)	Low volume (2022\$)
40	28.60	34.15
60	34.93	41.71
80	37.21	44.43
100	55.18	65.89
120	59.09	70.56

In response to the November 2022 Preliminary Analysis, Morrison requested clarification on how DOE concluded that the additional MPC for a backward-inclined impeller would amount to \$22.57. (Morrison, No. 27 at p. 4) Morrison also recommended that DOE reevaluate the process by which it estimates the costs associated with designing and manufacturing a backward-inclined impeller. Morrison commented that a full evaluation of design, tools, and process would be

needed to assess if the technology can meet the expected volume. Morrison recommended that DOE’s analysis consider cost increases for the following: (1) necessary housing improvements required to realize potential backward-inclined impeller value; (2) increased strength for motor/fan assembly mounting hardware, which will ensure tighter gaps between inlet and impeller and support of the larger impeller; (3) the equipment changes required to accommodate heat exchanger redesign or safety testing/requalification; and (4) factory parameters. Morrison commented that certain installation considerations should be addressed, including: (1) the need for shipping brackets or added stiffening to account for the larger impeller and (2) the need for tighter clearances between impeller and housing to avoid damage during handling. (Morrison, No. 27 at pp. 3, 4)

AHRI commented that backward-inclined impellers are often larger than comparable forward-inclined impellers, have increased sensitivity to ESP, and require more sophisticated controls, which will affect the overall energy use of the product. (AHRI, No. 23 at p. 6) AHRI stated that the addition of complex controls was not included in DOE’s cost analysis, which skews the economic analysis. (AHRI, No. 23 at p. 3)

Trane added that the cost of incorporating the full EBM-Papst system was not included in the TSD as it is not just a matter of replacing the impeller.) Trane commented the TSD assumed that only the impeller was changed and the cost estimate ignored the need for inlet cones with close tolerances. Trane commented that those estimates would be difficult to confirm because the design still needs to be developed. Trane commented that, as published, the TSD cost estimates and energy savings showed 44 to 48 percent of NWG furnace consumers negatively affected and when the full cost of the change is included, Trane believed

these results will be found to be understated. (Trane, No. 22 at pp. 2–3)

Lennox commented that the cost and labor required for installing backward-inclined impellers in current furnace designs are not fully accounted for in the TSD. Lennox commented that backward-inclined impellers are a nascent technology that requires a larger diameter or higher rotational speed than a centrifugal forward-curved impeller, adding that backward-inclined impellers are more sensitive to changes in ESP and likely require motors with extended RPM range and controls. Lennox further commented that installing a backward-inclined impeller would require significant furnace redesign that includes modifications in housing design and airflow path, both of which DOE has acknowledged adversely impact furnace efficiency. Lennox commented that the study DOE cites in the TSD (*i.e.*, Wegman, Herman 2003 HVAC Blower Report) was conducted prior to when residential furnace designs became more compact in height to accommodate larger evaporator coil designs required to meet increased DOE conservation standards, and that DOE should take into account the redesign, safety testing, and other costs placed upon the consumer before considering implementing the proposed changes. (Lennox, No. 24 at p. 3)

In response, DOE clarifies that the MPC estimate for backward-inclined impellers from the November 2022 Preliminary Analysis was based on a prototype used in research performed by General Electric and testing performed at national laboratories.¹⁴ However, for this rulemaking, DOE has incorporated manufacturer feedback and new market data to update its MPC estimates for backward-inclined impellers, as

¹⁴ The backward-inclined impeller prototype used for these estimates is detailed in a report titled *California’s Secret Energy Surplus: The Potential for Energy Efficiency*. (Available at: search.issuelab.org/resource/california-s-secret-energy-surplus-the-potential-for-energy-efficiency.html) (Last accessed June 7, 2023).

reported in Tables IV.17—IV.19 of this document. These costs have been updated to reflect costs to the full furnace system beyond replacing the impeller component (including advanced controls, changes to the airflow path, etc.), but DOE acknowledges that given the current limited use of this technology in consumer furnace fans there is still uncertainty in how the technology would be applied over the full range of products currently available.

DOE did not extend the analysis to account for changes in tolerances and redesign of the heat exchanger and other furnace systems. In manufacturer interviews, some manufacturers noted that airflow changes associated with backward-inclined impellers could require a different approach to heat exchanger designs. These changes could

necessitate large conversion costs as manufacturing to tight tolerances and introducing new heat exchanger designs are capital intensive endeavors. DOE recognizes the potential need for upfront capital investments and product conversion costs in addition the estimated changes in MPC, as discussed in section IV.H of this document.

3. Cost-Efficiency Results

The final results of the FER engineering analysis are the MPCs for each furnace fan product class analyzed at each efficiency level (and associated design option), resulting in a cost-efficiency relationship. The cost-efficiency results are shown in tabular form in Table IV.17 through Table IV.19 in the form of efficiency versus MPC. (Q_{Max} is the airflow, in cfm, at the maximum airflow-control setting measured during the proposed DOE test

procedure.) As described in section IV.B.2.b of this document, the MPC presented is not for the entire HVAC product because furnace fans are a component of the HVAC product in which they are integrated.

As discussed in section IV.B.2.b of this document, separate cost values were developed for constant-airflow BPM motors and multi-staging because these premium design elements could add comfort or provide other benefits but were not incorporated as design options into efficiency levels for furnace fans used in this analysis.

DOE used the cost-efficiency curves from the engineering analysis as an input to the LCC analysis to determine the added price of the more efficient furnace fan components in HVAC equipment sold to the customer (see section IV.E of this document).

TABLE IV.17—COST EFFICIENCY RESULTS BY PRODUCT CLASS—NWG–NC, NWG–C, WGF–NC, NWEF/NWMB, AND MH–EF/MB

	Efficiency level	
	Design option	
	Baseline	EL 1
	BPM motor	BPM motor + backward-inclined impeller
MPC	\$108.06	\$136.13.
Product Class	Maximum Allowable FER Equation	
NWG–NC	$0.044 * Q_{Max} + 182$	$0.04 * Q_{Max} + 164.$
NWG–C	$0.044 * Q_{Max} + 195$	$0.04 * Q_{Max} + 176.$
WG–NC	$0.044 * Q_{Max} + 199$	$0.04 * Q_{Max} + 179.$
NWEF/NWMB	$0.044 * Q_{Max} + 165$	$0.04 * Q_{Max} + 149.$
MH–EF–MB	$0.044 * Q_{Max} + 101$	$0.04 * Q_{Max} + 91.$

TABLE IV.18—COST EFFICIENCY RESULTS BY PRODUCT CLASS—MH–NWG–NC AND MH–NWG–C

	Efficiency level		
	Design option		
	Baseline	EL 1	EL 2
	Improved PSC	BPM motor	BPM motor + backward-inclined impeller
MPC	\$82.39	\$108.06	\$136.13.
Product Class	Maximum Allowable FER Equation		
MH–NWG–NC	$0.071 * Q_{Max} + 222$	$0.044 * Q_{Max} + 137$	$0.04 * Q_{Max} + 123.$
MH–NWG–C	$0.071 * Q_{Max} + 240$	$0.044 * Q_{Max} + 148$	$0.04 * Q_{Max} + 133.$

TABLE IV.19—COST EFFICIENCY RESULTS BY PRODUCT CLASS—NWO–NC AND MH–NWO–NC

	Efficiency level		
	Design option		
	Baseline	EL 1	EL 2
	Improved PSC	BPM motor	BPM motor + backward-inclined impeller
MPC	\$195.61	\$216.95	\$300.62.
Product Class	Maximum Allowable FER Equation		
NWO–NC	$0.071 * Q_{Max} + 382$	$0.044 * Q_{Max} + 236$	$0.04 * Q_{Max} + 212.$
MH–NWO–NC	$0.071 * Q_{Max} + 287$	$0.044 * Q_{Max} + 176$	$0.04 * Q_{Max} + 158.$

In response to the November 2022 Preliminary Analysis, Morrison commented that the average consumer purchase price increase of \$46–47 that DOE projects for consumer fans operating at EL 1 appears to be understated, considering the changes and variances in motor costs depending on whether production occurs in the United States or abroad. Morrison requested clarification on how DOE arrived at that estimate. Morrison commented that certain installation considerations should be addressed, including: (1) the need for shipping brackets or added stiffening to account for the larger impeller and (2) the need for tighter clearances between impeller and housing to avoid damage during handling. (Morrison, No. 27 at p. 4)

In response, DOE notes that the analysis to develop MPCs for each efficiency level includes physical and virtual product teardowns of units that incorporate the technology options associated with that level. Specific motor costs are estimated using cost estimates obtained through manufacturer feedback, including impacts from production location and volume. The costs for these teardowns are then weighted based on several factors, including manufacturer market share and motor horsepower market share. By using the weighted average of these teardown costs, DOE develops an MPC that is representative of the market and takes into account the variation in the market.

Nidec commented during the public meeting that the motor prices for the preliminary analysis indicated a dramatic increase from a baseline PSC to an improved PSC when compared to a BPM motor. Nidec commented that the November 2022 Preliminary Analysis reported a baseline PSC cost of around \$65, an ECM cost of \$100, and an improved PSC cost of \$116. Nidec commented that estimates showed a 90 percent increase in cost for the

improved PSC versus the BPM. (Nidec, Public Meeting Transcript, No. 26 at pp. 19–20)

In response, DOE notes that the \$65.73 cost reported in the November 2022 Preliminary Analysis reflects the MPC for a furnace fan using an improved PSC motor in the NWGF–C, NWGF–NC, MH–NWGF–NC, MH–NWGF–C, WGF–NC and NWEF/NWMB product classes, and does not reflect a baseline PSC motor cost. In the November 2022 Preliminary Analysis, DOE estimated that the MPC for a furnace fan using an improved PSC motor in the NWO–NC and MH–NWO–NC product classes was \$116.25. Therefore, the difference between these two costs does not reflect the incremental cost to transition from a baseline PSC motor to an improved PSC motor, but instead reflects the difference in cost of an improved PSC motor for the different product classes. This difference is largely due to the different production volumes assumed for the classes, as outlined in section IV.B.2 of this document.

C. Markups Analysis

The markups analysis develops appropriate markups (e.g., retailer markups, distributor markups, contractor markups) in the distribution chain and sales taxes to convert the MSP estimates derived in the engineering analysis to consumer prices, which are then used in the LCC and PBP analysis. At each step in the distribution channel, companies mark up the price of the product to cover business costs and profit margin. Before developing markups, DOE defines key market participants and identifies distribution channels.

DOE used the same distribution channels for furnace fans as it used for furnaces in the recent energy conservation standards rulemaking for those products. DOE believes that this is an appropriate approach because the vast majority of the furnace fans covered

in this rulemaking are a component of a furnace. DOE has concluded that there is insufficient evidence of a replacement market for furnace fans to establish a separate distribution channel on that basis.

DOE developed baseline and incremental markups for each actor in the distribution chain. Baseline markups are applied to the price of products with baseline efficiency, while incremental markups are applied to the difference in price between baseline and higher-efficiency models (the incremental cost increase). The incremental markup is typically less than the baseline markup and is designed to maintain similar per-unit operating profit before and after new or amended standards.¹⁵

To estimate average baseline and incremental mark-ups, DOE relied on several sources, including: (1) the HARDI 2013 Profit Report (i.e., for wholesalers); and (2) U.S. Census Bureau 2017 Economic Census data on the residential and commercial building construction industry (i.e., for general contractors, mechanical contractors, and mobile home manufacturers). In addition, DOE used the 2005 Air Conditioning Contractors of America’s (“ACCA”) Financial Analysis on the Heating, Ventilation, Air-Conditioning, and Refrigeration contracting industry to disaggregate the mechanical contractor mark-ups into replacement and new construction markets. DOE also used various sources for the derivation of the mobile home dealer mark-ups (see chapter 6 of the PA TSD).

DOE derived state and local taxes from data provided by the Sales Tax

¹⁵ Because the projected price of standards-compliant products is typically higher than the price of baseline products, using the same markup for the incremental cost and the baseline cost would result in higher per-unit operating profit. While such an outcome is possible, DOE maintains that in markets that are reasonably competitive it is unlikely that standards would lead to a sustainable increase in profitability in the long run.

Clearinghouse.¹⁶ These data represent weighted averages that include county and city rates. DOE applied the state sales taxes to match the state-level markups for wholesalers and mechanical and general contractors.

Chapter 6 of the PA TSD provides details on DOE's development of markups for consumer furnace fans.

Lennox recommended that DOE review the lower incremental markups for increased consumer furnace fan standard levels considered in the TSD. Lennox stated that Table ES.3.10 from the TSD shows a significantly discounted incremental markup from the baseline markup, which is not logical or aligned with business practices. Lennox commented that it does not believe an increased standard level would result in a lower markup for minimum efficiency products from the current base levels. Lennox recommended that a consistent markup level be applied instead of discounted incremental markups. (Lennox, No. 24 at p. 7–8)

DOE's incremental markup approach assumes that an increase in profitability, which is implied by keeping a fixed markup when the product price goes up, is unlikely to be viable over time in reasonably competitive markets. DOE recognizes that actors in the distribution chains are likely to seek to maintain the same markup on appliances in response to changes in manufacturer sales prices after an amendment to energy conservation standards. However, DOE believes that retail pricing is likely to adjust over time as those actors are forced to readjust their markups to reach a medium-term equilibrium in which per-unit profit is relatively unchanged before and after standards are implemented.

