ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[Docket ID No. EPA–HQ–OAR–2005–0163; FRL–8307–7]

RIN–2060–AN28

Supplemental Notice of Proposed Rulemaking for Prevention of Significant Deterioration and Nonattainment New Source Review: Emission Increases for Electric Generating Units

AGENCY: Environmental Protection Agency (EPA).

ACTION: Supplemental Notice of Proposed Rulemaking.

SUMMARY: This action is a supplemental notice of proposed rulemaking (SNPR) to EPA's October 20, 2005 notice of proposed rulemaking (NPR). In the October 2005 NPR, EPA (we) proposed to revise the emissions test for existing electric generating units (EGUs) that are subject to the regulations governing the Prevention of Significant Deterioration (PSD) and nonattainment major New Source Review (NSR) programs (collectively "NSR") mandated by parts C and D of title I of the Clean Air Act (CAA). We proposed three alternatives for the emissions test: a maximum achievable hourly emissions test, a maximum achieved hourly emissions test, and an output-based hourly emissions test. This action recasts the proposed options so that the output-based test becomes an alternative method to implement the maximum achieved or maximum achievable hourly tests, rather than a separate option. This SNPR also proposes a new option in which the hourly emissions increase test is added to the existing requirements for computing a significant increase and a significant net emissions increase on an annual basis. It also includes proposed rule language and supplemental information for the October 2005 proposal, including an examination of the impacts on emissions and air quality.

These proposed regulations interpret the emissions increase component of the modification test under CAA 111(a)(4), in the context of NSR, for existing EGUs. The proposed regulations would promote the safety, reliability, and efficiency of EGUs. We are seeking comment on all aspects of this proposed rule.

DATES: *Comments.* Comments must be received on or before July 9, 2007. Under the Paperwork Reduction Act, comments on the information collection provisions must be received by the Office of Management and Budget (OMB) on or before June 7, 2007.

Public Hearing: If anyone contacts us requesting to speak at a public hearing on or before May 29, 2007, we will hold a public hearing approximately 30 days after publication in the **Federal Register**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-HQ–OAR–2005–0163 by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- *E-mail: a-and-r-docket@epa.gov.*
- *Mail:* Attention Docket ID No. EPA–HQ–OAR–2005–0163, U.S. Environmental Protection Agency, EPA West (Air Docket), 1200 Pennsylvania Avenue, NW., Mail code: 6102T, Washington, DC 20460. Please include a total of 2 copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th Street, NW., Washington, DC 20503.
- *Hand Delivery:* U.S. Environmental Protection Agency, EPA West (Air Docket), 1301 Constitution Avenue, Northwest, Room 3334, Washington, DC 20004, Attention Docket ID No. EPA–HQ–OAR–2005–0163. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR–2005–0163. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or e-mail. The *http://www.regulations.gov* website is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov,* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional instructions on submitting comments, go to section B. of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket. All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the U.S. Environmental Protection Agency, Air Docket, EPA/DC, EPA West Building, Room 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 Air Docket is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: Ms. Janet McDonald, Air Quality Policy Division (C504–03), U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, telephone number: (919) 541–1450; fax number: (919) 541–5509, or electronic mail e-mail address: *mcdonald.janet@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

Entities potentially affected by the subject rule for this action are fossil-fuel fired boilers and turbines serving an electric generator with nameplate capacity greater than 25 megawatts (MW) producing electricity for sale. Entities potentially affected by the subject rule for this action also include State, local, and tribal governments. Categories and entities potentially affected by this action are expected to include:

Industry Group	SIC[a]	NAICS[b]
Electric Services	491	221112.
Federal government	[1]22112	Fossil-fuel fired electric utility steam generating units owned by the Federal government.
State/local/Tribal government	22112	Fossil-fuel fired electric utility steam generating units owned by municipalities. Fossil-fuel fired electric utility steam generating units in Indian country.

[a] Standard Industrial Classification
[b] North American Industry Classification System.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this proposal will also be available on the World Wide Web. Following signature by the EPA Administrator, a copy of this notice will be posted in the regulations and standards section of our NSR home page located at *http://www.epa.gov/nsr.*

C. What should I consider as I prepare my comments for EPA?

1. *Submitting CBI.* Do not submit this information to EPA through *http://www.regulations.gov* or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), U.S. EPA, Research Triangle Park, NC 27711, Attention Docket ID No. EPA–HQ–OAR–2005–0163.

2. *Tips for Preparing Your Comments.* When submitting comments, remember to:

• Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).

• Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.

• Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

• Describe any assumptions and provide any technical information and/or data that you used.

• If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

• Provide specific examples to illustrate your concerns, and suggest alternatives.

• Explain your views as clearly as possible, avoiding the use of profanity or personal threats.

• Make sure to submit your comments by the comment period deadline identified.

D. How can I find information about a possible public hearing?

People interested in presenting oral testimony or inquiring if a hearing is to be held should contact Ms. Pamela S. Long, New Source Review Group, Air Quality Policy Division (C504–03), U.S. EPA, Research Triangle Park, NC 27711, telephone number (919) 541–0641. If a hearing is to be held, persons interested in presenting oral testimony should notify Ms. Long at least 2 days in advance of the public hearing. Persons interested in attending the public hearing should also contact Ms. Long to verify the time, date, and location of the hearing. The public hearing will provide interested parties the opportunity to present data, views, or arguments concerning these proposed rules.

E. How is the preamble organized?

The information presented in this preamble is organized as follows:

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II. Overview

This action is a SNPR to EPA's October 20, 2005 (70 FR 61081) NPR. In the October 2005 NPR, we proposed to revise the emissions test for existing EGUs that are subject to the regulations governing the PSD and nonattainment major NSR programs (collectively ''NSR'') mandated by parts C and D of title I of the CAA. We proposed three alternatives for the emissions test: a maximum achievable hourly emissions test, a maximum achieved hourly emissions test, and an output-based hourly emissions test. In the NPR, we did not propose to include, along with any of the revised NSR emissions tests, any provisions for computing a significant increase or a significant net

[1] Establishments owned and operated by Federal, State, or local government are classified according to the activity in which they are engaged.

emissions increase, although we solicited comment on retaining such provisions. In addition, we solicited comment on whether, if we revised the NSR test to be a maximum achieved emissions test or output-based emissions test, we should revise the NSPS regulations to include a maximum achieved emissions test or an output-based emissions test. This action recasts the proposed options so that the output test, instead of being an alternative to the maximum hourly achieved or maximum hourly achievable tests, becomes an alternative method for sources to implement those two tests. Specifically, we propose that each of the two tests would be implemented through (i) an input method (as defined below), (ii) the output method, or (iii) at the source's choice, either the input or output method. This action includes proposed rule language and supplemental information for the October 2005 proposal as it relates to the major NSR regulations, including an examination of the impacts on emissions and air quality that would result were we to finalize one of the applicability tests proposed in the October 2005 proposal or in this SNPR, as described below.

This action also proposes an additional option that was not included in the October 2005 rule. For convenience, this action characterizes the tests contained in the October 2005 NPR, described above, as Option 2 (with the maximum hourly achieved test characterized as Alternatives 1–4 and the maximum hourly achievable test characterized as Alternatives 5–6 within that Option 2, and with each of those tests including output-based alternatives). For the additional option proposed, which we characterize as Option 1, we are proposing that an hourly emissions increase test (either maximum achieved or maximum achievable, each with output-based alternatives) would include the significant net emissions increase test in the current major NSR rules, which is calculated on an actual-to-projected-actual annual emissions basis. We are also clarifying that Option 1 is our preferred option.

When we proposed a revised emissions test for EGUs in October 2005, we referenced *United States* v. *Duke Energy Corp.,* 411 F.3d 539 (4th Cir.) rehearing den.____ F.3d____ (2005), cert. granted ____ U.S.____ (2006). At the time of our proposal, the Fourth Circuit had denied the United States' petition for rehearing on the decision in Duke Energy, but the deadline for filing a petition for *certiorari* to the United States Supreme Court had not yet passed. Subsequently, on December 28, 2005, Intervenor plaintiffs Environmental Defense Fund, North Carolina Sierra Club, and North Carolina Public Interest Research Group filed a petition for *certiorari* asking the court to address several matters. On May 15, 2006 the United States Supreme Court granted the petition for a writ of *certiorari.* On April 2, 2007, the Supreme Court vacated and remanded the Fourth Circuit decision. [549 U.S.___ (2007)] , 75 U.S.L.W. 4167 (April 2, 2007).

When we published the proposal in October 2005, it was in part in response to the Fourth Circuit's holding that EPA must read the 1980 PSD regulations to contain an hourly test, consistent with the NSPS regulations. The Supreme Court's vacatur was based on its finding that such a reading of the 1980 PSD regulations ''was inconsistent with their terms.'' The Supreme Court, however, indicated that EPA may be able to revise the regulations when, as here, it has a rational reason for doing so. While there is no longer a need to provide national consistency in light of the Fourth Circuit decision, we believe that the options for a maximum hourly test that we proposed in our October 2005 NPR and continue to propose in this SNPR are an appropriate exercise of our discretion, especially in light of the substantial EGU emission reductions from more efficient air quality programs promulgated after 1980. Accordingly, we continue to pursue the viability of imposing an hourly emissions test on EGUs for purposes of major NSR applicability.

In May 2001, President Bush's National Energy Policy Development Group issued findings and key recommendations for a National Energy Policy. This document included numerous recommendations for action, including a recommendation that the EPA Administrator, in consultation with the Secretary of Energy and other relevant agencies, review NSR regulations, including administrative interpretation and implementation. The recommendation requested that we issue a report to the President on the impact of the regulations on investment in new utility and refinery generation capacity, energy efficiency, and environmental protection. Our report to the President and our recommendations in response to the National Energy Policy were issued on June 13, 2002. A copy of this information is available at *http://www.epa.gov/nsr/publications.html.*

In that report we concluded:

> As applied to existing power plants and refineries, EPA concludes that the NSR program has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency and safety of existing energy capacity. Such discouragement results in lost capacity, as well as lost opportunities to improve energy efficiency and reduce air pollution. (New Source Review Report to the President at pg. 3.)

On December 31, 2002, we promulgated final regulations that implemented several of the recommendations in the New Source Review Report to the President. However, that action left the NSR regulations as they related to utilities largely unchanged. This action continues to address the recommendations in the New Source Review Report to the President as they relate to electric utilities specifically and in light of the regulatory requirements for EGUs that have been promulgated since our 2002 regulations.

The regulations proposed in the October 2005 NPR and on this action would promote the safety, reliability, and efficiency of EGUs. The proposed regulations are consistent with the primary purpose of the major NSR program, which is to balance the need for environmental protection and economic growth. The proposed regulations reasonably balance the economic need of sources to use existing physical and operating capacity with the environmental benefit of regulating those emissions increases related to a physical or operational change. This is particularly true in light of the substantial national EGU emissions reductions that other programs have achieved or are expected to achieve, which we described in detail at 70 FR 61083. Moreover, as the analyses included in this SNPR demonstrate, the proposed regulations would not have an undue adverse impact on local air quality.

This section gives an overview of our proposed actions for major NSR applicability at existing EGUs, including the proposals in the NPR, as recast in this proposal, for the maximum hourly emissions tests and this additional proposal. Each of the options would promote the safety, reliability, and efficiency of EGUs. Each of the options would also balance the economic need of sources to use existing physical and operating capacity with the environmental benefit of regulating those emissions increases related to a change, considering the substantial national emissions reductions other programs have achieved or will achieve from EGUs. Our preferred Option is Option 1. We will select the final option after weighing the public comments on the Options. Table 1 summarizes our two Options.