DOE acknowledges that markup practices in response to amended standards are complex and vary across business conditions. However, DOE's analysis necessarily only considers changes in appliance offerings that occur in response to amended standards. DOE continues to maintain that its assumption that standards do not facilitate a sustainable increase in profitability is reasonable.

D. Energy Use Analysis

The purpose of the energy use analysis is to determine the annual energy consumption of consumer furnace fans at different efficiencies in representative U.S. single-family homes,

multi-family residences, and commercial buildings, and to assess the energy savings potential of increased consumer furnace fan efficiency. The energy use analysis estimates the range of energy use of consumer furnace fans in the field (*i.e.*, as they are actually used by consumers). The energy use analysis provides the basis for other analyses DOE performed, particularly assessments of the energy savings and the savings in consumer operating costs that could result from adoption of amended or new standards.

To establish a reasonable range of energy consumption for consumer furnace fans, DOE primarily used data from the U.S. Energy Information Administration's (EIA's) most recent 2015 Residential Energy Consumption Survey (RECS 2015). RECS 2015 is a national sample survey of housing units that collects statistical information on the consumption of and expenditures for energy in housing units, along with data on energy-related characteristics of the housing units and occupants. RECS 2015 has a sample size of 5,686 housing units and was constructed by EIA to be a national representation of the household population in the United States. DOE also considered the use of consumer furnace fans in commercial applications, based on characteristics from EIA's most recent 2012 Commercial Building Energy Consumption Survey (CBECS 2012) for a subset of building types that use consumer furnace fans covered by a potential standard. DOE utilized additional data sources to refine the development of a representative population of buildings for each furnace fan product class, as detailed in chapter 7 of the PA TSD.

In calculating the energy consumption of furnace fans, DOE adjusted the energy use from RECS 2015 and CBECS 2012 to normalize for weather. This was accomplished by adjusting the RECS 2015 household and CBECS 2012 building energy consumption values based on 10-year average heating degree-day (HDD) and average cooling degree-day (CDD) data for each geographical region. DOE also accounted for the change in building shell characteristics by applying the building shell efficiency index and projected trend in the HDD and CDD in EIA's Annual Energy Outlook 2023.

DOE's analysis takes into account ACCA Manuals J, S, and D methods to size every household and building in the sample. DOE first uses Manual J to estimate the house or building design heating load in order to determine the blower requirements for the assigned heating and cooling equipment. DOE's

analysis considers that typically the furnace fan is sized based on the maximum cooling capacity required. The heating and cooling furnace fan speed setting is then varied to match the recommended/required airflow performance and takes into account differences in the ductwork system curve in the field.

Chapter 7 of the PA TSD provides details on DOE's energy use analysis for consumer furnace fans.

WM technologies requested information regarding DOE's use of RECS data and stated that RECS has stated that the 2015 imputation rates have a variability of 65.6 percent. (WM Technologies, No. 26 at pp. 31–32)

In response, DOE notes that EIA administers the RECS to a nationally representative sample of U.S. housing units. For RECS 2015, specially trained interviewers collected energy characteristics on the housing unit, usage patterns, and household demographics. This information is combined with data from energy suppliers to these homes to estimate energy costs and usage for heating, cooling, appliances, and other end uses. The RECS survey data, including energy use, is an integral ingredient of EIA's Annual Energy Outlook (AEO) and Monthly Energy Review (MER). EIA's methodology for RECS 2015 is described in multiple reports.¹⁷ As described in these reports, RECS 2015 represents a substantial update to the end-use modeling and calibration methods. For example, in the 2015 RECS, the end-use models follow an engineering approach, and the calibration—which follows a minimum variance estimation approach—is based on the relative uncertainties of and correlations between the end uses being estimated. Instead of estimating unknown parameters and interpreting their solution values as in statistical modeling, engineering models improve upon statistical models by drawing on existing studies. Also, engineering models lead to more realistic variations across modeled housing units. In addition, calibration procedures in RECS 2015 use minimum variance estimation, which better incorporates household characteristics data uncertainty and recognizes correlations between end uses. DOE notes that households that use natural gas, propane, or fuel oil predominantly use these fuels for space heating and water heating. In the case of space heating, it is heavily seasonal, while water heating

¹⁶ Sales Tax Clearinghouse Inc., State Sales Tax Rates Along with Combined Average City and County Rates (Jan. 4, 2023). (Available at www.ihesc.com/STRates.stm) (Last accessed Jun. 1, 2023).

¹⁷ See www.eia.gov/consumption/residential/data/2015/index.php?view=methodology (Last accessed Jan. 3, 2023).

remains more constant throughout the year.

For the furnace fan energy use analysis, DOE primarily used the RECS 2015 sample to derive the heating and cooling loads to estimate furnace fan operating hours in the cooling and heating mode. DOE also notes that the variables used from RECS 2015 that are used for the furnace fan analysis have low imputation rates. DOE determined the 95-percent confidence level for the overall average heating and cooling energy use values used in its analysis for consumer furnace fans to be plus or minus 2.7 percent, using EIA's methodology for calculating sampling error.¹⁸ DOE also compared the RECS 2015 energy consumption estimates for furnaces to previous RECS energy consumption estimates and other available studies, and the Department found that energy consumption values estimated in 2015 are similar (or within in the RECS 2015 sampling error) of those other sources, after being adjusted for heating degree-day differences, building shell changes in the stock, and average furnace efficiency in the stock. This analysis included comparing homes using consumer furnaces by home sizes and type in the different studies, including larger sample sized studies at the national level such as the 2021 American Community Survey (ACS),¹⁹ the 2021 American Housing Survey (AHS),²⁰ the 2022 American Home Comfort Study,²¹ as well as regional studies such as the 2016–2017 Residential Building Stock Assessment (RBSA) for the northwest region (Idaho, Montana, Oregon, and Washington),²² the 2019 Residential Building Stock Assessment for the State of New York,²³ the Massachusetts Residential Baseline

Study,²⁴ and the 2019 California Residential Appliance Saturation Study (RASS).²⁵ In conclusion, DOE finds that RECS 2015 matches other studies' energy use estimates for furnace and is a reliable source for DOE to use to create a representative national sample reflecting variations in real world energy use. See appendix 7A and 7B of the PA TSD for more details.

Morrison commented that DOE noted the CBECS 2012 and RECS 2015 values for HDD and CDD to be different for the same location, and requested further details that would clarify how the same location can have different heating and cooling loads for residential furnaces. (Morrison, No. 27 at p. 6) In response, DOE notes that in the PA TSD Table 7E.3.1 shows the HDD for each of the 360 weather stations in the NOAA data set that DOE used for mapping to RECS 2015 and CBECS 2012 individual sampled housing units and buildings. The columns labeled RECS 2015 shows CDD and HDD for 2015 that would then be comparable to the HDD/CDD data provided by EIA in the RECS 2015 sample. Similarly, the columns labeled CBECS 2012 shows CDD and HDD for 2012 that would then be comparable to the HDD/CDD data provided by EIA in the CBECS 2012 sample.

Morrison requested further insight and verification of DOE's claim that the electric motor's power is "taken into account by increasing the heating load, decreasing the cooling load or both for more efficient furnace fans." (Morrison, No. 27 at p. 3) In addition, Morrison requested clarification on how DOE calculated circulation mode power and how it accounts for the varying levels of beneficial (for heating) and detrimental (for cooling) power use in the circulating-only mode. Morrison commented that since there is rarely no demand for either, the split would be about 50/50—half the time the power usage will be beneficial and half the time detrimental for the household. (Morrison, No. 27 at p. 4)

DOE clarifies that the energy use analysis takes into account that heat is being transferred from the furnace fan motor to the airflow in the ductwork. Since higher efficiency furnace fan design options improve motor

efficiency, less heat is released into the ductwork for higher efficiency designs. The heat provided by the motor reduces the heating load and increases the cooling load that the furnace needs to meet. Therefore, the heat load is increased, while cooling load is decreased for higher efficiency designs furnace fan options. For example, for NWOFFs the average fuel energy use for going from EL 0 to EL 1 is increased by about 1 MMBtu/yr on average (or 1.6%), while the fuel energy use from going from EL 1 to EL 2 is increased by 0.2 MMBtu/y (or about 0.3%). DOE also took into account the beneficial (for heating) and detrimental (for cooling) power use in the circulating-only mode by estimating the monthly energy use for circulating-only mode and separating the months into heating, cooling, or shoulder months for each sampled household.

Morrison requested clarification on some of the equations and variables that DOE utilized in the TSD. Specifically, Morrison commented on the following: (1) it is not possible to reconcile equations 7.3, 7.4, and 7.5, because the same coefficients are used to set up the incongruent state of $\text{cfm} = \text{watts}/\text{cfm}$; and (2) DOE's use of the pressure variable in place of the more typical cfm variable when assessing curves, considering that a reduction in flow—when not required—will reduce fan energy consumption and a reduction of only 3 percent in flow will be equal to 10 percent in energy savings. (Morrison, No. 27 at p. 3–4) As explained in chapter 7 and appendix 7B–D of the PA TSD, the performance curves of CFM vs. pressure (equation 7.3) and watts per cfm (equation 7.5) are combined in the fan power curve equation (equation 7.4) to produce the wattage usage at the operating point.

Morrison commented that it identified inconsistencies regarding DOE's assumptions about consumer use and need. Morrison recommended that DOE take into account the use of furnaces by some consumers as a backup to heat pumps and therefore a secondary heat source. Morrison further noted that, in Table 7A.2.1 and Table 7A.2.2 in the PA TSD, Morrison identified an inconsistent relationship in the data from RECS 2015 showing reported replacements for various product classes; Morrison requested clarification on this uneven relationship between shipment numbers and numbers of households. (Morrison, No. 27 at p. 5) In response, DOE takes into account gas-fired furnaces used for backup to heat pumps as well as furnaces used as secondary equipment in its analysis. The sample for consumer furnace fans

¹⁸ See www.eia.gov/consumption/residential/data/2015/pdf/microdata_v3.pdf (Last accessed Jan. 3, 2023).

¹⁹ U.S. Census Bureau, 2021 American Community Survey (Available at: www.census.gov/programs-surveys/acs/) (Last accessed Jan. 3, 2023).

²⁰ Department of Housing and Urban Development (HUD) and U.S. Census Bureau, 2021 American Housing Survey (Available at: www.census.gov/programs-surveys/ahs.html) (Last accessed Jan. 3, 2023).

²¹ Decision Analyst, 2022 American Home Comfort Study (Available at: www.decisionanalyst.com/syndicated/homecomfort/) (Last accessed Jan. 3, 2023).

²² NEEA, 2016–2017 Residential Building Stock Assessment (Individual Reports for Single Family, Manufactured Homes and Multifamily Homes) (Available at: neea.org/data/residential-building-stock-assessment/) (Last accessed Jan. 3, 2023).

²³ NYSERDA, 2019 Residential Building Stock Assessment (Available at: www.nyserdan.ny.gov/About/Publications/Building-Stock-and-Potential-Studies/Residential-Building-Stock-Assessment) (Last accessed Jan. 3, 2023).

²⁴ Electric and Gas Program Administrators of Massachusetts, Massachusetts Residential Building Use and Equipment Characterization Study (Available at: ma-eeac.org/wp-content/uploads/Residential-Building-Use-and-Equipment-Characterization-Study-Comprehensive-Report-2022-03-01.pdf) (Last accessed Jan. 3, 2023).

²⁵ CEC, 2019 California Residential Appliance Saturation Study (Available at: www.energy.ca.gov/publications/2019-california-residential-appliance-saturation-study-rass/) (Last accessed Jan. 3, 2023).

includes those used in secondary units. Multiple factors could impact the difference between shipments and the available stock, including equipment switching (in the no-new standards case), changes in new construction saturations and growth in different regions due to demographic shifts, differences in lifetime, etc. Therefore, DOE relies on the historical shipments data that it deems most correctly reflects future shipments in 2030 and beyond.

Morrison commented that DOE shows the test procedure for cooling as having pressures ranging from 0.1 to 0.2 w.c. for conventional split systems and noted that this reference is from an old test method; the new test method effective in 2023 has higher pressures (M1 vs M). (Morrison, No. 27 at p. 5) DOE acknowledges that the new test procedure should have been referenced in the previous PA TSD. The values in the TSD from the old test procedure were provided for reference only and are not directly used in the analysis.

Morrison stated that appendix 7C of the PA TSD (Calculation of Furnace Blower Fan Energy Consumption), begins with an incorrect statement by DOE that “The efficiency consumption (and overall efficiency) of a blower motor depends on the speed at which the motor operates, the external static pressure difference across the blower, and the airflow through the blower.” Morrison commented that electrical consumption depends on the design of the furnace, the fan, and the motor in combination with the ductwork present and all are important to the FER result. (Morrison, No. 27 at p. 5) DOE agrees that the efficiency of the furnace fan will depend on the design of the furnace, the design of the furnace and motor, in combination with the ductwork. DOE’s analysis is built around the selected design options and current furnace designs that from the engineering analysis provide the efficiency and energy use characteristics by design option. Once these design options are fixed the energy consumption depends on the intersection between the furnace fan performance curves and the ductwork present.