TABLE 1.—PROPOSED OPTIONS FOR MAJOR NSR APPLICABILITY FOR EXISTING EGU [2]

Option 1	Step 1: Physical Change or Change in the Method of Operation. Step 2: Hourly Emissions Increase Test. • Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis. • Alternative 2—Maximum achieved hourly emissions; statistical approach; output basis. • Alternative 3—Maximum achieved hourly emissions; one-in-5-year baseline; input basis. • Alternative 4—Maximum achieved hourly emissions; one-in-5-year baseline; output basis. • Alternative 5—NSPS test—maximum achievable hourly emissions; input basis. • Alternative 6—NSPS test-maximum achievable hourly emissions; output basis. Step 3: Significant Emissions Increase Determined Using the Actual-to-Projected-Actual Emissions Test as in the Current Rules.[3] Step 4: Significant Net Emissions Increase as in the Current Rules.
Option 2	Step 1: Physical Change or Change in the Method of Operation. Step 2: Hourly Emissions Increase Test. • Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis. • Alternative 2—Maximum achieved hourly emissions; statistical approach; output basis. • Alternative 3—Maximum achieved hourly emissions; one-in-5-year baseline; input basis. • Alternative 4—Maximum achieved hourly emissions; one-in-5-year baseline; output basis. • Alternative 5—NSPS test—maximum achievable hourly emissions; input basis. • Alternative 6—NSPS test-maximum achievable hourly emissions; output basis.

We request public comment on all aspects of this action. We intend to finalize either Option 1 or Option 2. We will also finalize either the maximum achieved or the maximum achievable alternative. We intend to respond to public comments on the October 20, 2005 NPR and this notice in a single **Federal Register** Notice and Response to Comments Document at the time that we take final action.

A. Option 1: Hourly Emissions Increase Test Followed by Annual Emissions Test

In the NPR, we did not propose to include, along with any of the revised NSR emissions tests, any provisions for computing a significant emissions increase or a significant net emissions increase, although we solicited comment on retaining such provisions. Many commenters believed netting is required under the Alabama Power Court decision, and supported options retaining netting. Therefore, we are proposing that major NSR applicability would include an hourly emissions increase test, followed by the current regulatory requirements for the actual-to-projected-actual emissions increase test to determine significance, and the significant net emissions increase test. We call this approach Option 1 and we are proposing it as our preferred option. Specifically, under Option 1, the major NSR program would include a four-step process as follows: (1) Physical change or change in the method of operation; (2) hourly emissions increase test ; (3) significant emissions increase as in the current major NSR regulations; and (4) significant net emissions increase as in the current major NSR regulations. Section IV of this preamble describes Option 1 in more detail. Our proposed regulatory language is for Option 1.

Option 1 facilitates improvements for efficiency, safety, and reliability, without adverse air quality effects (as the discussion of the IPM and air quality analyses in Section III indicates). Specifically, changes that will not increase the hourly emissions rate—such as those to make repairs to reduce the number of forced outages—do not require further review under Option 1. That is, if there would be no hourly emissions increase following a physical change or change in the method of operation, the proposed rule does not require a determination of whether a significant increase or a significant net emissions increase would occur. Thus, Option 1 would simplify major NSR for changes where there is no increase in hourly emissions. However, many public commenters urged that we retain the significant emissions increase component of the emissions increase test. Therefore, we are proposing further review under Option 1 in instances where a physical or operational change at a given unit would increase the hourly emissions rate, such as would occur where there is an increase in existing capacity. In such cases, Option 1 requires further review using the significant increase and significant net emissions increase components of the current regulations. This approach retains an annual emissions test in determining NSR applicability.

We are proposing both a maximum achieved hourly and a maximum achievable hourly emissions increase test under Step 2 of Option 1, which we discuss in detail in Section IV.A. of this preamble. Consistent with our policy goal of improving energy efficiency, we are proposing both an input [4] and output based format for both the maximum achievable and maximum achieved hourly emissions increase test options. Specifically, we are proposing the alternatives of (i) use of input-based methodology for each test, (ii) use of output-based methodology for each test, or (iii) allowing the source to choose between input- or output-based methodology. Some commenters strongly opposed an output-based format, believing that it would encourage emissions increases. We believe these concerns are mitigated in a system where total annual emissions

[2] For clarity, this table lists all of the steps in the applicability determinations under the various options and alternatives. These steps include, as Step 1, the determination of whether a physical change or change in the method of operation has occurred. This Step 1 is included in the table solely for purposes of clarity; neither the October 2005 NPR nor this action proposes any action of any type (or makes any re-proposal) concerning the regulations defining physical change or change in the method of operation. Similarly, the steps also include, as Steps 3 and 4, the current net significance test; and this SNPR does not propose any action of any type (or make any re-proposal) concerning the current net significance test. Finally, this action does not propose any action of any type (or make any re-proposal) concerning the current applicability test for EGUs.

[3] Steps 3 and 4 only apply when a unit fails Step 2. (That is, it is determined that an hourly emissions increase would occur.)

[4] In this context, we use the term ''input'' as a convenient way to refer to the hourly emission rate test, and to distinguish it from the output test, which is calculated on the basis of hourly emissions per kilowatt hour of generation.

are capped nationally. Other commenters supported the output-based format, noting that it would encourage energy efficiency.

We agree that an output-based test encourages efficient units, which has well-recognized benefits. The more efficient an EGU, the less it emits for a given period of operation. For example, a 50 MW combustion turbine that operates 500 hours a year, for 25,000 MWh per year at an emission rate of 75 ppm, would emit 46 tons per year at 25 percent efficiency, 41 tons per year at 28 percent efficiency, 37 tons per year at 31 percent efficiency, and 34 tons per year at 34 percent efficiency.

Furthermore, we have established pollution prevention as one of our highest priorities. One of the opportunities for pollution prevention is maximizing the efficiency of energy generation. An output-based standard establishes emission limits in a format that incorporates the effects of unit efficiency by relating emissions to the amount of useful energy generated, not the amount of fuel burned. By relating emission limitations to the productive output of the process, output-based emission limits encourage energy efficiency because any increase in overall energy efficiency results in a lower emission rate. Allowing energy efficiency as a pollution control measure provides regulated sources with an additional compliance option that can lead to reduced compliance costs as well as lower emissions. The use of more efficient technologies reduces fossil fuel use and leads to multi-media reductions in environmental impacts both on-site and off-site. On-site benefits include lower emissions of all products of combustion, including hazardous air pollutants, as well as reducing any solid waste and wastewater discharges. Off-site benefits include the reduction of emissions and non-air environmental impacts from the production, processing, and transportation of fuels.

While output-based emission limits have been used for regulating many industries, input-based emission limits have been the traditional method to regulate steam generating units. However, this trend is changing as we seek to promote pollution prevention and provide more compliance flexibility to combustion sources. For example, in 1998 we amended the NSPS for electric utility steam generating units (40 CFR part 60, subpart Da) to use output-based standards for nitrogen oxides (NO_X ; 40 CFR 63.44a, 62 FR 36954, and 63 FR 49446). We recently promulgated new output-based emission limits for sulfur dioxide (SO_2) and NO_X under subpart Da of 40 CFR part 60 (71 FR 9866) and for combustion turbines. (71 FR 38482.)

B. Option 2: Hourly Emissions Increase Test

For Option 2, we are proposing a maximum achieved emissions increase test alternative and a maximum achievable emissions increase test alternative. For both the maximum achieved and maximum achievable emissions increase test, we are also proposing the alternatives of (i) the use of input-based methodology for each test; (ii) the use of output-based methodology for each test, or (iii) allowing the source to choose between input- or output-based methodology. We describe these alternatives in detail in Section V. of this preamble.

Option 2 with the proposed maximum hourly achieved test would simplify NSR applicability determinations. Option 2 with the proposed maximum hourly achievable test provides even more simplicity by conforming NSR applicability determinations to NSPS applicability determinations. We also note the achieved and achievable tests eliminate the burden of projecting future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, because any increase in the emissions under the hourly emissions tests would logically be attributed to the change. Both the achieved and achievable tests reduce recordkeeping and reporting burdens on sources because compliance will no longer rely on synthesizing emissions data into rolling average emissions. Option 2 would reduce the reviewing authorities' compliance and enforcement burden compared to the current regulations.

In the October 2005 NPR, we also solicited comment on whether, if we revised the NSR test to be a maximum achieved emissions test or output-based emissions test, we should revise the NSPS regulations to include a maximum achieved emissions test or an output-based emissions test. This SNPR concerns the emissions test for existing EGUs in the major NSR programs. It does not address the emissions test for existing EGUs under the NSPS program.

III. Analyses Supporting Proposed Options

We examined how our proposed options for major NSR applicability for EGUs would affect control technology installation, emissions, and air quality. We conducted two separate analyses using the Integrated Planning Model (IPM). Our analyses show that none of the proposed options would have a detrimental impact on county-level emissions or local air quality. This section discusses our analyses and findings. More extensive information on our analyses is available in the Technical Support Document, which is available in Docket ID No. EPA–HQ–OAR–2005–0163.

A. The Integrated Planning Model

We use the IPM to analyze the projected impact of environmental policies on the electric power sector in the 48 contiguous States and the District of Columbia. The IPM is a multi-regional, dynamic, deterministic linear programming model of the entire electric power sector. It provides forecasts of least-cost capacity expansion, electricity dispatch, and emission control strategies for meeting energy demand and environmental, transmission, dispatch, and reliability constraints. We have used the IPM extensively to evaluate the cost and emissions impacts of proposed policies to limit emissions of sulfur dioxide and nitrogen oxides from the electric power sector. The IPM was a key analytical tool in developing the Clean Air Interstate Regulation (CAIR; see 70 FR 25162). However, the IPM capabilities and results are not limited to projections for CAIR States. It includes data for and projects emissions and controls for the electric sector in the contiguous United States.

Each IPM model run is based on emissions controls on existing units, State regulations, cost and performance of generating technologies, SO_2 and NO_X heat rates, natural gas supply and prices, and electricity demand growth assumptions. This input is updated on a regular basis. We used the IPM to project EGU SO_2 and NO_X controls, emissions, and air quality in 2020 considering projected emission controls under the CAIR, Clean Air Mercury Rule (CAMR), and Clean Air Visibility Rule (CAVR). For convenience, we refer to this projection as the CAIR/CAMR/CAVR 2020 Base Case Scenario or, more simply, the Base Case Scenario. The IPM model used for this scenario is IPM v.2.1.9.[5]

The IPM v 2.1.9 is based on 2,053 model plants, which represent 13,819 EGUs, including 1,242 coal-fired EGUs.[6] This represents all existing EGUs in the

[5] Complete documentation for IPM, including the Base Case Scenario, is available at *http://www.epa.gov/airmarkets/progsregs/epa-ipm/index.html.* See also Docket EPA–HQ–OAR–2005–0163, DCN 01.

[6] See the NEEDS 2004 documentation for IPM v.2.1.9 in Exhibit 4–6, which can be found at *http://www.epa.gov/airmarkets/progsregs/epa-ipm/past-modeling.html.* See also Docket EPA–HQ–OAR–2005–0163, DCN 02.

contiguous United States as of 2004, as well as new units that are already planned or committed, and new units that are projected to come online by 2007. The underlying data for these plants is contained in the National Electric Energy Data System (NEEDS), which contains geographic location, fuel use, emissions control, and other data on each existing EGU. NEEDS data for existing EGUs comes from a number of sources, including information submitted to EPA under the Title IV Acid Rain Program and the NO_X Budget Program, as well as information submitted to the Department of Energy's (DOE's) Energy Information Agency, on Forms EIA 860 and 767. That is, the underlying data for each existing EGU in the IPM v.2.1.9 is information from an actual EGU in operation as of 2004 that has been submitted to the EPA or the DOE.