Morrison commented that all discussion in appendix 7C of the PA TSD misses the point and purpose of the furnace operation and added that Figure 7C.1.1 (Power Determination) uses pressure as the x-axis independent variable, but the relevant independent variable is the volume flow rate with the assumption of a relatively fixed air density. Morrison commented that performance tables in furnace literature use pressure as the variable, stating that

this is the easy method of operational determination for installers in the field—but not an appropriate way to conduct a technical analysis of consumer furnace fans. Morrison further commented that 7C.1 contains an error: air power is not proportional to air speed but rather volume rate of airflow. (Morrison, No. 27 at p. 6) Morrison also commented that, in section 7C–4 of the PA TSD, the method of analysis is confusing and the first two assumptions listed on 7C–4 are incorrect: (1) Regarding the assumption that slope of airflow and watts/cfm does not vary within the same motor technology, Morrison commented that performance curves for furnace fans will have varying slope dependent on the fan, motor and furnace system for the same motor technology, and that some small range changes could appear to have the same slope but the entirety of the performance range of interest will have variation; (2) Regarding the assumption that BPM (constant airflow) and PSC with controls always maintain the same airflow, Morrison commented that BPM (constant airflow) will closely maintain the airflow rate until the maximum power of the motor is achieved and then it will enter constant power mode, and unless there are new motor controller designs available in commerce, PSC motors with controls will adjust along a path of constant torque until the power limit is reached then along a constant power mode. Morrison added that this is also true for BPM (*i.e.*, constant torque). (Morrison, No. 27 at p. 6) In addition, Morrison commented that the curves in section 7C.3 of the PA TSD have a curious feature that gives the reader the suggestion that the BPM–CT uses less power than the BPM–CA, and that the use of pressure for the independent variable gives rise to this curious effect. Morrison commented that at the same operating point, flow, and pressure, the two motors (assuming same design/manufacture) in the same appliance (same furnace and fan) would have virtually the same efficiency and thus the watts consumed would be about the same. Morrison stated that because of this oddity, further limited response time was not spent analyzing these curves in greater detail, but Morrison commented that the oddity raises question as to the validity of the analysis as it relates to real products. (Morrison, No. 27 at p. 6)

DOE’s analysis relied on the manufacturer product literature and how the data was presented in terms of using pressure as the variable for the furnace fan equations. DOE contends that since the furnace fan energy use

operates at a few specific operating conditions (one or more at heating, cooling, and/or continuous fan), that DOE’s approach is valid in capturing the field energy use for furnace fans. Additionally, DOE validated its energy use methodology approach by comparing it to available field data measuring energy use of furnace fans in the field^{26,27} and building model data.²⁸ DOE acknowledges that it is expected to see a higher pressure for constant airflow BPM and the watts/cfm should be the same for both constant airflow BPM and constant torque BPM. DOE notes that there may be inconsistency because of some errors made in the PA documentation. However, for this NOPD analysis, DOE has largely maintained the methodology from the preliminary analysis. DOE would like to note that even if there were further updates to the energy use analysis, it would likely result in lower energy savings and consumer net cost, and thus the conclusions of the determination would remain the same.

Trane commented that according to DOE, the RECS results regarding heating energy use identifies NWG–NC as 6.8 and NWG–C as 43.3 MMBtu. However, Trane commented that based on industry sales, their values should be almost equal, or NWG–NC should be greater than NWG–C. (Trane, No. 22 at p. 3) DOE clarifies that its analysis assumes that in 2030 the heating load is 26.1 MMBtu/yr for NWG–NC and 37.1 MMBtu/yr for NWG–C. This is based on shipments data by states that show that Northern states tend to have a much larger fraction of condensing furnaces compared to Rest of Country states. Therefore, the NWG–C sample includes more homes in colder climates with higher heating loads.

Trane commented that DOE defines the AFUE of a new unit as 96 percent, whereas a recent NOPR defines the minimum AFUE as 95 percent. (Trane, No. 22 at p. 3) Trane questioned DOE’s assumption that the AFUE of an existing unit is 92 percent, stating that this value should be closer to 95 percent given that a unit’s AFUE does not change much over time. (Trane, No. 22 at p. 3) Trane also commented that because DOE identifies the AFUE for an existing

²⁶ Pigg, S. Central Electricity Use by New Furnaces: A Wisconsin Field Study. 2003. Accessible at: www.proctoreng.com/dnld/WIDOE2013.pdf (last accessed: Jun. 1, 2023).

²⁷ Wilcox, B., J. Proctor, R. Chitwood, and K. Nittler. Furnace Fan Watt Draw and Air Flow in Cooling and Air Distribution Modes. 2008. California Building Energy Efficiency Standards. 2006.

²⁸ See eta-publications.lbl.gov/sites/default/files/furnace_blower_electricity_national_and_regional_savings_potential_lbnl_417e.pdf.

NWG-C unit to be less than that of a new NWG-C unit, then the AFUE for an existing NWG-NC unit should also be less than that of a new NWG-NC unit. (Trane, No. 22 at p. 3) DOE clarifies that it defined the AFUE of new units based on the projected market shares by AFUE in 2030. For NWG-C units, the market share was also divided into North and Rest of Country and ranged from 90% AFUE to 98%, with an overall shipment weighted average 95% AFUE. In terms of the existing AFUE unit, DOE analysis is set such that the AFUE of the existing unit is always equal or less than the AFUE of the new unit.

Trane commented that the correct basis for furnace fan AFUE should be ASHRAE 103–1993 and not ASHRAE 103–2022, as stated by DOE in the TSD. (Trane, No. 22 at p. 3) DOE relies on the supplementary energy use equations found in ASHRAE 103–2022, the latest ASHRAE test procedure. A NIST report²⁹ and LBNL reports³⁰ have found the updated version to be more accurate to estimate the energy use of furnaces, especially two-stage and modulating furnaces.

Trane commented that the use of adjustment factors for FER, HHL, COH, and HCL is inconsistent with adjustment factor use in the Furnace TSD, EERE–2014–BT–STD–0031–0320. (Trane, No. 22 at p. 3) Trane also commented on inconsistencies between the Preliminary Consumer Furnace Fan LCC and PBP Analysis document (EERE–2021–BT–STD–0029–0012) and the furnace fan TP (CFR Title 10, chapter 2, subchapter D, part 430, subpart B, appendix AA): (1) the TSD states the range of airflow to be 300–500 CFM/nominal ton, but the calculations were conducted at 400 CFM/nominal ton rather than 500 CFM/nominal ton; (2) the TP requires the heating airflow control to be set at the maximum, while the TSD states that the heating airflow control setting can span a range between 35–65 °F and that the max heating airflow control setting should be set to achieve a 35 °F rise, but the calculation used in the TSD utilizes a 50 °F rise which is much lower than the maximum CFM; (3) the FER adjustment factor was not addressed in either the TSD or the LCC and PA documents; and (4) the FER adjustment factor was only

applied to the intercept of the polynomial equation to determine wattage and not to the entire watt/CFM equation. (Trane, No. 22 at p. 4)

DOE's LCC analysis applies a temperature rise distribution ranging from 30 degrees to 80 degrees, with an average of 60 degrees, which is consistent with manufacturer product literature and field installation data. The LCC analysis also applies a CFM/ton distribution ranging from 300 to 500, with an average of around 400 CFM/ton, which is the more commonly used value both in manufacturer product literature information and in the majority of installations. The FER adjustment factor is only used to make sure the performance curves match the FER ratings at each efficiency level. For this NOPD analysis, DOE has largely maintained the methodology from the prelim analysis. DOE would like to note that even if there were further updates to the energy use analysis, it would likely result in lower energy savings and consumer net cost, and thus the conclusions of the determination would remain the same.

E. Life-Cycle Cost and Payback Period Analysis

DOE conducted LCC and PBP analyses to evaluate the economic impacts on individual consumers of potential energy conservation standards for consumer furnace fans. The effect of new or amended energy conservation standards on individual consumers usually involves a reduction in operating cost and an increase in purchase cost. DOE used the following two metrics to measure consumer impacts:

- The LCC is the total consumer expense of an appliance or product over the life of that product, consisting of total installed cost (manufacturer selling price, distribution chain markups, sales tax, and installation costs) plus operating costs (expenses for energy use, maintenance, and repair). To compute the operating costs, DOE discounts future operating costs to the time of purchase and sums them over the lifetime of the product.

- The PBP is the estimated amount of time (in years) it takes consumers to recover the increased purchase cost (including installation) of a more-efficient product through lower operating costs. DOE calculates the PBP by dividing the change in purchase cost at higher efficiency levels by the change in annual operating cost for the year that amended or new standards are assumed to take effect.

For any given efficiency level, DOE measures the change in LCC relative to

the LCC in the no-new-standards case, which reflects the estimated efficiency distribution of consumer furnace fans in the absence of new or amended energy conservation standards. In contrast, the PBP for a given efficiency level is measured relative to the baseline product.

For each considered efficiency level in each product class, DOE calculated the LCC and PBP for a nationally representative set of housing units and, for NWGFs, also commercial buildings. As stated previously, DOE developed household samples from 2015 RECS and CBECS 2012. For each sample household, DOE determined the energy consumption for the consumer furnace fans and the appropriate energy price. By developing a representative sample of households, the analysis captured the variability in energy consumption and energy prices associated with the use of consumer furnace fans.

Inputs to the calculation of total installed cost include the cost of the product—which includes MPCs, manufacturer markups, retailer and distributor markups, and sales taxes—and installation costs. Inputs to the calculation of operating expenses include annual energy consumption, energy prices and price projections, repair and maintenance costs, product lifetimes, and discount rates. DOE created distributions of values for product lifetime, discount rates, and sales taxes, with probabilities attached to each value, to account for their uncertainty and variability.

The computer model DOE uses to calculate the LCC and PBP relies on a Monte Carlo simulation to incorporate uncertainty and variability into the analysis. The Monte Carlo simulations randomly sample input values from the probability distributions and consumer furnace fan user samples. For this determination, the Monte Carlo approach is implemented in MS Excel together with the Crystal Ball™ add-on.³¹ The model calculated the LCC and PBP for products at each efficiency level for 10,000 consumers per simulation run. The analytical results include a distribution of 10,000 data points showing the range of LCC savings for a given efficiency level relative to the no-new-standards case efficiency distribution. In performing an iteration of the Monte Carlo simulation for a given consumer, product efficiency is

³¹ Crystal Ball™ is commercially-available software tool to facilitate the creation of these types of models by generating probability distributions and summarizing results within Excel, available at www.oracle.com/technetwork/middleware/crystalball/overview/index.html (last accessed July 6, 2018).

²⁹ Stanely, Liu. 2002. Proposed Revisions of Part of the Test Procedure for Furnaces and Boilers in ASHRAE Standard 103–1993. September. Gaithersburg, Md.: U.S. Department of Commerce, National Institute of Standards and Technology, Building Environment Division, Building and Fire Research Laboratory.

³⁰ See eta.lbl.gov/publications/residential-two-stage-gas-furnaces-do; and see eta.lbl.gov/publications/furnace-blower-electricity-national.

chosen based on its probability. If the chosen product efficiency is greater than or equal to the efficiency of the standard level under consideration, the LCC and PBP calculation reveals that a consumer is not impacted by the standard level. By accounting for consumers who already purchase more-efficient

products, DOE avoids overstating the potential benefits from increasing product efficiency. DOE calculated the LCC and PBP for all consumers of consumer furnace fans as if each were to purchase a new product in the expected year of required compliance with new or amended standards. For purposes of its analysis,

DOE used 2030 as the first year of compliance with any amended standards for consumer furnace fans. Table IV.20 summarizes the approach and data DOE used to derive inputs to the LCC and PBP calculations. The subsections that follow provide further discussion.

TABLE IV.20—SUMMARY OF INPUTS AND METHODS FOR THE LCC AND PBP ANALYSIS *

Inputs	Source/method
Product Cost	Derived from the manufacturer production cost (MPC) for furnace fans at different heating input capacities for each efficiency level (from the engineering analysis). The MPCs are then multiplied by the various market participant markups (e.g., manufacturer, wholesaler, and plumbing contractor) for each distribution channel and sales taxes derived for each state and the District of Columbia.
Installation Costs	Varies by efficiency level and individual house/building characteristic. Material and labor costs are derived for each state and the District of Columbia mainly using RSMMeans Residential Cost Data 2023. Overhead and profits are included in the RSMMeans data. Probability distributions are derived for various installation cost input parameters.
Annual Energy Use	Derived mainly by using the heating energy use data for each housing unit and building from Energy Information Administration (EIA)'s 2015 Residential Energy Consumption Survey (RECS 2015) and EIA's 2012 Commercial Buildings Energy Consumption Survey (CBECS 2012) together with consumer furnace fans test procedure calculation methodologies used to determine the annual energy consumption associated with the considered standard levels. Probability distributions are derived for various input parameters.
Energy Prices	Calculated monthly marginal average electricity, natural gas or LPG, and fuel oil prices in each of the 50 U.S. states and District of Columbia using EIA historical data and billing data for each RECS 2015 housing unit and CBECS 2012 building.
Energy Price Trends	Residential and commercial prices were escalated by using EIA's 2023 Annual Energy Outlook (AEO 2023) forecasts to estimate future energy prices. Escalation was performed at the census division level.
Repair and Maintenance Costs	Estimated the costs associated with preventive maintenance (e.g., checking furnace fan) and repair (e.g., replacing motor) based on data from a variety of published sources including RSMMeans 2023 Facilities Maintenance and Repair Data. It is assumed that maintenance and repair costs vary by efficiency level and probability distributions are derived for various input parameters.
Product Lifetime	Used Weibull probability distribution of lifetimes developed for consumer furnace fans based on various survey and shipments data.
Discount Rates	Probability distributions by income bins are derived for residential discount rates based on multiple Federal Reserve Board's Survey of Consumer Finances from 1995–2019 and various interest rate sources. Probability distributions for commercial discount rates for various building activities (e.g., office) are derived using multiple interest rate sources. See section IV.E.7.
Compliance Date	2030 (5 years after expected publication of the final rule).

*References for the data sources mentioned in this table are provided in the sections following the table or in chapter 8 of the PA TSD.

1. Product Cost

To calculate consumer product costs, DOE multiplied the MPCs developed in the engineering analysis by the markups described previously (along with sales taxes). DOE used different markups for baseline products and higher-efficiency products, because DOE applies an incremental markup to the increase in MSP associated with higher-efficiency products.

DOE assumed no price trend for consumer furnace fans due to uncertainty in future commodity prices. See chapter 8 of the PA TSD for details.

2. Installation Cost

Installation cost includes labor, overhead, and any miscellaneous materials and parts needed to install the product. Because consumer furnace fans are installed in furnaces in the factory, there is generally no additional installation cost in the home. However,

consumer furnace fans that employ a constant-airflow BPM design may require additional installation costs. DOE assumed that all constant-airflow BPM furnace fan installations will require extra labor at startup to check and adjust airflow.

DOE estimated the installation costs at each considered efficiency level using a variety of sources, including RSMMeans data, manufacturer literature, and information from an expert consultant report. DOE's analysis of installation costs accounted for regional differences in labor costs. For a detailed discussion of the development of installation costs, see appendix 8C of the PA TSD.

3. Annual Energy Consumption

For each sampled household or commercial building, DOE determined the energy consumption for a consumer furnace fan at different efficiency levels using the approach described previously in section IV.D of this document.

4. Energy Prices

A marginal energy price reflects the cost or benefit of adding or subtracting one additional unit of energy consumption. Because marginal price more accurately captures the incremental savings associated with a change in energy use from higher efficiency, it provides a better representation of incremental change in consumer costs than average electricity prices. Therefore, DOE applied average natural gas and electricity prices for the energy use of the product purchased in the no-new-standards case, and marginal prices for the incremental change in energy use associated with the other efficiency levels considered.

DOE derived average monthly marginal residential and commercial electricity, natural gas, LPG, and fuel oil prices for each State using data from

EIA.^{32 33 34} DOE calculated marginal monthly regional energy prices by: (1) first estimating an average annual price for each region; (2) multiplying by monthly energy price factors; and (3) multiplying by seasonal marginal price factors for electricity, natural gas, and LPG. The analysis used historical data up to 2022 for residential and commercial natural gas and electricity prices and historical data up to 2021 for LPG and fuel oil prices. Further details may be found in chapter 8 of the PA TSD.

DOE compared marginal price factors developed by DOE from the EIA data to develop seasonal marginal price factors for 23 gas tariffs provided by the Gas Technology Institute for the 2016 residential boilers energy conservation standards rulemaking.³⁵ DOE found that the winter price factors used by DOE are generally comparable to those computed from the tariff data, indicating that DOE's marginal price estimates are reasonable at average usage levels. The summer price factors are also generally comparable. Of the 23 tariffs analyzed, eight have multiple tiers, and of these eight, six have ascending rates and two have descending rates. The tariff-based marginal factors use an average of the two tiers as the commodity price. A full tariff-based analysis would require information about the household's total baseline gas usage (to establish which tier the consumer is in), and a weight factor for each tariff that determines how many customers are served by that utility on that tariff. These data are generally not available in the public domain. DOE's use of EIA State-level data effectively averages overall consumer sales in each State, and so incorporates information from all utilities. DOE's approach is, therefore, more representative of a large group of consumers with diverse baseline gas usage levels than an approach that uses only tariffs.

³² U.S. Department of Energy-Energy Information Administration, Form EIA-861M (formerly EIA-826) detailed data (2022) (Available at: www.eia.gov/electricity/data/eia861m/) (Last accessed Jun. 1, 2023).

³³ U.S. Department of Energy-Energy Information Administration, Natural Gas Navigator (2022) (Available at: www.eia.gov/naturalgas/data.php) (Last accessed Jun. 1, 2023).

³⁴ U.S. Department of Energy-Energy Information Administration, 2021 State Energy Data System (SEDS) (2021) (Available at: www.eia.gov/state/seds/) (Last accessed Jun. 1, 2023).

³⁵ GTI provided a reference located in the docket of DOE's 2016 rulemaking to develop energy conservation standards for residential boilers. (Docket No. EERE-2012-BT-STD-0047-0068) (Available at: www.regulations.gov/document/EERE-2012-BT-STD-0047-0068) (Last accessed June 1, 2023).

DOE notes that within a State, there could be significant variation in the marginal price factors, including differences between rural and urban rates. To take this into account, DOE developed marginal price factors for each individual household using RECS 2015 billing data. These data are then normalized to match the average State marginal price factors, which are equivalent to a consumption-weighted average marginal price across all households in the State. For more details on the comparative analysis and updated marginal price analysis, see appendix 8D of the PA TSD. To estimate energy prices in future years, DOE multiplied the 2022 energy prices by the projection of annual average price changes for each of the nine Census Divisions from the Reference case in *AEO2023*, which has an end year of 2050.³⁶ To estimate price trends after 2050, DOE used the average annual rate of change in prices from 2046 through 2050.

5. Maintenance and Repair Costs

The maintenance cost is the routine cost to the consumer of maintaining product operation. The regular furnace maintenance generally includes checking the furnace fan. DOE assumes that this maintenance cost is the same at all efficiency levels.

The repair cost is the cost to the consumer for replacing or repairing components in the consumer furnace fan that have failed. DOE included motor replacement as a repair cost for a fraction of furnace fans. To estimate rates of motor failure, DOE developed a distribution of fan motor lifetime (expressed in operating hours) by motor size using data from DOE's analysis for small electric motors and manufacturer literature. (75 FR 10874) DOE then paired these data with the calculated number of annual operating hours for each sample furnace fan. Motor costs were based on costs developed in the engineering analysis and the replacement markups developed in the markup analysis. DOE assumed that the motor cost does not apply if motor failure occurs during the furnace warranty period (assumed to be at least 1 year and 5 or more years for a fraction of installations).

The repair costs (including labor hours, component costs, and frequency) at each considered efficiency level are

³⁶ EIA. *Annual Energy Outlook 2023 with Projections to 2050*. Washington, DC. Available at www.eia.gov/forecasts/aeo/ (last accessed Jun. 1, 2023).

derived based on RSMeans data,³⁷ manufacturer literature, and a report from the Gas Research Institute (GRI).³⁸ DOE accounted for regional differences in labor costs. For a detailed discussion of the development of maintenance and repair costs, see appendix 8E of the PA TSD.

6. Product Lifetime

The product lifetime is the age at which a product is retired from service. Furnace fan lifetimes are considered equivalent to furnace lifetimes, so DOE modeled furnace fan lifetime based on estimated furnace lifetimes. Because product lifetime varies, DOE uses a lifetime distribution to characterize the probability that a product will be retired from service at a given age. DOE conducted an extensive literature review and took into account published studies. Because the basis for the estimates in the literature was uncertain, DOE developed a method using national survey data, along with shipment data, to estimate the distribution of consumer furnace lifetimes in the field.

DOE assumed that the probability function for the annual survival of consumer furnace would take the form of a Weibull distribution. DOE derived the Weibull distribution parameters by using stock and age data on consumer furnaces from U.S. Census's biennial American Housing Survey (AHS) from 1974–2019³⁹ and EIA's RECS 1990, 1993, 2001, 2005, 2009, and 2015.⁴⁰

DOE used the results from the 2019 AHCS survey to estimate the national average lifetime of 21.4 years. DOE also determined the average lifetime for different regions: 22.5 years for the North region and 20.2 years for rest of

³⁷ RSMeans Company Inc., *RS Means Facilities Maintenance & Repair Cost Data* (2021) (Available at: www.rsmeans.com/) (Last accessed Jun. 1, 2023).

³⁸ Jakob, F.E., J.J. Crisafulli, J.R. Menkedick, R.D. Fischer, D.B. Phillips, R.L. Osbone, J.C. Cross, G.R. Whitacre, J.G. Murray, W.J. Sheppard, D.W. DeWirth, and W.H. Thrasher. *Assessment of Technology for Improving the Efficiency of Residential Gas Furnaces and Boilers, Volume I and II—Appendices* (September 1994) Gas Research Institute, Report No. GRI-94/0175 (Available at: www.gti.energy/software-and-reports/) (Last accessed Feb. 15, 2022).

³⁹ U.S. Census Bureau: Housing and Household Economic Statistics Division, *American Housing Survey, Multiple Years* (1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1983, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, and 2021). (Available at <https://www.census.gov/programs-surveys/ahs.html>) (Last accessed June 1, 2023).

⁴⁰ U.S. Department of Energy: Energy Information Administration, *Residential Energy Consumption Survey ("RECS")*, Multiple Years (1990, 1993, 1997, 2001, 2005, 2009, and 2015). (Available at www.eia.gov/consumption/residential/) (Last accessed June 1, 2023).

the country. These results are used to scale the average lifetime for these regions.

7. Discount Rates

In the calculation of LCC, DOE applies discount rates appropriate to households to estimate the present value of future operating cost savings. DOE estimated a distribution of discount rates for consumer furnace fans based on the opportunity cost of consumer funds.

DOE applies weighted average discount rates calculated from consumer debt and asset data, rather than marginal or implicit discount rates.⁴¹ The LCC analysis estimates net present value over the lifetime of the product, so the appropriate discount rate will reflect the general opportunity cost of household funds, taking this time scale into account. Given the long-time horizon modeled in the LCC analysis, the application of a marginal interest rate associated with an initial source of funds is inaccurate. Regardless of the method of purchase, consumers are expected to continue to rebalance their debt and asset holdings over the LCC analysis period, based on the restrictions consumers face in their debt payment requirements and the relative size of the interest rates available on debts and assets. DOE estimates the aggregate impact of this rebalancing using the historical distribution of debts and assets.

To establish residential discount rates for the LCC analysis, DOE identified all relevant household debt or asset classes in order to approximate a consumer’s opportunity cost of funds related to appliance energy cost savings. It estimated the average percentage shares of the various types of debt and equity by household income group using data from the Federal Reserve Board’s Survey of Consumer Finances⁴² (“SCF”) for 1995, 1998, 2001, 2004, 2007, 2010,

2013, 2016, and 2019. Using the SCF and other sources, DOE developed a distribution of rates for each type of debt and asset by income group to represent the rates that may apply in the year in which amended standards would take effect. DOE assigned each sample household a specific discount rate drawn from one of the distributions. The average rate across all types of household debt and equity and income groups, weighted by the shares of each type, is 4.1 percent. See chapter 8 of the PA TSD for further details on the development of consumer discount rates.

To establish commercial discount rates for the small fraction of consumer furnace fans in commercial buildings, DOE estimated the weighted-average cost of capital using data from Damodaran Online.⁴³ The weighted-average cost of capital is commonly used to estimate the present value of cash flows to be derived from a typical company project or investment. Most companies use both debt and equity capital to fund investments, so their cost of capital is the weighted average of the cost to the firm of equity and debt financing. DOE estimated the cost of equity using the capital asset pricing model, which assumes that the cost of equity for a particular company is proportional to the systematic risk faced by that company. DOE’s commercial discount rate approach is based on the methodology described in a LBNL report, and the distribution varies by business activity. The average rate for consumer furnace fans used in commercial applications in this analysis, across all business activity, is 7.2 percent.

See chapter 8 of the PA TSD for further details on the development of consumer and commercial discount rates.

Morrison recommended that DOE take into account Federal rate increases,

which are moving to a more typical state as compared to DOE’s selected range from 1995–2019, in which rates were historically low. (Morrison, No. 27 at p. 4) DOE relies on the most recent Survey of Consumer Finance data available, which includes all data available from 2015–2019. In addition, many of the interest rate data used in the discount rate analysis is based on the latest 30-year average, which is updated to 1993–2022 for this NOPD. While DOE acknowledges that there have been interest rate increases in the recent past, DOE cannot conclude that more recent data would be more representative of discount rates in the considered year of compliance, 2030, than the best available time series of data DOE is currently using. For this reason, DOE has not changed its methodology for determining consumer discount rates.

8. Energy Efficiency Distribution in the No-New-Standards Case

To accurately estimate the share of consumers that would be affected by a potential energy conservation standard at a particular efficiency level, DOE’s LCC analysis considered the projected distribution (market shares) of product efficiencies under the no-new-standards case (*i.e.*, the case without amended or new energy conservation standards).

For consumer furnace fans, DOE does not have any shipments data by efficiency after the 2019 furnace fan standard became effective. To cover the lack of available shipments data, DOE used the DOE’s Compliance Certification Management System (CCMS) Database for furnace fans and furnaces to develop efficiency distribution based on available models. Table IV.21 shows the resulting market shares by efficiency level. For a detailed discussion of the development of no-new-standards case distributions based on models, see appendix 7F of the PA TSD.