The IPM v.2.1.9 model also accounts for growth in the EGU sector that is projected to occur through new builds, including both planned-committed units and potential units. Planned-committed EGUs are those that are likely to come online, because ground has been broken, financing obtained, or other demonstrable factors indicate a high probability that the EGU will come online. Planned-committed units in IPM v.2.1.9 were based on two information sources: RDI NewGen database (RDI) distributed by Platts (*http://www.platts.com*) and the inventory of planned-committed units assembled by DOE, Energy Information Administration, for their Annual Energy Outlook. Potential EGUs are those units that may be built at a future date in response to electricity demand. In IPM v.2.1.9, potential new units are modeled as additional capacity and generation that may come online in each model region.

IPM v.2.1.9 also accounts for emission limitations due to State regulations and enforcement actions. It includes State regulations that limit SO_2 and NO_X emissions from EGUs. These are included in Appendix 3–2, available at *http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/bc3appendix.pdf.*[7] The IPM v.2.1.9 includes NSR settlement requirements for the following six utility companies: SIGECO, PSEG Fossil, TECO, We Energies (WEPCO), VEPCO and Santee Cooper. The settlements are included as they existed on March 19, 2004. A summary of the settlement agreements is included in Appendix 3–3 of the IPM documentation and is available *http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/bc3appendix.pdf.*[8]

In the IPM, EPA does not attempt to model unit-specific decisions to make equipment change or upgrades to non-environmental related equipment that could affect efficiency, availability or cost to operate the unit (and thus the amount of generation). Modeling such decisions would require either obtaining or making assumptions about the condition of equipment at units and would greatly increase model size, limiting its applicability in policy analysis. Specifically, IPM does not project that any particular existing EGU will make physical or operational changes that increase its efficiency, generation, or emissions. Therefore, IPM does not predict which particular EGUs will be subject to the major NSR applicability requirements. However, as discussed below, EPA has specially designed inputs to IPM that provide useful information directly related to major NSR applicability requirements. As we discuss below, these inputs are in the form of constraints to the IPM model rather than changes on a unit-by-unit basis.

Reliability is a critical element of power plant operation. Reliability is generally defined as whether an EGU is able to operate over sustained periods at the level of output required by the utility. One measure of reliability is availability, the percentage of total time in a given period that an EGU is available to generate electricity. An EGU is available if it is capable of providing service, regardless of the capacity level that can be provided. Availability is generally measured using the number of hours that an EGU operates annually. For example, if an EGU operated 8,760 hours in a particular year, it was 100 percent available. Each year, EGUs are not available for some number of hours due to planned outages, maintenance outages, and forced outages.

IPM v.2.1.9 uses information from the North American Electric Reliability Council (NERC)'s Generator Availability Data System (GADS) to determine the annual availability for EGUs. The GADS database includes operating histories—some dating back to the early 1960's—for more than 6,500 EGUs. These units represent more than 75 percent of the installed generating capacity in the United States and Canada. Each utility provides reports, detailing its units' operation and performance. The reports include types and causes of outages and deratings, unit capacity ratings, energy production, fuel use, and design information. GADS provides a standard set of definitions for determining how to classify an outage on a unit, including planned outages, maintenance outages, and forced outages. The GADS data are reported and summarized annually. A planned outage is the removal of a unit from service to perform work on specific components that is scheduled well in advance and has a predetermined start date and duration (for example, annual overhaul, inspections, testing). Turbine and boiler overhauls or inspections, testing, and nuclear refueling are typical planned outages.

A maintenance outage is the removal of a unit from service to perform work on specific components that can be deferred beyond the end of the next weekend, but requires the unit be removed from service before the next planned outage. Typically, maintenance outages may occur any time during the year, have flexible start dates, and may or may not have predetermined durations. For example, a maintenance outage would occur if an EGU experiences a sudden increase in fan vibration. The vibration is not severe enough to remove the unit from service immediately, but does require that the unit be removed from service soon to check the problem and make repairs.

A forced outage is an unplanned component failure or other breakdown that requires the unit be removed from service immediately, that is, within 6 hours, or before the end of the next weekend. A common cause of forced outages is boiler tube failure.

Each EGU must report the number of hours due to planned outages, maintenance outages, and forced outages to NERC annually. NERC summarized the data for all coal-fired EGUs over the period from 2000–2004 in its Annual Unit Performance Statistics Report.[9] For the years 2001–2004, the average annual planned outage hours for all coal-fired EGUs was 572.09 (about 23 days), the average annual maintenance outage hours for all coal-fired EGUs was 156.27 (about 6 days), and the average annual forced outage hours for all coal-fired EGUs was 348.75 (about 14 days). The total annual unavailable hours for all coal-fired EGUs were 1,087.57, which is 15.1 percent of the total annual hours of 8,760. Based on this data, the IPM v.2.1.9 assumed coal-fired EGUs were 85 percent available. As just noted, of the 1,087.57 total unavailable hours, 348.75 were forced outage hours, which means that coal-fired EGUs were

[7] See also Docket EPA–HQ–OAR–2005–0163, DCN 03.

[8] See also Docket EPA–HQ–OAR–2005–0163, DCN 03.

[9] The report is available at *http://www.nerc.com/~gads/* and in Docket EPA–HQ–OAR–2005–0163, DCN 04.

unavailable due to forced outages approximately 4 percent of the hours in a year for the years 2000–2004.

We recently released a graphic presentation of electric power sector results under CAIR/CAMR/CAVR. Entitled ''Contributions of CAIR/CAMR/CAVR to NAAQS Attainment: Focus on Control Technologies and Emission Reductions in the Electric Power Sector,'' it is available at *http://www.epa.gov/cair/charts.html*.[10] As this presentation shows, under the CAIR/CAMR/CAVR 2020 Base Case Scenario, local SO_2 and NO_X emissions generally decrease, average SO_2 and NO_X emission rates decrease, and national SO_2 and NO_X emissions decrease. As this document also shows, half of the coal-fired generation is expected to have scrubbers and either SCR or SNCR by 2020. These effects occur throughout the contiguous 48 States, not just in the CAIR States.

We developed IPM scenarios to examine the effects of our proposed regulations, including the maximum hourly emissions increase tests (achievable and achieved, on an input and output basis), on EGU emissions and control technologies. These new IPM scenarios incorporate the parameters used in the IPM model v.2.1.9 that we describe above, including information for the electric sector in the contiguous United States. Thus, these new IPM scenarios revise the parameters in the CAIR/CAMR/CAVR 2020 Base Case Scenario consistent with the way EGUs might operate under the proposed major NSR applicability changes. We call these IPM scenarios the NSR Availability and the NSR Efficiency Scenarios, and discuss them in the following sections.

B. NSR Availability Scenarios—Description of the Scenarios

We developed two IPM scenarios, which we call the CAIR/CAMR/CAVR NSR Availability Scenarios, or, more simply, the NSR Availability Scenarios, to examine how changes to major NSR applicability under the proposed regulations could, by allowing sources to make repairs or improvements that increase hours of operation, affect emissions and control technology installation. The NSR Availability IPM scenarios are based on the CAIR/CAMR/CAVR 2020 Scenario.

The primary difference between the current applicability test and the proposed tests is that under the proposed tests, sources could more readily make repairs or improvements that prevent forced outages, and thereby allow the source to operate more hours. These repairs allow the source to operate at the higher availability level that it achieved before its equipment degraded so much as to cause more forced outages.

Some commenters emphasized this difference between the current applicability test and our proposals in the NPR. They explained that because, as we noted at 70 FR 61100, hours of operation are considered in determining annual emissions under the actual-to-projected-actual test in the current major NSR program but have no role in any of our proposed hourly emissions increase test options, an EGU could make a change that does not increase the maximum hourly emissions rate, but does allow the source to run more hours. This change would not trigger review under a maximum hourly emissions increase test in any case, but in some cases might trigger review under the current major NSR emissions increase test based on annual emissions with a 5-year baseline period. These commenters assert that the proposed applicability tests could allow substantial increases in annual emissions without triggering NSR.

For several reasons, we believe commenters have overstated the likelihood that substantial increases in annual emissions and resulting deterioration in air quality would occur under the proposed maximum hourly emissions tests, as opposed to the current annual emissions, 5-year baseline test. First, an EGU can increase its hours of operation under the current regulations, as long as it does not make a physical change or change in the method of operation. Information from the RBLC confirms that most EGUs are already permitted to run 8760 hours annually. That is, increases in hours of operation at most EGUs are not a change in the method of operation. They are allowed and frequently occur at many EGUs under the current regulations without triggering major NSR. Second, increases in actual emissions stemming from increases in hours of operation that are unrelated to the change, are not considered in determining projected actual emissions. To the extent that changes resulting in increased hours would occur under the proposed regulatory scheme, any resulting increases in emissions will be diminished as the CAIR and BART programs are implemented and the SO_2 and NO_X emissions for most EGUs are capped. As we described in detail in the NPR, 70 FR 61087, national and regional caps limit total actual annual EGU SO_2 and NO_X emissions. These caps greatly reduce the significance of hours of operations on actual emissions from the sector nationally. Furthermore, as we indicated in our recent report of the CAIR/CAMR/CAVR, the more hours an EGU operates, the more likely it is to install controls.[11] Moreover, existing synthetic minor limits to avoid major NSR and enforceable limits on hours of operation on a particular EGU as a result of netting would remain in place under any revised emissions increase test. We thus believe the opportunities for many EGUs to significantly increase their emissions through higher hours of operation under a maximum hourly emissions increase test, as compared to the current annual emissions increase test with a 5-year baseline period, are generally limited.

Nonetheless, we want to comprehensively examine the outcomes of a maximum hourly emissions increase test, using a robust methodology based on conservative (that is, protective of the environment) estimates. We therefore developed two IPM scenarios, which we call the CAIR/CAMR/CAVR NSR Availability Scenarios, or, more simply, the NSR Availability Scenarios, to examine how changes to major NSR applicability under the proposed regulations could, by allowing sources to make repairs or improvements that increase hours of operation, affect emissions and control technology installation. These IPM scenarios are based on the CAIR/CAMR/CAVR 2020 Scenario, which employs the IPM v.2.1.9 model that we describe in Section III. A. of this preamble, including information for the electric sector in the contiguous United States. Section III A. of this document also contains specific information on the assumptions about EGU assumptions in the IPM v.2.1.9. The NSR Availability Scenarios retain the heat input for each EGU from the CAIR/CAMR/CAVR 2020 Scenario. That is, we did not assume that any existing EGU would increase its capacity in the NSR Availability Scenario.

The parameters in the IPM model are based on availability for 6,500 EGUs over the 5-year period from 2000–2004. In the NSR Availability scenarios, however, we changed the parameters in IPM v.2.1.9 consistent with the way EGUs might operate under the more flexible regulations that we are proposing. That is, we assumed that

[10] Also available in Docket EPA–HQ–OAR–2005–0163, DCN 05.

[11] See our presentation, ''Contributions of CAIR/CAMR/CAVR to NAAQS Attainment: Focus on Control Technologies and Emission Reductions in the Electric Power Sector,'' on pages 39 and 43. The presentation is available at *http://www.epa.gov/cair/charts.html*. Also available in Docket EPA–HQ–OAR–2005–0163, DCN 05.

some owner/operators might make changes that increase the hours of operation of some EGUs. It is unlikely that an owner/operator would be able to make changes that reduce the hours that an EGU is unavailable due to a planned outage or a maintenance outage. However, EGUs would be able to make changes that increase their hours of operation as a result of a reduction in the number and length of forced outages. Specifically, with more flexibility concerning the number of hours EGUs operate annually, EGU owner/operators may replace broken-down equipment in an effort to reduce the number of forced outages. Such actions would increase the safety, reliability, and efficiency of EGUs, consistent with one of our primary policy goals for our proposed regulations.

Therefore, in the NSR Availability Scenario, we assumed that coal-fired EGUs would be able to make changes that affect forced outage hours in two, alternative, ways: (1) Coal-fired EGUs would reduce their forced outage hours by half (2 percent increase in availability); and (2) coal-fired EGUs would have no forced outage hours (4 percent increase in availability). Therefore, in the first model run, we increased the coal-fired availability by 2 percent, from 85 percent to 87 percent annually. In the second NSR EGU run, we increased coal-fired availability by 4 percent, to 89 percent annually. We believe it is unlikely that an EGU would be able to make repairs that completely eliminate forced outage hours. However, we wanted a robust examination of changes that could impact emissions and air quality.[12] We therefore made the very conservative assumption to increase to EGU availability by 2 percent and 4 percent over the actual historical hours of operation for 6,500 EGUs over the years 2000–2004. All other information in the NSR Availability Scenarios is the same as that in IPM v.2.1.9 used for the CAIR/CAMR/CAVR Scenario.

The NERC GADS calculates the average availability for an EGU by taking the actual total number of unavailable hours in a given year for all EGUs and dividing it evenly among the total number of EGUs. Based on the GADS data, the IPM assumes an upper bound of 85 percent availability for coal-fired EGUs. In GADS data for the years 2000–2004, some EGUs actually had more than 85 percent availability and some actually had less. The particular EGUs that had greater than 85 percent availability and less than 85 percent varied from year to year. Similarly, by eliminating forced outages, some EGUs could increase their availability by more than 2–4 percent and some EGUs could increase their availability by less than 2–4 percent. Likewise, the particular EGUs that were able to reduce their forced outage hours would also vary from year to year. For modeling purposes, it thus makes more sense to assume an average availability than to determine unit-by-unit availabilities for each and every EGU in a given year.

Our approach based on average availability is also consistent with actual historical operations at particular EGUs and plantsites, which are most directly related to local emissions and air quality. Variation in actual annual hours of operation at a given EGU and at given plantsites do occur under current major NSR applicability. It is not uncommon for actual hours of operation for a particular EGU to vary by 348 hours (4 percent availability) or more from year to year. It is also not uncommon for the variation in actual hours of operation to occur among EGUs at a particular plantsite by 4 percent or more from year to year. For example, in one year Unit A might run 7,800 hours and Unit B might run 7,400 hours. In the next year Unit B might run 7,800 hours and Unit A 7,400 hours. This pattern further supports an approach based on average availability for estimating local emissions. Changes in average availability, rather than the absolute availability of any given EGU, thus is appropriate for analyzing the impact of proposed changes to major NSR applicability.

C. NSR Availability Scenarios—Discussion of SO_2 and NO_X Results

This section discusses the SO_2 and NO_X control device installation, national emissions, local emissions, and impact on air quality for EGUs under the NSR Availability Scenario.

1. *SO_2 and NO_X Control Device Installation.* As Table 2 shows, the NSR Availability Scenarios project retrofitting of more control devices than under the CAIR/CAMR/CAVR 2020 Scenario.[13] This result occurs whether hours of operation increase by 2 percent or by 4 percent. Significantly, under the 4 percent scenario, more Gigawatts (GW) of electric capacity are controlled than under the 2 percent scenario. For example, under NSR Availability 4%, there is 3.63 more GW of national EGU capacity with scrubbers than under CAIR/CAMR/CAVR 2020. These results are consistent with what IPM generally projects, as noted above; that is, the more hours an EGU operates, the more likely it is to install controls.[14] We thus conclude that the more hours an EGU operates, the more likely it is to install controls, regardless of whether the major NSR applicability test is on an hourly basis or an annual basis.

[12] While we believe it is most likely that an EGU would increase its hours of operation under these proposed regulations due to reducing the number of hours that the EGU is unavailable due to forced outage hurs, the analysis is applicable to increaes in hours of operation for other reasons.

[13] Available in Docket EPA–HQ–OAR–2005–0163, DCN 06. (System Summary Report for NSR Availability).

[14] See our presentation, ''Contributions of CAIR/CAMR/CAVR to NAAQS Attainment: Focus on Control Technologies and Emission Reductions in the Electri Power Sector,'' on pages 39 and 43. The presentation is available at *http://www.epa.gov/cair/charts.html.* Also available in Docket EPA–HQ–OAR–2005–0163, DCN 05.

TABLE 2.—2020 NATIONAL EGUS WITH EMISSION CONTROLS UNDER NSR AVAILABILITY SCENARIOS

Emission control type	EGUs with additional controls compared to 2004 base case		EGUs with additional controls compared to CAIR/CAMR/CAVR 2020	
	NSR availability 2%	NSR availability 4%	NSR availability 2%	NSR availability 4%
FGD[15]	109.62 GW	111.53 GW	1.71 GW	3.63 GW
SCR[16]	73.47 GW	73.92 GW	0.62 GW	1.07 GW

2. *SO_2 and NO_X National Emissions.* As Table 3 shows, the NSR Availability Scenarios project essentially no changes in SO_2 or NO_X emissions nationally by 2020 as compared to emissions under the CAIR/CAMR/CAVR 2020 Scenario.[17] This result is consistent with the fact that under the NSR Availability Scenarios, the amount of controls increases, compared to CAIR/CAMR/CAVR 2020, and we find that these associated emissions decreases are offset by the emissions increases associated with the reduced forced outages and higher production levels.

TABLE 3.—NATIONAL EGU EMISSIONS UNDER NSR AVAILABILITY SCENARIOS COMPARED TO CAIR/CAMR/CAVR 2020 (TPY)

Pollutant	CAIR/CAMR/CAVR	NSR 4%	NSR 2%	Change-NSR 4%	Change-NSR 2%
SO_2	4,277,000	4,271,000	4,261,000	−6,000 <1% decrease	−16,000 <1% decrease.
NO_X	1,989,000	2,016,000	2,003,000	28,000 1% increase	14,000 1% increase.

As noted above, the NSR Availability Scenarios examine emissions changes based on very conservative estimates developed using actual historical hours of operation for 6,500 EGUs over the years 2000–2004. We conclude that to any extent that EGU hours of operation increase under a maximum hourly test, as opposed to the current average annual 5-year baseline test, such increased hours of operation would not increase national EGU SO_2 emissions. The increased availability would have very little effect on national NO_X emissions, with approximately one percent increase nationally. This conclusion as to emissions in the contiguous 48 States supports extending the proposed rules nationwide, instead of limiting them to the States in the CAIR region.

3. *SO_2 and NO_X Local Emissions Impact.* To examine the effect of the maximum hourly and 5-year baseline tests on local air quality, we compared 2020 county-level EGU SO_2 and NO_X emissions under the CAIR/CAMR/CAVR 2020 and NSR Availability (4%) Scenario.[18] We describe these changes in detail in Chapter 4 of the Technical Support Document (TSD). As the TSD shows, the proposed revised NSR applicability tests would, under the very conservative assumptions described above, result in a somewhat different pattern of local emissions, with some counties experiencing reductions, some experiencing increases, and some remaining the same. This pattern is consistent with the fact that most coal-fired EGUs are in the CAIR region and therefore subject to regulations implementing the CAIR cap. According to the DOE's Energy Information Agency, for the years 2003–2004, approximately 80 percent of the coal steam electric generation and 75 percent of all electric generation occurred in CAIR States.[19] Furthermore, EGUs are subject to national SO_2 caps under the Acid Rain Program.

For these reasons, an increase in emissions in one area results in a decrease elsewhere. This dynamic occurs regardless of the major NSR applicability test for existing EGUs. Nonetheless, the NSR Availability Scenario demonstrates that this pattern continues to occur when increased availability is assumed, such as we assume for present purposes would occur under the proposed maximum hourly and 5-year baseline tests.

4. *SO_2 and NO_X Impact on Air Quality.* In Chapter 4 of the TSD, we compare projected county-level SO_2 and NO_X emissions under NSR Availability 4% to those projected under CAIR/CAMR/CAVR 2020. Projected increases in emissions of these pollutants due to increased hours of operation at EGUs under the NSR Availability (4%) Scenario are small in magnitude and sparse across the continental U.S. Therefore, we would expect these increases to cause minimal local ambient effect, both directly on SO_2 and NO_X emissions and as precursors to formation of $PM_{2.5}$ (SO_2 and NO_X emissions) and ozone (NO_X emissions). Because many counties experience decreases in emissions, we would further expect any local ambient effects from increased emissions to be somewhat diminished because of the emissions decreases elsewhere that yield regionwide improvements in air quality, including SO_2, NO_X, $PM_{2.5}$, and ozone. We expect similar outcomes with respect to the NSR Availability (2%) Scenario where the emissions changes are smaller and constitute a pattern of increases and decreases that is similar to that of the NSR Availability (4%) Scenario. Based on the spatial distribution of SO_2 and NO_X emissions changes as shown in the TSD, we would also expect patterns of air quality changes respectively under the NSR Availability (4%) Scenario to be consistent with projections under CAIR/CAMR/CAVR in 2020. We thus believe that the local air quality under this proposed regulations would be commensurate with that under the

[15] 15 FGD is flue gas desulfurization, also known as scrubbers, for control of SO_2 emissions.

[16] SCR is selective catalytic reduction, used for control of NO_X emissions.

[17] CAIR/CAMR/CAVR SO_2 and NO_X emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14. [EPA 219b_BART 13_2020_Pechan.xls]. NSR SO_2 and NO_X Availability Emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14. [EPA 219b_NSR_OAQPS_5_Pechan_2020.xls] National totals for CAIR/CAMR/CAVR and NSR Availability include new units (IPM new units and planned-committed units).

[18] CAIR/CAMR/CAVR SO2 and NO_X emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14. [EPA 219b_BART 13_2020_Pechan.xls]. NSR SO2 and NO_X Availability Emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14. [EPA 219b_NSR_OAQPS_5_Pechan_2020.xls].

[19] Available in Docket EPA–HQ–OAR–2005–0163, DCN 08. (2000–2004 Electric Generation).

CMAQ modeling based on CAIR/CAMR/CAVR 2020 Scenario emissions projections.[20] That is, we believe local air quality under these proposed regulations would be commensurate with air quality we are projecting for 2020 absent a change to the existing major NSR emissions increase test.

D. NSR Availability Scenarios—Discussion of $PM_{2.5}$, VOC, and CO Results

We used the NSR Availability Scenarios that we describe in Section III.B of this preamble to examine the $PM_{2.5}$, VOC, and CO emissions and air quality impacts of the proposed hourly emissions increase test. This Section provides the results of our analyses.

1. *$PM_{2.5}$, VOC, and CO Control Device Installation.* As we discuss in the $PM_{2.5}$ NAAQS RIA, our NEEDS indicates that as of 2004, 84 percent of all coal-fired EGUS have an ESP in operation, about 14 percent of EGUs have a fabric filter, and roughly 2 percent have wet $PM_{2.5}$ scrubbers.[21] Gas-fired turbines are clean burning and BACT/LAER for these EGUs is no control. BACT/LAER for VOC and CO is good combustion control. Furthermore, EGU owner/operators have natural incentives to reduce VOC and CO emissions. VOC and CO emissions are products of incomplete combustion. These compounds are discharged into the atmosphere when fuel remains unburned or is burned only partially during the combustion process. Fuel is a significant portion of total costs for EGUs, particularly for older EGUs where capital costs are paid off. EGU owner/operators have in fact improved combustion practices to increase combustion efficiency, thereby limiting unburned fuel. Cost effective operation is especially desirable in areas where a cap and trade program increases the cost of operation by creating a cost to pollute, as is the case in the CAIR region where most ozone and $PM_{2.5}$ nonattainment areas are located.