TABLE IV.21—NO-NEW-STANDARDS CASE ENERGY EFFICIENCY DISTRIBUTIONS IN 2030 FOR CONSUMER FURNACE FANS

Product class	EL	No-new-standards case (%)	Efficiency level (%)	
			1	2
Non-Weatherized, Non-Condensing Gas Furnace Fan	0	100	.....	.....
	1	.....	100	.....
Non-Weatherized, Condensing Gas Furnace Fan	0	100	.....	.....

⁴¹ The implicit discount rate is inferred from a consumer purchase decision between two otherwise identical goods with different first cost and operating cost. It is the interest rate that equates the increment of first cost to the difference in net present value of lifetime operating cost, incorporating the influence of several factors: transaction costs; risk premiums and response to uncertainty; time preferences; interest rates at

which a consumer is able to borrow or lend. The implicit discount rate is not appropriate for the LCC analysis because it reflects a range of factors that influence consumer purchase decisions, rather than the opportunity cost of the funds that are used in purchases.

⁴² The Federal Reserve Board, Survey of Consumer Finances (1995, 1998, 2001, 2004, 2007,

2010, 2013, 2016, and 2019) (Available at: www.federalreserve.gov/econres/scfindex.htm) (Last accessed Jun. 1, 2023).

⁴³ Damodaran, A. Data Page: Historical Returns on Stocks, Bonds and Bills-United States. 2023. (Last accessed Jun. 1, 2023) pages.stern.nyu.edu/~adamodar/.

TABLE IV.21—NO-NEW-STANDARDS CASE ENERGY EFFICIENCY DISTRIBUTIONS IN 2030 FOR CONSUMER FURNACE FANS—Continued

Product class	EL	No-new-standards case (%)	Efficiency level (%)	
			1	2
Weatherized Non-Condensing Gas Furnace Fan	1	100	100	
	0	100		
	1		100	
Non-Weatherized, Non-Condensing Oil Furnace Fan	0	46		
	1	54	100	
	2			100
Non-Weatherized Electric Furnace/Modular Blower Fan	0	100		
	1		100	
	2			100
Mobile Home Non-Weatherized, Non-Condensing Gas Furnace Fan	0	11		
	1	89	100	
	2			100
Mobile Home Non-Weatherized, Condensing Gas Furnace Fan	0	8		
	1	92	100	
	2			100
Mobile Home Non-Weatherized Oil Furnace Fan	0	90		
	1	10	100	
	2			100
Mobile Home Electric Furnace/Modular Blower Fan	0	100		
	1		100	
	2			100

AHRI and Lennox commented that model counts in the certification directory do not reflect sales volume, and that a high number of models produced at a specific efficiency level does not necessarily imply a large market share of those products. (AHRI, No. 23 at p. 4; Lennox, No. 24 at p. 4) Lennox further stated that industry and manufacturers do not generally track shipment data of products that may exceed the baseline because while consumers may consider AFUE when purchasing a residential furnace, furnace fans are not a feature upon which consumers base their purchase decisions. (Lennox, No. 24 at p. 8)

As indicated by Lennox, DOE has not been able to obtain other information to develop a no-new-standards case efficiency distribution, and as such, continues to rely on model availability as a proxy.

9. Payback Period Analysis

The payback period is the amount of time it takes the consumer to recover the additional installed cost of more-efficient products, compared to baseline products, through energy cost savings. Payback periods are expressed in years. Payback periods that exceed the life of the product mean that the increased total installed cost is not recovered in reduced operating expenses.

The inputs to the PBP calculation for each efficiency level are the change in total installed cost of the product and the change in the first-year annual operating expenditures relative to the baseline. The PBP calculation uses the

same inputs as the LCC analysis, except that discount rates are not needed.

F. Shipments Analysis

DOE uses projections of annual product shipments to calculate the national impacts of potential amended or new energy conservation standards on energy use, NPV, and future manufacturer cash flows.⁴⁴ The shipments model takes an accounting approach in tracking market shares of each product class and the vintage of units in the stock. Stock accounting uses product shipments as inputs to estimate the age distribution of in-service product stocks for all years. The age distribution of in-service product stocks is a key input to calculations of both the NES and NPV, because operating costs for any year depend on the age distribution of the stock.

DOE developed shipment projections based on historical data and an analysis of key market drivers for each product. The vast majority of furnace fans are shipped installed in furnaces, so DOE estimated furnace fan shipments by projecting furnace shipments in three market segments: (1) replacements, (2) new housing, and (3) new owners in buildings that did not previously have a central furnace.

To project furnace replacement shipments, DOE developed retirement functions for furnaces from the lifetime estimates and applied them to the

⁴⁴ DOE uses data on manufacturer shipments as a proxy for national sales, as aggregate data on sales are lacking. In general, one would expect a close correspondence between shipments and sales.

existing products in the housing stock. The existing stock of products is tracked by vintage and developed from historical shipments data. The shipments analysis uses a distribution of furnace lifetimes to estimate furnace replacement shipments. In addition, DOE adjusted replacement shipments by taking into account demolitions, using the estimated changes to the housing stock from *AEO2023*.

DOE assembled historical shipments data for consumer furnaces from Appliance Magazine from 1954–2012,⁴⁵ AHRI from 1996–2022,⁴⁶ HARDI from 2013–2022,⁴⁷ and BRG from 2007–2022.⁴⁸ DOE also used the 1992 and 1994–2003 shipments data by State provided by AHRI⁴⁹ and 2004–2009 and 2010–2015 shipments data by the North region and the rest of country

⁴⁵ Appliance Magazine. Appliance Historical Statistical Review: 1954–2012 (2014).

⁴⁶ Air-Conditioning, Heating, & Refrigeration Institute, *Furnace Historical Shipments Data*. (1996–2022) (Available at: <https://www.ahrinet.org/analytics/statistics/historical-data/furnaces-historical-data>) (Last accessed June 1, 2023).

⁴⁷ Heating, Air-conditioning and Refrigeration Distributors International (HARDI). *Gas Furnace Shipments Data from 2013–2022* (Provided to Lawrence Berkeley National Laboratory).

⁴⁸ BRG Building Solutions. The North American Heating & Cooling Product Markets (Available at: <https://www.brgbuildingsolutions.com/solutions/market-reports/>) (Last accessed Jun. 1, 2023).

⁴⁹ Air-Conditioning, Heating, and Refrigeration Institute (formerly Gas Appliance Manufacturers Association). *Updated Shipments Data for Residential Furnaces and Boilers*, April 25, 2005 (Available at: www.regulations.gov/document/EERE-2006-STD-0102-0138) (Last accessed June 1 2023).

provided by AHRI,⁵⁰ as well as HARDI shipments data that is disaggregated by region and most States to disaggregate shipments by region. DOE also used CBECS 2012 data and BRG shipments data to estimate the commercial fraction of shipments. Disaggregated shipments for MHGFs are not available, so DOE disaggregated MHGF shipments from the total by using a combination of data from the U.S. Census,⁵¹ ⁵² American Housing Survey (AHS),⁵³ RECS,⁵⁴ and a 2014 MHGF shipments estimate by Mortex.⁵⁵

To project shipments to the new housing market, DOE utilized a projection of new housing construction and historic saturation rates of various furnaces in new housing. DOE used the AEO2023 housing starts and commercial building floor space projections and data from U.S. Census Characteristics of New Housing,⁵⁶ ⁵⁷ Home Innovation Research Labs Annual Builder Practices Survey,⁵⁸ RECS 2015, AHS 2021, and CBECS 2012 to estimate new construction saturations. DOE also estimated future furnace saturation rates in new single-family housing based on

⁵⁰ Air-Conditioning, Heating, and Refrigeration Institute. Non-Condensing and Condensing Regional Gas Furnace Shipments for 2004–2009 and 2010–2015 Data Provided to DOE contractors, July 20, 2010 and November 26, 2016.

⁵¹ U.S. Census Bureau, Manufactured Homes Survey: Annual Shipments to States from 1994–2022 (Available at: <https://www.census.gov/data/tables/time-series/econ/mhs/latest-data.html>) (Last accessed June 1, 2023).

⁵² U.S. Census Bureau, Manufactured Homes Survey: Historical Annual Placements by State from 1980–2013 (Available at: www.census.gov/data/tables/time-series/econ/mhs/historical-annual-placements.html) (Last accessed June 1, 2023).

⁵³ U.S. Census Bureau—Housing and Household Economic Statistics Division, American Housing Survey, multiple years from 1973–2021 (Available at: www.census.gov/programs-surveys/ahs/data.html) (Last accessed June 1, 2023).

⁵⁴ Energy Information Administration (EIA), Residential Energy Consumption Survey (RECS), multiple years from 1979–2015 (Available at: www.eia.gov/consumption/residential/) (Last accessed June 1, 2023).

⁵⁵ Mortex estimated that the total number of MHGFs manufactured in 2014 was about 54,000, and about two-thirds were sold to the replacement market. Mortex also stated that MHGF sales have not been growing. (Mortex, No. 0157 at p. 3) (Available at: www.regulations.gov/document/EERE-2014-BT-STD-0031-0157) (Last accessed June 1, 2023).

⁵⁶ U.S. Census. Characteristics of New Housing from 1999–2022 (Available at: www.census.gov/construction/chars/) (Last accessed June 1, 2023).

⁵⁷ U.S. Census. Characteristics of New Housing (Multi-Family Units) from 1973–2022 (Available at: www.census.gov/construction/chars/mfu.html) (Last accessed June 1, 2023).

⁵⁸ Home Innovation Research Labs (independent subsidiary of the National Association of Home Builders (NAHB)). Annual Builder Practices Survey (2015–2019) (Available at: www.homeinnovation.com/trends_and_reports/data/new_construction) (Last accessed June 1, 2023).

a weighted average of values from the U.S. Census Bureau's Characteristics of New Housing from 1999 through 2022, and for multi-family building using data from Census Bureau's Characteristics of New Housing (Multi-Family Units) from 1973 through 2022.⁵⁹

To project shipments to the new-owner market, DOE estimated the new owners based on the residual shipments from the calculated replacement and new construction shipments compared to historical shipments over five years (2018–2022). DOE compared this with data from Decision Analysts' 2002 to 2022 American Home Comfort Study,⁶⁰ 2023 BRG data,⁶¹ and AHRI's estimated shipments in 2000,⁶² which showed similar historical fractions of new owners. DOE assumed that the new-owner fraction would be the 10-year average (2013–2022) in 2030 and then decrease to zero by the end of the analysis period (2059).

Lennox commented that DOE likely overstates shipments for gas furnaces. Lennox commented that DOE currently has open rulemakings for furnaces (*e.g.*, a NOPR for NWGs and a notice of TSD for oil, electric, and weatherized gas furnace energy conservation standards), the outcome of which will likely result in reduced market shares of certain products and elimination of others. Furthermore, Lennox commented that the market shares will likely be affected by the current efforts under the Biden administration to decarbonize space heating, and that states such as California and New York are implementing plans to completely electrify space heating as early as 2030. Lennox added that furnace costs are likely to change due to increased energy conservation standards and decarbonization efforts to electrify space heating (Lennox, No. 24 at p. 2–4). Lennox stated that DOE TSD projections are not likely to be indicative of future furnace shipments. (Lennox, No. 24 at p. 8)

Similarly, AHRI commented that DOE did not consider the impact of ongoing rulemakings and electrification policies in its analysis. AHRI commented that not accounting for these changes affects

⁵⁹ U.S. Census Bureau, Characteristics of New Housing (Available at: www.census.gov/construction/chars/) (Last accessed June 1, 2023).

⁶⁰ Decision Analysts, 2002, 2004, 2006, 2008, 2010, 2013, 2016, 2019, and 2022 American Home Comfort Study (Available at: www.decisionanalyst.com/Syndicated/HomeComfort/) (Last accessed Jun. 1, 2023).

⁶¹ BRG data (Available at: www.brgbuildingsolutions.com/) (Last accessed Jun. 1, 2023).

⁶² AHRI (formerly GAMA), Furnace and Boiler Shipments data provided to DOE for Furnace and Boiler ANOPR (Jan. 23, 2002).

future shipment projections and the actual impact of a more stringent rule on national energy savings. (AHRI, No. 23 at p. 1) AHRI commented that the impact of State, county, and local policies should not be discounted in DOE's market projections because these policies impact nearly one fifth of the furnace fan market. AHRI provided examples of relevant policies in California, New York, Massachusetts, Maryland's Montgomery County, and New York City related to eliminating NO_x emissions for space and water heating, transitioning from combustion fuels to electric heat pumps, reducing greenhouse gas emissions, building decarbonization, and restricting fossil fuel usage in new construction. AHRI further commented that these policies need to be accounted for in the shipment and impact analysis. (AHRI, No. 23 at p. 2)

Morrison also commented that DOE is not projecting the ways decarbonization efforts currently underway across the country will impact future furnace shipments. (Morrison, No. 27 at p. 5)

The CA IOUs commented that they expect furnace shipments to flatten or decline in the coming years considering local, State, and Federal efforts on carbonization. (CA IOUs, No. 21 at p. 5)

For the consumer furnace NOPR, assumptions regarding future policies encouraging electrification of households were uncertain at that time, so such policies were not incorporated into the shipments projection. For the consumer furnace final rule, DOE accounted for the 2022 update to Title 24 in California⁶³ and also the decision of the California Public Utilities Commission to eliminate ratepayer subsidies for the extension of new gas lines beginning in July 2023. Together, these policies are expected to lead to the eventual phase-out of gas-fired furnaces in new single-family homes in California. The California Air Resources Board has adopted a 2022 State Strategy for the State Implementation Plan that would effectively ban new gas furnaces beginning in 2030.⁶⁴ However, because a final decision on this rule would not happen until 2025, DOE did not include

⁶³ The 2022 update includes heat pumps as a performance standard baseline for water heating or space heating in single-family homes, as well as space heating in multi-family homes. Under the California Code, builders will need to either include one high-efficiency heat pump in new constructions or subject those buildings to more-stringent energy efficiency standards.