2. *$PM_{2.5}$, VOC, and CO National Emissions.* As Table 4 shows, EGUs contribute a small percentage of national $PM_{2.5}$, CO, and VOC emissions.[22]

TABLE 4.—EGU EMISSIONS AS PERCENT OF 2020 NATIONAL EMISSIONS (TPY)

Pollutant	EGU	National	EGU as % National
$PM_{2.5}$	533,000	6,206,000	8.6
VOC	45,000	12,414,000	0.4
CO	718,000	82,852,000	0.9

As Table 5 shows, the NSR Availability Scenarios project essentially no changes in $PM_{2.5}$, VOC, or CO emissions nationally by 2020 as compared to emissions under the CAIR/CAMR/CAVR Scenario.[23]

TABLE 5.—NATIONAL EGU EMISSIONS UNDER NSR AVAILABILITY SCENARIO COMPARED TO CAIR/CAMR/CAVR 2020 (TPY)

Pollutant	CAIR/CAMR/CAVR	NSR 4%	Change-NSR 4%
$PM_{2.5}$	526,642	524,245	(2,397)
VOC	45,020	45,391	371
CO	716,184	711,254	(4,930)

As described in Section III.B of this preamble, the NSR Availability Scenarios examine emissions changes based on very conservative estimates developed using actual historical hours of operation for 6,500 EGUs over the years 2000–2004. We conclude that to any extent that EGU hours of operation increase under a maximum hourly emissions increase test, as opposed to the current average annual 5-year baseline test, such increased hours of operation would not increase national EGU $PM_{2.5}$ and CO emissions. The increased availability would have very little effect on national VOC emissions, with less than half of a percent increase nationally. This conclusion as to emissions in the contiguous 48 States supports extending the proposed rules nationwide, instead of limiting them to the States in the CAIR region.

3. *$PM_{2.5}$, VOC, and CO Local Emissions Impact.* To examine the effect of the maximum hourly emission increase tests on local air quality, we compared 2020 county-level EGU $PM_{2.5}$, VOC, and CO emissions under the CAIR/CAMR/CAVR 2020 and NSR Availability (4%) Scenario.[24] We

[20] As we describe in more detail in the TSD, the CAIR/CAMR/CAVR modeling is available on our website and in the docket for this rulemaking. The CMAQ modeling was conducted as part of EPA's multipollutant legislative assessment and the results are available in the Multipollutant Regulatory Analysis: The Clean Air Interstate Rule, The Clean Air Mercury Rule, and the Clean Air Visibility Rule (EPA promulgated rules, 2005) at *http://www.epa.gov/airmarkets/progsregs/cair/multi.html.* The specific technical support document on air quality modeling for CAIR/CAMR/CAVR, Technical Support Document for EPA's Multipollutant Analysis; Methods for Projecting Air Quality Concentrations for EPA's Multipollutant Analysis of 2005, is available at *http://www.epa.gov/airmarkets/progsregs/cair/multi.html* by clicking on the Technical Support Document—Air Quality Modeling Technique used for Multi-Pollutant Analysis link. It is also available in Docket EPA–HQ–OAR–2005–0163, DCN 09. Information on ozone modeling is available at *http://www.epa.gov/airmarkets/progsregs/cair/multi.html* through the Air quality Modeling Results Excel File link. It is also available in Docket EPA–HQ–OAR–2005–0163, DCN 16.

[21] *See* the Regulatory Impact Analysis for 2006 NAAQS for Particle Pollution Chapter 3—Controls, page 34. Available at *http://www.epa.gov/ttn/ecas/ria.html* and in Docket EPA–HQ–OAR–2005–0163, DCN 10.

[22] CO emissions information from Clear Air Interstate Rule Emissions Inventory Technical Support Document, available at *http://www.epa.gov/interstateairquality/pdfs/finaltech01.pdf.* CO emissions rounded to nearest thousand ton level. Also available in Docket EPA–HQ–OAR–2005–0163, DCN 11. PM2.5 and VOC emissions information from PM2.5 NAAQS RIA, available at *http://www.epa.gov/ttn/ecas/ria.html.* Also available in Docket EPA–HQ–OAR–2005–0163, DCN 10.

[23] Emissions information available in Docket EPA–HQ–OAR–2005–0163, DCN 17. [NSR Availability $PM_{2.5}$, VOC, and CO] National totals for CAIR/CAMR/CAVR and NSR Availability include new units (IPM new units and planned-committed units).

[24] Available in Docket EPA–HQ–OAR–2005–0163, DCN 17. [NSR Availability $PM_{2.5}$, VOC, and CO].

describe these changes in detail in Chapter 4 of the TSD.

As Chapter 4 of the TSD shows, projected $PM_{2.5}$, VOC, and CO emissions changes under the proposed revised NSR applicability tests would result in a somewhat different pattern of local emissions, with some counties experiencing reductions, some experiencing increases, and some remaining the same compared to emissions changes under CAIR/CAMR/CAVR 2020.

4. *$PM_{2.5}$, VOC, and CO Impact on Air Quality.* As Chapter 4 of the TSD shows, projected increases in EGU $PM_{2.5}$, VOC, and CO emissions due to increased hours of operation at EGUs under the NSR Availability (4%) Scenario are small in magnitude and sparse across the continental U.S. Therefore, we would expect these increases to cause minimal changes in local ambient effect in comparison to that observed under CAIR/CAMR/CAVR for $PM_{2.5}$ and ozone (for which VOC is a precursor). Because many counties experience decreases in emissions, we would further expect any local ambient effects from increased emissions to be somewhat diminished because of the emissions decreases elsewhere that yield regionwide improvements in air quality.

We have not modeled national or regional air quality improvements in CO concentrations. As noted in Table 4, however, EGU CO emissions are less than one percent of national CO emissions. According to our latest analysis, 2020 national CO emissions are projected to be 19,892,017 tons less than 2001 national CO emissions.[25] Local CO emissions are generally a function of traffic congestion from mobile sources. For these reasons, EGUs do not contribute significantly to national or local CO emissions.

The projected increases in CO emissions due to increased hours of operation at EGUs under the NSR Availability (4%) Scenario are small in magnitude and sparse across the continental U.S. We would expect these increases to cause minimal local ambient effect on CO. Therefore, based on the small increases and sparse distribution of CO emissions compared to CAIR/CAMR/CAVR 2020, and the small contribution of EGU emissions to national and local CO levels, we project no notable local impact on air quality from EGU CO emissions from NSR Availability 4%.

E. NSR Efficiency Scenario.

We designed another IPM model run to evaluate whether efficiency improvements that sources may make as a result of these proposed regulations would lead to local emissions increases and adverse effects on ambient air quality. Aside from independent factors such as climate and economy, efficiency is a primary determinant of the hours of operation of a given EGU. Neither the current annual emissions increase test nor any of the proposed EGU emission increase test alternatives directly measure an EGU's efficiency. However, the output-based alternatives (Alternatives 2, 4, and 6), which are expressed in a lb/KWh format that measures mass emissions per unit of electricity, are closely related to an EGU's efficiency. Thus, an output-based test encourages efficient units, which has well-recognized benefits. We anticipate that the output-based alternatives in particular, and the other alternatives to a lesser extent, could have the effect of encouraging EGUs to increase their efficiency. For these reasons, we focused on efficiency to examine whether an hourly test could result in emissions increases as compared to the annual emissions increase test. We call this run the NSR Efficiency Scenario. We assumed the least efficient EGUs (approximately 35% of all EGUs) would increase their efficiency by 4 percent.

We ran the IPM with this scenario (4 percent efficiency increase for 371 coal-fired EGU, no increase in physical and operating existing capacity) and compared the results to the CAIR/CAVR/CAMR IPM model. We found approximately the same results from the NSR Efficiency Scenario as from the NSR Availability Scenarios. We describe the results of the NSR Efficiency analysis in detail in Chapter 5 of our TSD.

1. *Control Device Installation.* As Table 6 shows, the NSR Efficiency Scenario projects retrofitting of more control devices for SO_2 and NO_X than under the CAIR/CAMR/CAVR 2020.[26] These results are consistent with what IPM generally projects. The more efficient an EGU is, the more cost effective it is to operate. The more cost effective it is to operate, the more hours it will operate. The more hours it operates, the more likely it is to install controls.[27] We thus conclude that the more efficiently an EGU operates, the more likely it is to install controls, regardless of whether the major NSR applicability test is on an hourly basis or an annual basis with a 5-year baseline.

TABLE 6.—2020 NATIONAL EGUS WITH EMISSION CONTROLS-NSR EFFICIENCY

Emissions control type	EGUs with additional controls compared to 2004 controls case	EGUs with additional controls compared to CAIR/CAMR/CAVR 2020
FGD	109 GW	1.5 GW.
SCR	74 GW	1.0 GW.

2. *National Emissions.* As Table 7 shows, the NSR Efficiency Scenarios project reductions in SO_2 and NO_X emissions nationally by 2020 as compared to emissions under the Base Case Scenario.[28] This result is consistent with the fact that under the NSR Efficiency Scenario, the amount of controls increases, compared to the Base Case.

[25] See the Clean Air Interstate Rule Emissions Inventory Technical Support Document on pgs 7 and 38 at *http://www.epa.gov/cair/pdfs/finaltech01.pdf.* Also available in Docket EPA–HQ–OAR–2005–0163, DCN 11.

[26] Information from system summary report for the NSR Efficiency IPM Run. Available in Docket EPA–HQ–OAR–2005–0163, DCN 13 (System Summary Report for NSR Efficiency). CAIR/CAMR/CAVR emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14 [EPA 219b_BART 13_2020_Pechan].

[27] See our presentation, ''Contributions of CAIR/CAMR/CAVR to NAAQS Attainment: Focus on Control Technologies and Emission Reductions in the Electric Power Sector,'' on pages 39 and 43. The presentation is available at *http://www.epa.gov/cair/charts.html.* Also available in Docket EPA–HQ–OAR–2005–0163, DCN 05.

[28] CAIR/CAMR/CAVR SO_2 and NO_X emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 14 [EPA 219b_BART 13_2020_Pechan]. NSR Efficiency SO_2 and NO_X Emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 07 [EPA 219b_NSR_OAQPS_ 2a_Pechan_2020_(to EPA) 4–27–06]. NSR Efficiency $PM_{2.5}$, VOC and CO Emissions available in Docket EPA–HQ–OAR–2005–0163, DCN 18. National totals for CAIR/CAMR/CAVR and NSR Efficiency include new units (IPM new units and planned-committed units).

TABLE 7.—NATIONAL EGU EMISSIONS UNDER NSR EFFICIENCY SCENARIO COMPARED TO CAIR/CAMR/CAVR 2020 (TPY)

Pollutant	Total Emissions Under CAIR/ CAMR/CAVR	Total Emissions Under NSR efficiency	Emissions Change Under NSR Efficiency Compared to CAIR/CAMR/ CAVR
SO_2	4,277,000	4,265,000	−12,000
NO_X	1,989,000	1,984,000	−5,000
$PM_{2.5}$	526,642	529,647	3,005
VOC	45,019	44,835	−184
CO	716,184	711,314	−4,870

As noted above, the NSR Efficiency Scenarios examine emissions changes based on very conservative estimates of technically feasible improvements in efficiency. We conclude that to any extent that EGU efficiency increases under a maximum hourly emissions increase test, as opposed to the current average annual 5-year baseline test, such increased efficiency would not increase national EGU SO_2, NO_X, VOC, and CO emissions. The increased efficiency would have very little effect on national $PM_{2.5}$ emissions, with less than half of a percent increase nationally. This conclusion as to emissions in the contiguous 48 States supports extending the proposed rules nationwide, instead of limiting them to the States in the CAIR region.