⁶⁴ California Air Resources Board, 2022 State Strategy for the State Implementation Plan. (Available at: ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy) (Last accessed June 1, 2023).

this latter policy in its analysis for the consumer furnace final rule.

DOE understands that ongoing electrification policies at the Federal, State, and local levels are likely to encourage installation of heat pumps in some new homes and adoption of heat pumps in some homes that currently use gas-fired furnaces. However, there are many uncertainties about the timing and effects of these policies that make it difficult to fully account for their likely impact on gas-fired furnace market shares in the time frame for the analysis (*i.e.*, 2030 through 2059). Nonetheless, DOE has modified some of its projections to attempt to account for impacts that are most likely in the relevant time frame. The changes result in a decrease of gas-fired furnace shipments in the no-new-standards case compared to the consumer furnace NOPR analysis, with a corresponding decrease in estimated energy savings resulting from the standards. DOE acknowledges that electrification policies may result in a larger decrease in shipments of gas-fired furnaces than projected in the consumer furnace final rule, especially if stronger policies are adopted in coming years. However, this would occur in the no-new amended standards case and, thus, would only reduce the energy savings estimated in this rule. Given that DOE is tentatively determining that standards do not need to be amended, a decrease in shipments projected would not change that decision.

AHRI commented that if DOE enacts the energy levels put forth in the consumer furnace July 2022 NOPR, these products will no longer be on the market by 2030. AHRI also commented that DOE should consider the

consumers who are unable to replace their existing non-condensing product and will end up switching fuels and adopting a heat pump in its analysis. (AHRI, No. 23 at p. 2)

DOE notes that this analysis only considers what has been finalized for consumer furnace standards. Once the consumer furnace standards are finalized, DOE will take the amended consumer furnace standards into account for future analysis. Given that DOE is tentatively determining that furnace fan standards do not need to be amended, potential amended consumer furnace standards would not change that decision at this time.

Morrison commented that regarding shipments in the no-new-standards case, Figure 9.4.1 in the TSD fails to account for an echo demand reduction approximately 20 years out from the dip in 2010. (Morrison, No. 27 at p. 5)

DOE updated the furnace shipments analysis to take into account a decrease in projected shipments around 2025–2040 due to the 2010 market dip. Given that DOE is tentatively determining that standards do not need to be amended, a decrease in shipments projected would not change that decision.

G. National Impact Analysis

The NIA assesses the NES and the NPV from a national perspective of total consumer costs and savings that would be expected to result from new or amended standards at specific efficiency levels.⁶⁵ (“Consumer” in this context refers to consumers of the product being regulated.) DOE calculates the NES and NPV for the potential standard levels considered based on projections of annual product shipments, along with the annual energy consumption and

total installed cost data from the energy use and LCC analyses. For the present analysis, DOE projected the energy savings, operating cost savings, product costs, and NPV of consumer benefits over the lifetime of consumer furnace fans sold from 2030 through 2059.

DOE evaluates the effects of new or amended standards by comparing a case without such standards with standards-case projections. The no-new-standards case characterizes energy use and consumer costs for each product class in the absence of new or amended energy conservation standards. For this projection, DOE considers historical trends in efficiency and various forces that are likely to affect the mix of efficiencies over time. DOE compares the no-new-standards case with projections characterizing the market for each product class if DOE adopted new or amended standards at specific energy efficiency levels (*i.e.*, the ELs or standards cases) for that class. For the standards cases, DOE considers how a given standard would likely affect the market shares of products with efficiencies greater than the standard.

DOE uses a spreadsheet model to calculate the energy savings and the national consumer costs and savings from each EL. Interested parties can review DOE’s analyses by changing various input quantities within the spreadsheet. The NIA spreadsheet model uses typical values (as opposed to probability distributions) as inputs.

Table IV.22 summarizes the inputs and methods DOE used for the NIA analysis for the NOPD. Discussion of these inputs and methods follows the table. See chapter 10 of the PA TSD for details.

TABLE IV.22—SUMMARY OF INPUTS AND METHODS FOR THE NATIONAL IMPACT ANALYSIS

Inputs	Method
Shipments	Annual shipments from shipments model.
Modeled Compliance Date of Standard.	2030.
Efficiency Trends	No-new-standards case based on historical shipment data and on current consumer furnace fans model availability by efficiency level (<i>see</i> chapter 8 of the PA TSD). Roll-up in the compliance year for standards cases.
Annual Energy Consumption per Unit.	Annual weighted-average values are a function of shipments-weighted unit energy use consumption.
Total Installed Cost per Unit	Annual weighted-average values as a function of the efficiency distribution (<i>see</i> chapter 8 of the PA TSD).
Annual Energy Cost per Unit	Annual weighted-average values as a function of the annual energy consumption per unit and energy prices.
Repair and Maintenance Cost per Unit.	Annual values as a function of efficiency level (<i>see</i> chapter 8 of the PA TSD).
Energy Prices	AEO2023 projections to 2050 and extrapolation thereafter.
Energy Site-to-Primary and FFC Conversion.	A time-series conversion factor based on AEO2023.
Discount Rate	Three percent and seven percent.

⁶⁵ The NIA accounts for impacts in the 50 states and Washington, DC.

TABLE IV.22—SUMMARY OF INPUTS AND METHODS FOR THE NATIONAL IMPACT ANALYSIS—Continued

Inputs	Method
Present Year	2023.

1. Product Efficiency Trends

A key component of the NIA is the trend in energy efficiency projected for the no-new-standards case and each of the standards cases. Section IV.E.8 of this document describes how DOE developed an energy efficiency distribution for the no-new-standards case (which yields a shipment-weighted average efficiency) for each of the considered product classes for the year of anticipated compliance with an amended or new standard.

For the standards cases, DOE used a “roll-up” scenario to establish the shipment-weighted efficiency for the year that standards are assumed to become effective (2030). In this scenario, the market shares of products in the no-new-standards case that do not meet the standard under consideration would “roll up” to meet the new standard level, and the market share of products above the standard would remain unchanged. Taking this efficiency distribution as a starting point, DOE projected standards-case efficiencies after 2030 using similar assumptions regarding future efficiency improvements as in the no-new-standards case.

To project efficiencies for the no-new-standards case, DOE used historical shipment data and current consumer furnace fan model availability by efficiency level (see chapter 8 of the PA TSD).

2. National Energy Savings

The NES analysis involves a comparison of national energy consumption of the considered products between each potential standards case (EL) and the case with no new or amended energy conservation standards. DOE calculated the national energy consumption by multiplying the number of units (stock) of each product (by vintage or age) by the unit energy consumption (also by vintage). DOE calculated annual NES based on the difference in national energy consumption for the no-new-standards case and for each higher efficiency standard case. DOE estimated energy consumption and savings based on site energy and converted the electricity consumption and savings to primary energy (i.e., the energy consumed by power plants to generate site electricity) using annual conversion factors derived

from AEO2023. Cumulative energy savings are the sum of the NES for each year over the timeframe of the analysis.

Use of higher-efficiency products is sometimes associated with a direct rebound effect, which refers to an increase in utilization of the product due to the increase in efficiency. A rebound effect reduces the energy savings attributable to a standard. Where appropriate, DOE accounts for the direct rebound effect when estimating the NES from potential standards. In the residential sector, in the NIA model for product classes with an improved PSC motor standard, DOE applied a rebound effect for those standards cases that require a BPM motor furnace fan. A rebound effect factor of 16% was determined by calculating the additional electricity use that is required from a doubling of the use of continuous fan circulation compared to the average use assumed in the energy use analysis.⁶⁶ Although a lower value might be warranted, DOE preferred to be conservative and not risk understating the rebound effect. For commercial applications, DOE applied no rebound effect, a decision consistent with other recent energy conservation standards rulemakings.^{67 68 69}

⁶⁶ DOE reviewed an evaluation report from Wisconsin that indicates that a considerable number of homeowners who purchase constant-airflow BPM furnaces significantly increase the frequency with which they operate their furnace fan subsequent to the installation of the constant-airflow BPM furnace. On average, this report indicates that there is a doubling in the amount of continuous fan circulation use. DOE assumed that this doubling was the same for all types of furnace fans that had a significant decrease in energy use in the continuous fan circulation mode. (Evaluation report available at: http://www.focusonenergy.com/sites/default/files/emcfurnaceimpactassessment_evaluationreport.pdf)

⁶⁷ DOE. Energy Conservation Program for Certain Industrial Equipment: Energy Conservation Standards for Small, Large, and Very Large Air-Cooled Commercial Package Air Conditioning and Heating Equipment and Commercial Warm Air Furnaces; Direct final rule. 81 FR 2419 (Jan. 15, 2016) (Available at: www.regulations.gov/document/EERE-2013-BT-STD-0021-0055) (Last accessed Feb. 15, 2022).

⁶⁸ DOE. Energy Conservation Program: Energy Conservation Standards for Residential Boilers; Final rule. 81 FR 2319 (Jan. 15, 2016) (Available at: www.regulations.gov/document/EERE-2012-BT-STD-0047-0078) (Last accessed Feb. 15, 2022).

⁶⁹ DOE. Energy Conservation Program: Energy Conservation Standards for Commercial Packaged Boilers; Final Rule. 85 FR 1592 (Jan. 10, 2020) (Available at: www.regulations.gov/document/EERE-2013-BT-STD-0030-0099) (Last accessed Feb. 15, 2022).

In 2011, in response to the recommendations of a committee on “Point-of-Use and Full-Fuel-Cycle Measurement Approaches to Energy Efficiency Standards” appointed by the National Academy of Sciences, DOE announced its intention to use FFC measures of energy use and greenhouse gas and other emissions in the NIA and emissions analyses included in future energy conservation standards rulemakings. 76 FR 51281 (Aug. 18, 2011). After evaluating the approaches discussed in the August 18, 2011 notice, DOE published a statement of amended policy in which DOE explained its determination that EIA’s National Energy Modeling System (NEMS) is the most appropriate tool for its FFC analysis and its intention to use NEMS for that purpose. 77 FR 49701 (Aug. 17, 2012). NEMS is a public domain, multi-sector, partial equilibrium model of the U.S. energy sector⁷⁰ that EIA uses to prepare its AEO. The FFC factors incorporate losses in production, and delivery in the case of natural gas, (including fugitive emissions) and additional energy used to produce and deliver the various fuels used by power plants. The approach used for deriving FFC measures of energy use and emissions is described in appendix 10B of the PA TSD.

3. Net Present Value Analysis

The inputs for determining the NPV of the total costs and benefits experienced by consumers are (1) total annual installed cost, (2) total annual operating costs (energy costs and repair and maintenance costs), and (3) a discount factor to calculate the present value of costs and savings. DOE calculates net savings each year as the difference between the no-new-standards case and each standards case in terms of total savings in operating costs versus total increases in installed costs. DOE calculates operating cost savings over the lifetime of each product shipped during the projection period.

The operating cost savings are energy cost savings, which are calculated using the estimated energy savings in each year and the projected price of the appropriate form of energy. To estimate

⁷⁰ For more information on NEMS, refer to *The National Energy Modeling System: An Overview 2009*, DOE/EIA-0581(2009), October 2009. Available at [www.eia.gov/analysis/pdffiles/0581\(2009\)index.php](http://www.eia.gov/analysis/pdffiles/0581(2009)index.php) (last accessed June 26, 2023).

energy prices in future years, DOE multiplied the average regional energy prices by the projection of annual national-average residential energy price changes in the Reference case from *AEO2023*, which has an end year of 2050. To estimate price trends after 2050, DOE used the average annual rate of change in prices from 2020 through 2050.

In calculating the NPV, DOE multiplies the net savings in future years by a discount factor to determine their present value. For this NOPD, DOE estimated the NPV of consumer benefits using both a 3-percent and a 7-percent real discount rate. DOE uses these discount rates in accordance with guidance provided by the Office of Management and Budget (“OMB”) to Federal agencies on the development of regulatory analysis.⁷¹ The discount rates for the determination of NPV are in contrast to the discount rates used in the LCC analysis, which are designed to reflect a consumer’s perspective. The 7-percent real value is an estimate of the average before-tax rate of return to private capital in the U.S. economy. The 3-percent real value represents the “social rate of time preference,” which is the rate at which society discounts future consumption flows to their present value.