3. *Local Emissions and Air Quality.* The NSR Efficiency Scenario projects a somewhat different pattern of local emissions compared to CAIR/CAMR/ CAVR 2020. The NSR Efficiency Scenario projects decreases in many counties compared to CAIR/CAMR/ CAVR 2020. Where there are projected increases in local SO_2, NO_X, $PM_{2.5}$, VOC, and CO emissions, they are small in magnitude and sparse across the continental United States. Therefore, we would expect these increases to cause minimal local ambient impact effect. We describe the NSR Efficiency Scenario analysis and its results in detail in Chapters 5 and 6 our TSD.

IV. Proposed Regulations for Option 1: Hourly Emissions Increase Test Followed By Annual Emissions Test

In the NPR, we did not propose to include, along with any of the revised NSR emissions tests, any provisions for computing a significant increase or a significant net emissions increase, although we solicited comment on retaining such provisions. Many commenters preferred to retain an annual emissions increase test in addition to the hourly emissions increase test. We are proposing Option 1, in which the hourly emissions increase test would be followed by the actual-to-projected-actual emissions increase test and the significant net emissions increase test in the current regulations. Specifically, changes that will not increase the hourly emissions rate-such as those to make repairs to reduce the number of forced outages-do not require further review under Option 1. However, if there would be an hourly emissions increase following a physical change or change in the method of operation, the proposed rule requires a determination of whether a significant increase or a significant net emissions increase would occur. Thus, Option 1 retains the netting provisions in the current regulations. Option 1 also facilitates improvements for efficiency, safety, and reliability, without adverse air quality effects (as the above discussion of the IPM and air quality analyses indicates).

We are proposing that Option 1 would apply to all EGUs. We are also requesting comment on whether Option 1 should be limited to the geographic area covered by CAIR, or to the geographic area covered by both CAIR and BART. We are also proposing that the Option 1 would apply to all regulated NSR pollutants. However, we also request comment on whether Option 1 should be limited to increases of SO_2 and NO_X emissions.

Under Option 1, the major NSR program would include a four-step process (with the second step revised as proposed, while retaining the other steps): (1) Physical change or change in the method of operation as in the current major NSR regulations; (2) hourly emissions increase test (maximum achieved hourly emissions rate or maximum achievable hourly emissions rate, each with output-based alternatives); (3) significant emissions increase as in the current major NSR regulations; and (4) significant net emissions increase as in the current major NSR regulations.

For a modification to occur under Option 1, under Step 1, a physical change or change in the method of operation must occur, and, under Step 2, that change must result in an hourly emissions increase at the existing EGU. If a post-change hourly emissions increase is projected, Option 1 retains the requirements for a significant emissions increase and a significant net emissions increase. In such cases, under Step 3, the owner/operator would determine whether an emissions increase would occur using the actual-to-projected-actual annual emissions test in the current regulations. There would be no conversion from annual to hourly emissions. Finally, in Step 4, as in the current regulations, if a significant emissions increase is projected to occur, the source would still not be subject to major NSR unless there was a determination that a significant net emissions increase would occur. Table 8 summarizes these four steps.

TABLE 8.—MAJOR NSR APPLICABILITY FOR EXISTING EGUS UNDER OPTION 1

Option 1	Step 1: Physical Change or Change in the Method of Operation. Step 2: Hourly Emissions Increase Test. • Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis. • Alternative 2—Maximum achieved hourly emissions; statistical approach; output basis. • Alternative 3—Maximum achieved hourly emissions; one-in-5-year baseline; input basis. • Alternative 4—Maximum achieved hourly emissions; one-in-5-year baseline; output basis. • Alternative 5—NSPS test—maximum achievable hourly emissions; input basis.

TABLE 8.—MAJOR NSR APPLICABILITY FOR EXISTING EGUS UNDER OPTION 1—Continued

	• Alternative 6—NSPS test—maximum achievable hourly emissions; output basis. Step 3: Significant Emissions Increase Determined Using the Actual-to-Projected-Actual Emissions Test as in the Current Rules.[29] Step 4: Significant Net Emissions Increase as in the Current Rules.

Option 1 would not alter the provisions in the current major NSR regulations pertaining to a significant emissions increase and a significant net emissions increase. Therefore, the regulations would retain the definitions of net emissions increase, significant, projected actual emissions, and baseline actual emissions. [See § 51.166(b)(3), § 51.166(b)(23), § 51.166(b)(40), § 51.166(b)(47), and analogous provisions in 40 CFR 51.165, 52.21, 52.24, and appendix S to 40 CFR part 51.] The regulations would also retain all provisions in the current regulations that refer to major modifications, including, but not limited to, those in § 51.166(a)(7)(i) through (iii), (b)(9), (b)(12), (b)(14)(ii), (b)(15), (b)(18), (i)(1) through (9), (j)(1) through (4), (m)(1) through (3), (p)(1) through (7), (r)(1) through (7), and (s)(1) through (4) analogous provisions in 40 CFR 51.165, 52.21, 52.24, and appendix S to 40 CFR part 51.

We are also proposing regulatory language containing the two-step modification provisions. (Steps 1 and 2 of Option 1, as outlined in Table 8.) As we noted at 70 FR 61088, you can find the regulatory text defining ''modification'' within the NSPS general provision regulations at 40 CFR 60.2 and 60.14. Substantially mirroring CAA 111(a)(4), § 60.2 contains a general description of the two components an activity must satisfy to qualify as a modification. § 60.14 elaborates on the general description contained in § 60.2 by more precisely defining how you measure the amount of pollution that results from an activity, and listing activities that do not qualify as physical changes or changes in the method of operation. (that is, the ''increases'' component of the modification definition, or Step 2.) As we proposed at 70 FR 61090, we have added a definition of modification in § 51.167, which mirrors the provisions in § 60.2. We are also proposing to add requirements defining the ''increases'' component of ''modification'' to the major NSR rules, analogous to the provisions in § 60.14. Specifically, the definition of modification in the proposed rules requires that an increase in the amount of regulated NSR pollutants must be determined according to the provisions in paragraph (f) of § 51.167. Under Option 1, Alternatives 1–4, we are proposing to define the ''increases'' component to mean maximum hourly emissions rate achieved. That is, if a physical change or change in the method of operation (as defined under existing regulations, which we are not proposing to change) is projected to result in an increase in the maximum hourly emissions rate expected to be achieved over the maximum hourly emissions rate actually achieved at the EGU prior to the change, a modification would occur. The requirements for the maximum achieved alternatives are in proposed § 51.167(f)(1), Alternatives 1–4. Under Option 1, Alternatives 5 and 6, we are proposing to define the ''increases'' component to mean maximum achievable hourly emissions. For maximum achievable hourly emissions on an input basis, we are proposing to add a definition of the ''increases'' component of ''modification'' that substantially mirrors the definition of the ''increases'' component of ''modification'' in the NSPS provisions, which is found in 40 CFR 60.2. These requirements are in proposed § 51.167(f)(1), Alternative 5. For the maximum achievable alternative on an output basis (Alternative 6), the requirements are in proposed § 51.167(f)(1), Alternative 6.

To incorporate the two-step modification provisions under Option 1, we are proposing to add two new sections to the major NSR program rules. The first, 40 CFR 51.167, would specify the requirements that State Implementation Plans must include for major NSR applicability at existing EGUs, including those for both attainment and nonattainment areas. (Proposed rule language for 40 CFR 51.167 accompanies this SNPR.) The second, 40 CFR 52.37, would contain the requirements for major NSR applicability for existing EGUs where we are the reviewing authority. Although the proposed amendatory language is for 40 CFR 51.167, we are proposing that the same requirements would apply under 40 CFR 52.37, differing only in that the Administrator is the reviewing authority, rather than the State, local, or tribal agency. Although this notice does not contain specific regulatory language, we are proposing that either 40 CFR 51.167 or 40 CFR 52.37, as appropriate, would contain the requirements for emissions increases at EGUs for all sections of the Code of Federal Regulations that contain the major NSR program, including 40 CFR 51.165, 51.166, 52.21, 52.24, and appendix S of 40 CFR part 51, as well as any regulations we finalize to implement major NSR in Indian Country. We are also proposing to make the same changes where necessary to conform the general provisions in parts 51 and 52 to the requirements of the major NSR program, such as in the definition of modification in 40 CFR 52.01. In addition, we are proposing to remove all applicability requirements for existing EUSGUs in all sections of the CFR that contain the major NSR program, as the EGU requirements would supersede these requirements.

In the NPR, we proposed three alternatives for the hourly emissions increase test-the NSPS maximum achievable hourly emissions test, maximum achieved hourly emissions, and an output-based measure of hourly emissions. As some commenters noted, we did not give much detail about the output-based measure of hourly emissions. In this SNPR, we are recasting what we proposed in the NPR for the output-based methodology. In this SNPR, both the maximum achieved hourly emissions test and the maximum achievable hourly emissions test include output-based alternatives. Specifically, we are proposing two broad approaches under Option 1: (1) A maximum achieved hourly emissions test; and (2) a maximum achievable hourly emissions test. If we adopt the maximum achieved hourly emissions test, we may require that it be expressed in an input-based format (lb/hr) or an output-based format (lb/MWh). Alternatively, and as we did in our recently promulgated NSPS for combustion turbines (40 CFR part 60, subpart KKKK, July 6, 2006), we may also adopt both an input and output based format. If we adopt both formats, sources, at their choice, would be able to implement the hourly emissions test in either input-or output-based formats. Likewise, if we adopt the maximum achievable hourly emissions test, it may be expressed in an input-based format

[29] Steps 3 and 4 only apply when a unit fails Step 2. (That is, it is determined that an hourly emissions increase would occur.)

(lb/hr), an output-based format (lb/MWh), or both. We are also proposing two methods for computing maximum achieved emissions: (1) Statistical approach; and (2) one-in-5-year baseline. In terms of the regulatory language that accompanies this notice, we are proposing six alternatives for determining whether a physical or operational change at an EGU is a modification. These alternatives are summarized in Table 9 and can be found at proposed § 51.167(f)(1).

In Sections IV.A and B below, we describe our two approaches for the hourly emissions increase test in more detail. The regulatory language proposed for these approaches (that is, maximum achieved and maximum achievable hourly emissions increase tests) would apply under both Option 1 and Option 2. Option 2, as described below in Section V, would eliminate the significance and netting steps that are included under current applicability regulations, whereas Option 1 would not eliminate the significance and netting steps. This action includes proposed rule language for Option 1.

A. Test for EGUs Based on Maximum Achieved Emissions Rates

As one approach, we are proposing that the hourly emissions increase test would be based on an EGU's historical maximum hourly emissions rate. We call this approach the maximum achieved hourly emissions test. Under this approach, an EGU owner/operator would determine whether an emissions increase would occur by comparing the pre-change maximum actual hourly emissions rate to a projection of the post-change maximum actual hourly emissions rate. We request comment on all alternatives for the maximum achieved hourly emissions increase test (see proposed Alternatives 1 through 4 for § 51.167(f)(1)), as well as on other possible approaches for determining maximum achieved hourly emissions. In particular, we request comments on whether the proposed maximum achieved methodologies would account for variability inherent in EGU operations and air pollution control devices.