H. Further Considerations Related to Backward-Inclined Impellers

Although DOE did not screen out backward-inclined impellers from further considerations in this analysis (for the reasons discussed in section IV.A.4.a), DOE is aware of several points of uncertainty related to the impacts of a potential standard that required the use of this technology. First, as discussed in section IV.B.1.c of this document, because there are only a small number of models on the market with backward-inclined impellers and several manufacturers expressed concerns about the implementation of this technology, DOE understands that there may be uncertainty related to

whether this technology can be implemented across all input capacities and cabinet sizes. Similarly, as discussed in section IV.A.4.a of this document, manufacturers also raised concerns about the potential negative impacts on consumer utility because of increased noise in certain sizes of furnaces (although DOE is not aware of data on this subject). Additionally, the incorporation of backward-inclined impellers could require system changes to the furnace system that expand beyond the scope of the furnace fan. Manufacturers noted that adoption of backward-inclined impellers could necessitate system considerations to ensure reliability of heat exchanger performance, acceptable sound performance, and ease of installation. Manufacturers also raised concerns that constraints of backward-inclined impeller designs could impede the flexibility of installation configurations. For some fraction of the market, complete furnace redesign would be required to accommodate the backward-inclined impellers design option.

Finally, as discussed in section IV.B.1.c of this document, DOE understands that there is uncertainty associated with the estimated 10 percent reduction in FER for fans using a backward-inclined impeller as compared to models that include forward-inclined impellers. Uncertainty related to the results of the energy use analysis contributes uncertainty to all the conclusions of DOE’s subsequent analyses, including the life-cycle cost and payback period analyses and the national impact analysis. As discussed in section V.C.1 of this document, DOE has considered these uncertainties in its ultimate decision of whether to propose amended standards for consumer furnace fans.

V. Analytical Results and Conclusions

The following section addresses the results from DOE’s analyses with respect to the considered energy conservation standards for consumer furnace fans. It addresses the ELs examined by DOE and the projected impacts of each of these levels. To estimate the impacts of amended standards for consumer furnace fans,

DOE compared the no-new-standards case to scenarios in which specific Candidate Standards Levels (“CSLs”) are implemented. CSL 1 analyzes a scenario in which standards corresponding to EL 1 are adopted for the NWO–NC, MH–NWG–NC, MH–NWG–C, and MH–NWO product classes and standards are not amended for the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, and MH–EF/MB product classes. CSL 2 analyzes a scenario in which standards are adopted corresponding to EL 1 for the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, and MH–EF/MB product classes and as EL 2 for the NWO–NC, MH–NWG–NC, MH–NWG–C, and MH–NWO product classes. In other words, CSL 1 analyzes a scenario in which BPM motors are required for all product classes and CSL 2 analyzes a scenario in which BPM motors with backward-inclined impellers are required for all product classes, corresponding to the max-tech efficiency level for all product classes.

A. Economic Impacts on Individual Consumers

DOE analyzed the cost effectiveness (*i.e.*, the savings in operating costs throughout the estimated average life of consumer furnace fans compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the consumer furnace fans which are likely to result from the imposition of a standard at an EL by considering the LCC and PBP at each EL. These analyses are discussed in the following sections.

In general, higher-efficiency products can affect consumers in two ways: (1) purchase price increases and (2) annual operating costs decrease. Inputs used for calculating the LCC and PBP include total installed costs (*i.e.*, product price plus installation costs), and operating costs (*i.e.*, annual energy use, energy prices, energy price trends, repair costs, and maintenance costs). The LCC calculation also uses product lifetime and a discount rate. Section IV.E of this NOPD provides detailed information on the LCC and PBP analyses.

Table V.1 through Table V.18 show the average LCC and PBP results for the ELs considered for consumer furnace fans in this analysis.

⁷¹ United States Office of Management and Budget, *Circular A–4: Regulatory Analysis* (Sept. 17, 2003) Section E (Available at: obamawhitehouse.archives.gov/omb/circulars_a004_a-4/) (Last accessed May 31, 2023).

TABLE V.1—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR NON-WEATHERIZED, NON-CONDENSING GAS FURNACE FAN [NWG-NC]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	403	67	1,160	1,563	.....	20.9
1	495	60	1,069	1,565	12.9	20.9

TABLE V.2—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR NON-WEATHERIZED, NON-CONDENSING GAS FURNACE FAN [NWG-NC]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	68.4	(1)

TABLE V.3—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR NON-WEATHERIZED, CONDENSING GAS FURNACE FAN [NWG-C]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	420	61	1,106	1,525	.....	21.9
1	501	55	1,024	1,526	13.3	21.9

TABLE V.4—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR NON-WEATHERIZED, CONDENSING GAS FURNACE FAN [NWG-C]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	70.7	(0)

TABLE V.5—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR MOBILE HOME NON-WEATHERIZED, NON-CONDENSING GAS FURNACE FAN [MH-NWG-NC]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	212	54	884	1,096	.....	20.7
1	258	35	589	847	2.3	20.7
2	332	30	530	863	5.0	20.7

TABLE V.6—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR MOBILE HOME NON-WEATHERIZED, NON-CONDENSING GAS FURNACE FAN
[MH-NWG-NC]

Efficiency level	% consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	3.8	231
2	76.1	9

TABLE V.7—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR MOBILE HOME NON-WEATHERIZED, CONDENSING GAS FURNACE
[MH-NWG-C]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	238	62	1,039	1,277	.....	21.5
1	300	37	666	966	2.5	21.5
2	364	34	631	995	4.6	21.5

TABLE V.8—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR MOBILE HOME NON-WEATHERIZED, CONDENSING GAS FURNACE
[MH-NWG-C]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	1.5	292
2	82.1	(7)

TABLE V.9—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR MOBILE HOME ELECTRIC FURNACE/MODULAR BLOWER FAN
[MH-EF/MB]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	255	36	629	885	.....	20.7
1	315	32	578	893	14.7	20.7

TABLE V.10—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR MOBILE HOME ELECTRIC FURNACE/MODULAR BLOWER FAN
[MH-EF/MB]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	71.5	(8)

TABLE V.11—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR NON-WEATHERIZED, NON-CONDENSING OIL FURNACE FAN [NWO-NC]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	568	151	2,601	3,169	.....	22.2
1	654	110	1,940	2,594	2.1	22.2
2	765	103	1,840	2,605	4.1	22.2

TABLE V.12—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR NON-WEATHERIZED, NON-CONDENSING OIL FURNACE FAN [NWO-NC]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	4.4	618
2	52.2	274

TABLE V.13—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR WEATHERIZED NON-CONDENSING GAS FURNACE FAN [WG-NC]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	385	81	1,322	1,706	.....	20.6
1	478	71	1,188	1,666	9.1	20.6

TABLE V.14—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR WEATHERIZED NON-CONDENSING GAS FURNACE FAN [WG-NC]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	54.9	40

TABLE V.15—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR ELECTRIC FURNACE/MODULAR BLOWER [EF/MB]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	305	43	726	1,031	.....	20.7
1	371	39	673	1,045	16.0	20.7

TABLE V.16—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR ELECTRIC FURNACE/MODULAR BLOWER [EF/MB]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	77.5	(14)

TABLE V.17—AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR MOBILE HOME NON-WEATHERIZED, NON-CONDENSING OIL FURNACE FAN [MH-NWO-NC]

Efficiency level	Average costs (2022\$)				Simple payback period (years)	Average lifetime (years)
	Installed cost	First year's operating cost	Lifetime operating cost	LCC		
0	491	88	1,539	2,030	.....	22.5
1	541	66	1,187	1,728	2.3	22.5
2	624	61	1,105	1,729	5.0	22.5

TABLE V.18—LCC SAVINGS RELATIVE TO THE BASE CASE EFFICIENCY DISTRIBUTION FOR MOBILE HOME NON-WEATHERIZED, NON-CONDENSING OIL FURNACE FAN [MH-NWO-NC]

Efficiency level	% Consumers with net cost	Average savings—impacted consumers (2022\$)
0	0.0	NA
1	21.0	308
2	54.7	276

B. National Impact Analysis

This section presents DOE's estimates of the NES and the NPV of consumer benefits that would result from each of the ELs considered as potential amended standards.

1. Significance of Energy Savings

To estimate the energy savings attributable to potential amended

standards for consumer furnace fans, DOE compared their energy consumption under the no-new-standards case to their anticipated energy consumption under each CSL.

The savings are measured over the entire lifetime of products purchased in the 30-year period that begins in the year of anticipated compliance with amended standards (2030–2059). Table

V.20 presents DOE's projections of the NES for each CSL considered for consumer furnace fans. The savings were calculated using the approach described in section IV.G of this document.

TABLE V.20—CUMULATIVE NATIONAL ENERGY SAVINGS FOR CONSUMER FURNACE FANS; 30 YEARS OF SHIPMENTS [2030–2059]

	Candidate standards level	
	1	2
	quads	
Primary energy	0.013	1.355
FFC energy	0.013	1.374

OMB Circular A-4⁷² requires agencies to present analytical results, including separate schedules of the monetized benefits and costs that show the type and timing of benefits and costs. Circular A-4 also directs agencies to consider the variability of key elements underlying the estimates of benefits and costs. For this proposed determination, DOE undertook a sensitivity analysis using 9 years, rather than 30 years, of product shipments. The choice of a 9-year period is a proxy for the timeline in EPCA for the review of certain energy conservation standards and potential revision of and compliance with such revised standards.^{73 74} The review timeframe established in EPCA is generally not synchronized with the product lifetime, product manufacturing cycles, or other factors specific to consumer furnace fans. Thus, such results are presented for informational purposes only and are not indicative of any change in DOE's analytical methodology. The NES sensitivity analysis results based on a 9-year analytical period are presented in Table V.21. The impacts are counted over the lifetime of consumer furnace fans purchased in 2030–2038.

⁷² U.S. Office of Management and Budget. *Circular A-4: Regulatory Analysis*. September 17, 2003. Available at obamawhitehouse.archives.gov/omb/circulars_a004_a-4/ (Last accessed Sept. 9, 2021).

⁷³ U.S. Office of Management and Budget. *Circular A-4: Regulatory Analysis*. September 17, 2003. Available at obamawhitehouse.archives.gov/omb/circulars_a004_a-4/ (last accessed August 29, 2023).

⁷⁴ Section 325(m) of EPCA requires DOE to review its standards at least once every 6 years, and requires, for certain products, a 3-year period after any new standard is promulgated before compliance is required, except that in no case may any new standards be required within 6 years of the compliance date of the previous standards. If DOE makes a determination that amended standards are not needed, it must conduct a subsequent review within three years following such a determination. As DOE is evaluating the need to amend the standards, the sensitivity analysis is based on the review timeframe associated with amended standards. While adding a 6-year review to the 3-year compliance period adds up to 9 years, DOE notes that it may undertake reviews at any time within the 6-year period and that the 3-year compliance date may yield to the 6-year backstop. A 9-year analysis period may not be appropriate given the variability that occurs in the timing of standards reviews and the fact that for some products, the compliance period is 5 years rather than 3 years.

TABLE V.21—CUMULATIVE NATIONAL ENERGY SAVINGS FOR CONSUMER FURNACE FANS; 9 YEARS OF SHIPMENTS

	[2030–2038]	
	Candidate standards level	
	1	2
	(quads)	
Primary energy	0.005	0.376
FFC energy	0.005	0.381

2. Net Present Value of Consumer Costs and Benefits

DOE estimated the cumulative NPV of the total costs and savings for consumers that would result from the CSLs considered for consumer furnace fans. In accordance with OMB's guidelines on regulatory analysis,⁷⁵ DOE calculated NPV using both a 7-percent and a 3-percent real discount rate. Table V.22 shows the consumer NPV results with impacts counted over the lifetime of products purchased in 2030–2059.

TABLE V.22—CUMULATIVE NET PRESENT VALUE OF CONSUMER BENEFITS FOR CONSUMER FURNACE FANS; 30 YEARS OF SHIPMENTS [2030–2059]

Discount rate	Candidate standards level	
	1	2
	(billion 2022\$)	
3 percent	0.112	1.821
7 percent	0.042	(0.150)

Note: Number in parentheses means negative.

The NPV results based on the aforementioned 9-year analytical period are presented in Table V.23. The impacts are counted over the lifetime of products purchased in 2030–2038. As mentioned previously, such results are presented for informational purposes only and are not indicative of any change in DOE's analytical methodology or decision criteria.

⁷⁵ U.S. Office of Management and Budget. *Circular A-4: Regulatory Analysis*. September 17, 2003. Available at obamawhitehouse.archives.gov/omb/circulars_a004_a-4/ (Last accessed Sept. 9, 2021).

TABLE V.23—CUMULATIVE NET PRESENT VALUE OF CONSUMER BENEFITS FOR CONSUMER FURNACE FANS; 9 YEARS OF SHIPMENTS

Discount rate	Candidate standards level	
	1	2
	(billion 2022\$)	
3 percent	0.056	0.716
7 percent	0.026	(0.071)

Note: Number in parentheses means negative.

C. Proposed Determination

EPCA mandates that DOE consider whether amended energy conservation standards for consumer furnace fans would be technologically feasible. (42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(B)) EPCA also requires DOE to consider whether energy conservation standards for consumer furnace fans would be cost effective through an evaluation of the savings in operating costs throughout the estimated average life of the covered product compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered products which are likely to result from the imposition of an amended standard. (42 U.S.C. 6295(m)(1)(A), 42 U.S.C. 6295(n)(2)(C), and 42 U.S.C. 6295(o)(2)(B)(i)(II)) Finally, EPCA mandates that DOE consider whether amended energy conservation standards for consumer furnace fans would result in significant conservation of energy. (42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(A))

DOE conducted an LCC analysis to estimate the net costs/benefits to users from increased efficiency in the considered consumer furnace fans, the results of which are shown in Table V.1. DOE then aggregated the results from the LCC analysis to estimate the NPV of the total costs and benefits experienced by the Nation. (See results in Table V.4 and Table V.5.) As noted, the inputs for determining the NPV are (1) total annual installed cost, (2) total annual operating costs (energy costs and repair and maintenance costs), and (3) a discount factor to calculate the present value of costs and savings.