1. *Determining the Pre-Change Emissions Rate.* The pre-change maximum actual hourly emissions rate would be determined using the highest rate at which the EGU actually emitted the pollutant within the 5-year period immediately before the physical or operational change. Thus, the maximum achieved emissions test is based on specific measures of actual historical emissions during a representative period.

We are proposing four alternatives for determining the pre-change maximum hourly emissions rate actually achieved, which we denote here and in the proposed rule language as Alternatives 1 through 4. As shown above in Table 9, these alternatives consist of two different methods for determining the pre-change maximum emissions rate (*i.e.*, the statistical approach and the one-in-5-year baseline approach), each of which can be applied on an input (lb/hr) basis or output (lb/MWh) basis. In addition to these four alternatives, which are included in the proposed rule language at § 51.167(f)(1), we are proposing that the source would have a choice of implementing the test on either an input-or output-basis.

Proposed Alternatives 1 and 2 (input basis and output basis, respectively) utilize a statistical approach for you to use to analyze continuous emission monitoring system (CEMS) or predictive emission monitoring system (PEMS) data from the 5 years preceding the physical or operational change to determine the maximum actual pollutant emissions rate. The statistical approach utilizes actual recorded data from periods of representative operation to calculate the maximum actual emissions rate associated with the pre-change maximum actual operating capacity in the past 5 years. The maximum actual emissions rate is expressed as the upper tolerance limit (UTL). The UTL concept and equations are derived from work conducted by the National Bureau of Standards (now the National Institute of Standards and Technology (NIST)).[30]

In conducting the analysis, you would select a period of 365 consecutive days from the 5 years preceding the change. Next, you would compile a data set (for example, in a spreadsheet) for the pollutant of interest with the hourly average CEMS or PEMS (as applicable) measured emissions rates (in lb/hr for Alternative 1, or lb/MWh for Alternative 2) and corresponding heat input data for all of the EGU operating hours in that period. From that data set, you would delete selected hourly data from this 365-day period in accordance with certain data limitations. Specifically, you would delete data from periods of startup, shutdown, and malfunction; periods when the CEMS or PEMS was out of control (as described below); and periods of noncompliance, according to proposed § 51.167(f)(2) as explained below in Section IV.A.3 on data limitations.

The next step in the procedure is to sort the data set for the remaining operating hours by heat input rates. You would then extract the hourly data for the 10 percent of the data set corresponding to the highest heat input rates for the selected period. The next step is to apply basic statistical analyses to the extracted CEMS or PEMS hourly emissions rate data, calculating the average emissions rate, the standard deviation, and finally the UTL. See the proposed rule language for Alternatives 1 and 2 at § 51.167(f)(1) for the specifics of the calculations. As included in the proposed rule, Alternatives 1 and 2 calculate the UTL for the 99.9th percentile of the population (of hourly emissions rate readings) at the 99 percent confidence level. That is, under the proposed methodology we would expect, with a 99 percent confidence level, 99.9 percent of the hourly emissions rate data to be less than the UTL value. We are also proposing a 90 percentile of the population (of hourly emissions rate readings). We request comment on these proposed levels. In particular we request comment on whether a 99 or 90 percentile of the population (of hourly emissions rate readings) would be more appropriate. We also request comment on whether a 95 or 90 percent confidence level would be more appropriate.

Alternatives 1 and 2 focus on EGU emissions during periods of representative operation at the greatest actual operating capacity of the unit, as demonstrated over the preceding 5 years (that is, the capacity that the unit actually utilized in the preceding 5 years). We believe that this is appropriate for a test with the purpose of, essentially, determining whether a physical or operational change increases the capacity of the unit, or the capacity utilization of the unit, over that achieved in the past 5 years. We further believe that the statistical approach properly accounts for the variability inherent in EGU operations and air pollution control technology. This approach helps to ensure that the emissions from an EGU will not exceed its pre-change maximum achieved hourly emissions rate simply through the random variability of the system, when a change has not expanded the capacity of the unit. Thus, the statistical approach utilizes actual recorded data from periods of representative operation to calculate the maximum actual hourly emissions rate in the past 5 years. We expect that for the most part, this rate will be associated with the pre-change

[30] Mary Gibbons Natrella (1963). ''Experimental Statistics,'' NBS Handbook 91, U.S. Department of Commerce. This work is available on the Internet at *http://www.itl.nist.gov/div898/handbook/prc/section2/prc263.htm.*

maximum actual operating capacity during this period.

Because Alternatives 1 and 2 can be used only if one has CEMS or PEMS data, we cannot adopt these alternatives alone. That is, if we elect to include either or both of these alternatives in the final rule, we will also finalize another alternative to be used for emissions of any regulated NSR pollutants that a source does not measure directly with a CEMS or PEMS.

While we believe that the statistical approach would be best applied to hourly emissions data from the periods of highest heat input rates, we also propose and request comment on the option of sorting and extracting data based on the hourly emissions rate itself in lb/hr or lb/MWh, as applicable. In this alternative method for conducting the statistical approach, you would compile a data set in the same manner as in Alternatives 1 and 2. As in Alternatives 1 and 2, you would delete selected hourly data from this 365-day period in accordance with the same data limitations. Specifically, you would delete data from periods of startup, shutdown, and malfunction; periods when the CEMS or PEMS was out of control (as described below); and periods of noncompliance, as defined in proposed § 51.167(f)(2). However, the data would then be sorted by the recorded hourly average emissions rates, rather than by heat input rates. You would then extract the hourly data for the 10 percent of the data set corresponding to the highest hourly emissions rate readings for the selected period. You would next apply basic statistical analyses to the extracted CEMS or PEMS hourly emissions rate data, calculating the average emissions rate, the standard deviation, and finally the UTL. Under this alternate statistical method based on recorded hourly emissions rates, we are proposing a 99.9 percentile of the population (of hourly emissions rate readings) at a 99 percent confidence level. That is, under the proposed methodology we would expect, with a 99 percent confidence level, 99.9 percent of the hourly emissions rate data to be less than the UTL value. We are also proposing a 90 percentile of the population (of hourly emissions rate readings). We request comment on these proposed levels. In particular we request comment on whether a 99 or 90 percentile of the population (of hourly emissions rate readings) would be more appropriate. We also request comment on whether a 95 or 90 percent confidence level would be more appropriate.

Proposed Alternatives 3 and 4 for determining the pre-change maximum actual emissions rate use the highest emissions rate (in lb/hr and lb/MWh, respectively) actually achieved for any hour within the 5-year period immediately before the physical or operational change. That is, the pre-change maximum emissions rate could be an emissions rate that was actually achieved for only 1 hour in the 5-year period.

Under Alternatives 3 and 4, the highest hourly emissions rate would be determined based on historical actual emissions. You must determine the highest pre-change hourly emissions rate for each regulated NSR pollutant using the best data available to you. You must use the highest available source of data in the hierarchy presented below, unless your reviewing authority has determined that a data source lower in the hierarchy will provide better data for your EGU:

- Continuous emissions monitoring system.
- Approved PEMS.
- Emission tests/emission factor specific to the EGU to be changed.
- Material balance.
- Published emission factor (such as AP–42).

Under this hierarchy, most EGUs will use CEMS to measure the highest hourly SO_2 and NO_X emissions. Some EGUs are currently equipped with CEMS to measure CO, and would thus use CEMS to measure historical hourly CO emissions. For other pollutants, we anticipate most EGUs would measure historical actual emissions using emission tests, site-specific emission factors, or mass balances (where applicable). We request comment on appropriate measures of historical actual emissions for all regulated NSR pollutants for all EGUs. In particular, we request comment on appropriate measures of historical actual emissions of CO, VOC, and lead, as turbines may not have significant emissions of these regulated NSR pollutants. We also request comment on whether emission factors that are not site-specific, such as those in AP–42, would be appropriate measures of historical actual emissions.

As discussed above, proposed Alternatives 1 and 3 provide specific proposed rule language for the input-based (lb/hr) alternatives. Proposed Alternatives 2 and 4 provide specific proposed rule language for the output-based (lb/MWh) alternatives, largely repeating the proposed language for Alternatives 1 and 3, respectively. For purposes of the output-based alternatives, the proposed language for their input-based counterparts is adjusted in the following ways:

- Emissions rates would be expressed in terms of lb/MWh, rather than lb/hr.
- For EGUs that are cogeneration units, emissions rates would be determined based on gross energy output. For other EGUs, emissions rates would be determined based on gross electrical output.
- Actual and projected emissions rates in lb/MWh would be determined over a 1-hour averaging period (that is, a period of one hour of continuous operation, rather than an instantaneous spike).

We are proposing a gross output basis for this test, rather that net output, due to the difficulties involved in determining net output. This gross output basis is consistent with our recent revisions to the NSPS for EUSGUs (40 CFR part 60, subpart Da; 71 FR 9866) and stationary combustion turbines (40 CFR part 60, subpart KKKK; 71 FR 38487).

For the output-based alternatives, we propose to cite the definitions in the CAIR rule at § 51.124(q) for the definitions of ''cogeneration unit'' and numerous other terms used in that definition. We propose to include definitions in § 51.167(h)(2) of this rule for ''gross electrical output'' and ''gross energy output.'' We propose to add definitions for ''gross power output'' and ''useful thermal energy output,'' which are terms used in the proposed definition of ''gross energy output.'' We invite comment on the output-based approach in general, the proposed output-based alternatives, and the related definitions we are proposing.

2. *Determining the Post-Change Emissions Rate*. We are proposing the same approach to post-change emissions for Alternatives 1 through 4. Specifically, for each regulated NSR pollutant, you must project the maximum emissions rate that your EGU will actually achieve in any 1 hour in the 5 years following the date the EGU resumes regular operation after the physical or operational change. An emissions increase results from the physical or operational change if this projected maximum actual hourly emissions rate exceeds the pre-change maximum actual hourly emissions rate. Regardless of any preconstruction projections, you must treat an emissions increase as occurring if the emissions rate actually achieved in any 1 hour during the 5 years after the change exceeds the pre-change maximum actual hourly emissions rate.

3. *Data Limitations in Determining Emissions Rates*. We are proposing four limitations on the data used to determine pre-change and post-change maximum emissions rates under the

maximum achieved hourly emissions test (see proposed § 51.167(f)(2)(i)). The proposed limitations are identical for Alternatives 1 through 4. For purposes of determining maximum emissions rates under the maximum achieved test, we propose that you must not include the following types of data in your calculations:

- Emissions rate data associated with startups, shutdowns, or malfunctions of your EGU, as defined by applicable regulation(s) or permit term(s), or malfunctions of an associated air pollution control device. A malfunction means any sudden, infrequent, and not reasonably preventable failure of the EGU or the air pollution control equipment to operate in a normal or usual manner.
- CEMS or PEMS data recorded during monitoring system out-of-control periods. Out-of-control periods include those during which the monitoring system fails to meet quality assurance criteria (for example, periods of system breakdown, repair, calibration checks, or zero and span adjustments) established by regulation, by permit, or in an approved quality assurance plan.
- Emissions rate data from periods of noncompliance when your EGU was operating above an emission limitation that was legally enforceable at the time the data were collected.
- Data from any period for which the information is inadequate for determining emissions rates, including information related to the limitations listed above.