To estimate the energy savings attributable to potential amended standards for consumer furnace fans, DOE compared their energy consumption under the no-new-standards case to their anticipated energy consumption under each potential standard level. The savings are measured over the entire lifetime of

products purchased in the 30-year period that begins in the year of anticipated compliance with amended standards (2030–2059). The results of this analysis are shown in Table V.20 and Table V.21.

Because an analysis of potential cost effectiveness and energy savings first requires an evaluation of the relevant technology, DOE typically first discusses the technological feasibility of amended standards. DOE then typically addresses the cost effectiveness and energy savings associated with potential amended standards. For the current analysis, DOE reviewed the impacts of amended standards corresponding to the implementation of the two design options analyzed in this rule (*i.e.*, BPM motor with forward-curved impellers and BPM motor with backward inclined impellers, as discussed in section IV.B of this document) separately. For each design option, DOE considered the technological feasibility, cost-effectiveness, and significance of energy savings.

1. BPM Motor With Backward-Inclined Impellers

BPM motors with backward-inclined impellers are included in the current analysis as the max-tech design option for all furnace fan product classes. In other words, they are analyzed as EL 1 for the NWG–NC, NWG–C, WG–NC, NWEF/NWMB, and MH–EF/MB product classes and as EL 2 for the NWO–NC, MH–NWG–NC, MH–NWG–C, and MH–NWO product classes. As discussed in section IV.A.4 of this document, DOE is aware of BPM motors with backward-inclined impellers being used in commercially available consumer furnace fans and therefore this technology is technologically feasible.

As seen in Table V.20, DOE estimates that amended standards for consumer furnace fans would result in energy savings of 1.374 quads at max tech levels over a 30-year analysis period (2030–2059). However, as seen in Table V.1 through Table V.18 and Table V.22, these efficiency levels result in net life-cycle costs for the majority of consumers and negative net present value at a 7-percent discount rate. Therefore, DOE finds that the max-tech ELs (which would require the use of backward-inclined impellers used with BPM motors) are not cost effective.

Additionally, as discussed in section IV.H of this document, there is a significant amount of uncertainty associated technical feasibility of backward-inclined impellers. In particular, DOE has concerns about the feasibility of implementing backward-

inclined impellers across all input capacities and cabinet sizes and the unavailability of certain furnace product sizes and uncertainty related to its estimates of the energy reduction associated with backward-inclined impellers as opposed to forward-curved impellers.

2. BPM Motor With Forward-Curved Impellers

Use of BPM motors with forward-curved impellers (which is the type of impeller used in the vast majority of consumer furnace fans on the market today) are included in the current analysis as the design option analyzed in CSL 1. For these product classes, the current standards can be met using less-efficient PSC motors, so replacing the motor with a BPM motor can improve the efficiency of the furnace fan. BPM motors are widely used in commercially available consumer furnace fans and therefore are technologically feasible.

As seen in Table V.22, CSL 1 results in positive NPV at the 3-percent and 7-percent discount rates. And, as seen in Table V.20, DOE estimates that amended standards for consumer furnace fans would result in energy savings of 0.013 quads at CSL 1 over a 30-year analysis period (2030–2059). However, as discussed in section IV.F, shipments in the affected product classes have declined over the past 20 years and could decline faster than current shipment projections, which may lead to reductions in energy savings from amended standards.

Given the small role of NWO–NC, MH–NWG–NC, MH–NWG–C, and MH–NWO in the overall furnace market and the low sales relative to the consumer boiler and consumer water heater markets, manufacturers may deprioritize furnace fan updates for these product classes. Depending on how companies prioritize resources, there could be reduced availability of NWO–NC, MH–NWG–NC, and MH–NWO products in the marketplace after 2030. Additionally, there is a potential risk that some manufacturers would choose to exit these markets rather than redesign affected products given the low shipment volumes, lack of anticipated growth, limited potential for cost recovery, and need to prioritize technical resources. In particular, the loss of a few manufacturers in the NWO–NC market could lead to changes in the competition and shifts toward the market becoming highly concentrated.

As discussed previously, any amended standards for furnace fans would be required to comply with the economic justification and other requirements of 42 U.S.C. 6295(o).

Based on the declining shipments of the affected product classes and uncertainty over whether manufacturers will choose to remain in a shrinking market, DOE has tentatively determined that it is unable to conclude that amended standards for furnace fans would be economically justified.

3. Summary

As discussed previously, a determination that amended standards are not needed must be based on consideration of whether amended standards will result in significant conservation of energy, are technologically feasible, and are cost effective. (42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) Additionally, DOE can only propose an amended standard if it is, among other things, economically justified. (42 U.S.C. 6295(m)(1)(B); 42 U.S.C. 6295(o)(2)(A)) With respect to the candidate standard level representing the max-tech design option, BPM motors with backward-inclined impellers, DOE has tentatively determined that an amended standard at this level would not be cost-effective. And, for the candidate standard level representing BPM motors with forward-curved impellers, DOE has tentatively determined that it is unable to conclude that an amended standard at this level would be economically justified. Therefore, DOE has tentatively determined that energy conservation standards for consumer furnace fans do not need to be amended at this time. DOE will consider all comments received on this proposed determination in issuing any final determination.

VI. Procedural Issues and Regulatory Review

A. Review Under Executive Orders 12866, 13563, and 14094

Executive Order (“E.O.”) 12866, “Regulatory Planning and Review,” as supplemented and reaffirmed by E.O. 13563, “Improving Regulation and Regulatory Review,” 76 FR 3821 (Jan. 21, 2011), and amended by E.O. 14094, “Modernizing Regulatory Review,” 88 FR 21879 (April 11, 2023), requires agencies, to the extent permitted by law, to (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory

approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public. DOE emphasizes as well that E.O. 13563 requires agencies to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs (“OIRA”) in the Office of Management and Budget (“OMB”) has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. For the reasons stated in the preamble, this proposed regulatory action is consistent with these principles.

Section 6(a) of E.O. 12866 also requires agencies to submit “significant regulatory actions” to OIRA for review. OIRA has determined that this proposed regulatory action does not constitute a “significant regulatory action” within the scope of section 3(f)(1) of E.O. 12866. Accordingly, this action was not submitted to OIRA for review under E.O. 12866.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (“IRFA”) for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 13272, “Proper Consideration of Small Entities in Agency Rulemaking,” 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the proposed rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel’s website (www.energy.gov/gc/office-general-counsel).

DOE reviewed this proposed determination under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003. Because DOE is proposing not to amend standards for consumer furnace fans, if adopted, the determination would not amend any energy conservation standards. On the basis of the foregoing, DOE certifies that the proposed determination, if adopted, would have no significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared an IRFA for this proposed determination. DOE will transmit this certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act

This proposed determination, which proposes to determine that amended energy conservation standards for consumer furnace fans are unneeded under the applicable statutory criteria, would impose no new informational or recordkeeping requirements. Accordingly, OMB clearance is not required under the Paperwork Reduction Act. (44 U.S.C. 3501 *et seq.*)

D. Review Under the National Environmental Policy Act of 1969

DOE is analyzing this proposed action in accordance with the National Environmental Policy Act of 1969 (“NEPA”) and DOE’s NEPA implementing regulations (10 CFR part 1021). DOE’s regulations include a categorical exclusion for actions which are interpretations or rulings with respect to existing regulations. 10 CFR part 1021, subpart D, appendix A4. DOE anticipates that this action qualifies for categorical exclusion A4 because it is an interpretation or ruling in regards to an existing regulation and otherwise meets the requirements for application of a categorical exclusion. *See* 10 CFR 1021.410. DOE will complete its NEPA review before issuing the final action.

E. Review Under Executive Order 13132

E.O. 13132, “Federalism,” 64 FR 43255 (Aug. 10, 1999), imposes certain requirements on Federal agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. The Executive order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The

Executive order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed determination and has tentatively determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297) Therefore, no further action is required by E.O. 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of E.O. 12988, “Civil Justice Reform,” imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity, (2) write regulations to minimize litigation, (3) provide a clear legal standard for affected conduct rather than a general standard, and (4) promote simplification and burden reduction. 61 FR 4729 (Feb. 7, 1996). Regarding the review required by section 3(a), section 3(b) of E.O. 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any, (2) clearly specifies any effect on existing Federal law or regulation, (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction, (4) specifies the retroactive effect, if any, (5) adequately defines key terms, and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this proposed

determination meets the relevant standards of E.O. 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (“UMRA”) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law 104–4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of \$100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed “significant intergovernmental mandate,” and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect them. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820. DOE’s policy statement is also available at energy.gov/sites/prod/files/gcprod/documents/umra_97.pdf.

DOE examined this proposed determination according to UMRA and its statement of policy and determined that the proposed determination does not contain a Federal intergovernmental mandate, nor is it expected to require expenditures of \$100 million or more in any one year by State, local, and Tribal governments, in the aggregate, or by the private sector. As a result, the analytical requirements of UMRA do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This proposed determination would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

Pursuant to E.O. 12630, “Governmental Actions and Interference with Constitutionally Protected Property Rights,” 53 FR 8859 (Mar. 15, 1988), DOE has determined that this proposed determination would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for Federal agencies to review most disseminations of information to the public under information quality guidelines established by each agency pursuant to general guidelines issued by OMB. OMB’s guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE’s guidelines were published at 67 FR 62446 (Oct. 7, 2002). Pursuant to OMB Memorandum M–19–15, Improving Implementation of the Information Quality Act (April 24, 2019), DOE published updated guidelines which are available at www.energy.gov/sites/prod/files/2019/12/f70/DOE%20Final%20Updated%20IQA%20Guidelines%20Dec%202019.pdf. DOE has reviewed this NOPD under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

E.O. 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,” 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to the Office of Information and Regulatory Affairs (“OIRA”) at OMB, a Statement of Energy Effects for any proposed significant energy action. A “significant energy action” is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under Executive Order 12866, or any successor Executive Order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the

action and their expected benefits on energy supply, distribution, and use.

This proposed determination, which does not propose to amend energy conservation standards for consumer furnace fans, is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as such by the Administrator at OIRA. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy (“OSTP”), issued its Final Information Quality Bulletin for Peer Review (“the Bulletin”). 70 FR 2664 (Jan. 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal Government, including influential scientific information related to agency regulatory actions. The purpose of the bulletin is to enhance the quality and credibility of the Government’s scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are “influential scientific information,” which the Bulletin defines as “scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions.” *Id.* at 70 FR 2667.

In response to OMB’s Bulletin, DOE conducted formal peer reviews of the energy conservation standards development process and the analyses that are typically used and has prepared a Peer Review report pertaining to the energy conservation standards rulemaking analyses.⁷⁶ Generation of this report involved a rigorous, formal, and documented evaluation using objective criteria and qualified and independent reviewers to make a judgment as to the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. Because available data, models, and technological understanding have changed since 2007, DOE has engaged with the National Academy of Sciences to review DOE’s analytical methodologies to ascertain

⁷⁶ “Energy Conservation Standards Rulemaking Peer Review Report.” 2007. Available at energy.gov/eere/buildings/downloads/energy-conservation-standards-rulemaking-peer-review-report-0 (last accessed June 26, 2023).

whether modifications are needed to improve the Department's analyses. DOE is in the process of evaluating the resulting report.⁷⁷

VII. Public Participation

A. Participation in the Webinar

DOE will hold a public webinar upon receiving a request by the deadline identified in the **DATES** section at the beginning of this proposed determination. Interested persons may submit their request for the public webinar to the Appliance and Equipment Standards Program at ConsumerFurnFan2021STD0029@ee.doe.gov. If a public webinar is requested, DOE will release webinar registration information, participant instructions, and information about the capabilities available to webinar participants on DOE's website: www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=14. Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Submission of Comments

DOE will accept comments, data, and information regarding this proposed determination no later than the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments, data, and other information using any of the methods described in the **ADDRESSES** section at the beginning of this document.

Submitting comments via www.regulations.gov. The www.regulations.gov web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment itself or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Otherwise, persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

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Submitting comments via email. Comments and documents submitted via email also will be posted to www.regulations.gov. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information in a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. With this instruction followed, the cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. No faxes will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not

secured, that are written in English, and that are free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked "confidential" including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

C. Issues on Which DOE Seeks Comment

Although DOE has not identified any specific issues on which it seeks comment, DOE welcomes comments on any aspect of this proposal.

VIII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notification of proposed determination and request for comment.

Signing Authority

This document of the Department of Energy was signed on September 29, 2023, by Jeffrey Marootian, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal

⁷⁷ The report is available at www.nationalacademies.org/our-work/review-of-methods-for-setting-building-and-equipment-performance-standards.

Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of

the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on September 29, 2023.

Treena V. Garrett,
*Federal Register Liaison Officer, U.S.
Department of Energy.*

[FR Doc. 2023-22149 Filed 10-5-23; 8:45 am]

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