The first two of these limitations are based on requirements of the NSPS General Provisions in subpart A of part 60. The prohibition of data from periods of startup, shutdown, and malfunction is found in the section on performance tests, specifically § 60.8(c), which states, in pertinent part:

> Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

The principle set out in this paragraph is that emissions during periods of startup, shutdown, and malfunction are not representative and typically should not figure into emission calculations. We propose to apply this principle to all data required to comply with the requirements in this action, and not limit it to performance test data. We do not believe that emissions during startup, shutdown, or malfunction are a reasonable basis for determining whether a physical or operational change at an EGU would result in an hourly emissions increase. It is more appropriate to focus on emissions during normal operations, which are expected to correlate more closely with the actual operating capacity of the EGU than would emissions during periods of startup, shutdown, or malfunction. The proposed rule language also expands slightly on the language of § 60.8(c) to clarify the meanings of startup, shutdown, and malfunction in the context of this action.

The second data limitation reflects § 60.13(h), which states that ''data recorded during periods of continuous system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in data averages computed under this paragraph.'' We do not believe that this type of unrepresentative CEMS or PEMS data, which may bear no relationship to actual emissions, should be included in calculations of maximum achieved emissions rates. The proposed rule language refers to and defines ''monitoring system out-of-control periods,'' in keeping with more current terminology for monitoring systems.

The third proposed data limitation listed above would prohibit the use of emissions rate data from periods of noncompliance when your EGU was operating above an emission limitation that was legally enforceable at the time the data were collected. This reflects existing requirements under the major NSR program, specifically the definition of ''baseline actual emissions'' that is used in the actual-to-projected-actual applicability test. (See, for example, § 51.166(b)(47)(i)(b).)

The fourth proposed data limitation reflects existing requirements under the major NSR program, again in the definition of ''baseline actual emissions'' that is used in the actual-to-projected-actual applicability test. (See, for example, § 51.166(b)(47)(i)(d).) This limitation would preclude the use of data from periods where there is inadequate information for determining emissions rates, including information related to the other three data limitations. This provision is simply intended to ensure that you generate reliable, defensible values for pre-change and post-change emissions rates.

4. *Recordkeeping and Reporting Requirements*. Under proposed Alternatives 1 through 4, an emissions increase has occurred if the emissions rate actually achieved in any one hour during the 5 years after the change exceeds the pre-change maximum actual hourly emissions rate (see, for example § 51.167(f)(1)(iii) under Alternative 1). Most EGUs are already reporting hourly SO_2 and NO_X emissions through CEMS data to EPA as part of their requirements under the Acid Rain program and will continue to be required to do so under the CAIR. The Acid Rain and CAIR programs also require recordkeeping and reporting for EGUs not using CEMS, such that hourly emissions. $PM_{2.5}$, VOC, and CO emissions can be computed from SO_2 and NO_X emissions data. Therefore, emissions increases of regulated NSR pollutants will be transparent to the Agency and to the public. However, we request comment on whether additional recordkeeping and reporting requirements for post-change emissions should be required where EGUs are not using CEMS to measure emissions.

B. Test for EGUs Based on Maximum Achievable Emissions Rates

As we stated in our October 2005 NPR (70 FR 61090), we are proposing to allow existing EGUs to use the same maximum achievable hourly emissions test applied in the NSPS to determine whether a physical or operational change results in an emissions increase under the major NSR program. This test is based on a comparison of pre-change and post-change emissions rates in pounds per hour (lb/hr).[31] We are proposing an additional variation on the NSPS test, which would compare pre-change and post-change achievable emissions rates in pounds per megawatt-hour (lb/MWh). In the discussion that follows and in the proposed rule language, we refer to these two approaches as Alternatives 5 and 6, respectively.

1. *Determining Pre-Change and Post-Change Emissions Rates*. Under Alternative 5, the major NSR regulations would apply at an EGU if a physical or operational change results in any increase above the maximum hourly emissions achievable at that unit during the 5 years prior to the change. Under this alternative, we are proposing to incorporate provisions similar to those in § 60.14(h) into the new § 51.167(f) (1). We propose that this regulatory language would substantially mirror, but would not be identical to, § 60.14(h). As with the definition of modification that we are proposing for § 51.167(h) (2), there are differences between the two

[31] In the NSPS regulations, emissions rates are compared in terms of kilograms per hour. We use English units in this proposed rulemaking in keeping with longstanding practice in the major NSR program, where annual emissions are generally computed using the lb/hr rate and hours of operation.

programs that prevent a wholesale adoption of the NSPS modification provisions of § 60.14(h). Specifically, our proposed rule language addresses the full range of pollutants regulated under the major NSR program by referring to the ''regulated NSR pollutants,'' while the NSPS provisions limit the analysis to those pollutants regulated under an applicable NSPS. Also, as we previously explained at 70 FR 61090, we are proposing that the emissions increase test would apply to EGUs, rather than to EUSGUs. Under Alternative 5, § 51.167(f) (1) would read as follows:

Emissions increase test. For each regulated NSR pollutant, compare the maximum achievable hourly emissions rate before the physical or operational change to the maximum achievable hourly emissions rate after the change. Determine these maximum achievable hourly emissions rates according to § 60.14(b) of this chapter. No physical change, or change in the method of operation, at an existing EGU shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any regulated NSR pollutant above the maximum hourly emissions achievable at that unit during the 5 years prior to the change.

As stated in this proposed rule language, pre-change and post-change hourly emissions rates would be determined according to the NSPS provisions in § 60.14(b). That is, hourly emissions increases would be determined using emission factors, material balances, continuous monitor data, or manual emission tests.

Alternative 6 is also based on the NSPS ''maximum achievable'' test, but is modified to an energy output (lb/MWh) basis. Under Alternative 6, § 51.167(f) (1) would read as follows:

Emissions increase test. For each regulated NSR pollutant, compare the maximum achievable emissions rate in pounds per megawatt-hour (lb/MWh) before the physical or operational change to the maximum achievable emissions rate in lb/MWh after the change. Determine these maximum achievable emissions rates according to § 60.14(b) of this chapter, using emissions rates in lb/MWh achievable over 1 hour of continuous operation in place of mass emissions rates. For EGUs that are cogeneration units, determine emissions rates based on gross energy output. For other EGUs, determine emissions rates based on gross electrical output. No physical change, or change in the method of operation, at an existing EGU shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum emissions rate of any regulated NSR pollutant above the maximum emissions rate achievable at that unit during the 5 years prior to the change.

To maintain an hourly basis for the emissions rate, the proposed language specifies that the maximum achievable emissions rate in lb/MWh is to be determined based on what is achievable over 1 hour of continuous operation (that is, a 1-hour averaging period rather than an instantaneous spike). In addition, as noted above in the discussion of the output-based alternatives under the maximum achieved hourly emissions test (Alternatives 2 and 4), we propose to cite the definition in the CAIR rule at § 51.124(q) for the definitions of ''cogeneration unit'' and related terms. We propose to include definitions in § 51.167(h) (2) of this rule for ''gross electrical output,'' ''gross energy output,'' ''gross power output,'' and ''useful thermal energy output.''

2. *Data Limitations in Determining Emissions Rates.* We are proposing three limitations on the data used to calculate the pre-change and post-change emissions rates under the maximum achievable hourly emissions test (see proposed § 51.167(f) (2) (ii)). The proposed limitations are identical for Alternatives 5 and 6. For purposes of determining maximum emissions rates under the maximum achievable test, we propose that you must not use the following types of data in your calculations:

- Emissions rate data associated with startups, shutdowns, or malfunctions of your EGU, as defined by applicable regulation(s) or permit term(s), or malfunctions of an associated air pollution control device. A malfunction means any sudden, infrequent, and not reasonably preventable failure of the EGU or the air pollution control equipment to operate in a normal or usual manner.
- CEMS or PEMS data recorded during monitoring system out-of-control periods. Out-of-control periods include those during which the monitoring system fails to meet quality assurance criteria (for example, periods of system breakdown, repair, calibration checks, or zero and span adjustments) established by regulation, by permit, or in an approved quality assurance plan.
- Data from any period for which there is inadequate information for determining emissions rates, including information related to the limitations listed above.

These proposed data limitations are the same as three of the four data limitations that we are proposing for the maximum achieved tests (Alternatives 1 through 4). See Section IV.A.3. above for the discussion of these three data limitations.

3. *Recordkeeping and Reporting for Hourly Emissions.* We are proposing the same recordkeeping and reporting approach for the maximum achievable test (Alternatives 5 and 6) that we propose for the maximum achieved hourly emissions test (Alternatives 1 through 4). We describe our approach in Section IV.A.4 of this preamble.

V. Proposed Regulations for Option 2: Hourly Emissions Increase Test

This section contains details on the proposed regulatory language for Option 2, the hourly emissions increase test. We are proposing that Option 2 would apply to all existing EGUs. As we noted at 70 FR 61093, however, we are also requesting comment on whether Option 2 should be limited to the geographic area covered by CAIR, or to the geographic area covered by both CAIR and BART. We are also proposing that the Option 2 would apply to all regulated NSR pollutants. However, we also request comment on whether Option 2 should be limited to increases of SO_2 and NO_X emissions.

In this SNPR, for Option 2 we are proposing to exempt EGUs from the procedures in the current regulations for determining a significant emissions increase and a significant net emissions increase. Specifically, we are proposing to exempt EGUs from the applicability procedures based on a significant emissions increase and significant net emissions increase in the current regulations at 40 CFR 51.165, 51.166, 52.21, and 52.24 and in appendix S to 40 CFR part 51. That is, we are proposing to amend each of these sections to exempt EGUs from all provisions for significant emissions increases and significant net emission increases. For example, under Option 2 the provisions for determining a significant emissions increase and a significant net emissions increase in § 51.166(a) (7) (iv)(a) would be amended to exempt EGUs as follows.

(a) Except for EGUs as defined in § 51.167(h)(1) of this Subpart, and except as otherwise provided in paragraphs (a)(7)(v) and (vi) of this section, and consistent with the definition of major modification contained in paragraph (b)(2) of this section, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases—a significant emissions increase (as defined in paragraph (b)(39) of this section), and a significant net emissions increase (as defined in paragraphs (b)(3) and (b)(23) of this section). The project is not a major modification if it dos not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

We are proposing to amend all other provisions for significant emissions increase and significant net emissions increase in the current regulations at 40 CFR 51.165, 51.166, 52.21, and 52.24 and in appendix S to 40 CFR part 51 in an analogous manner to exempt EGUs.

In place of the applicability procedures in the current regulations concerning significant emissions increase and significant net emissions increase, Option 2 applies an hourly emissions increase test to EGUs. We describe these as Steps 1 and 2, which comprise the two-step modification test and are the same as under Option 1, in Section IV of this preamble. As with Option 1, under Option 2, we are proposing to develop two new sections (40 CFR 51.167 and 52.37) to the major NSR program rules that would include the two-step provisions for modifications at EGUs. Thus, the amendatory language in this action applies to Option 2 as it relates to Steps 1 and 2. That is, under Option 2, EGUs would be subject to the new two-step requirements for modifications. They would not be subject to the requirements in the existing regulations for major modifications.

Alternatives 1–6, comprising Step 2 of Option 2, are the same as under Option 1. We describe these alternatives in detail above in Section IV of this preamble. Table 10 shows Option 2, including Alternatives 1–6.

TABLE 9.—MAJOR NSR APPLICABILITY FOR EXISTING EGUS UNDER OPTION 2

Option 2	Step 1: Physical Change or Change in the Method of Operation. Step 2: Hourly Emissions Increase Test. • Alternative 1—Maximum achieved hourly emissions; statistical approach; input basis. • Alternative 2—Maximum achieved hourly emissions; statistical approach; output basis. • Alternative 3—Maximum achieved hourly emissions; one-in-5-year baseline; input basis. • Alternative 4—Maximum achieved hourly emissions; one-in-5-year baseline; output basis. • Alternative 5—NSPS test—maximum achievable hourly emissions; input basis. • Alternative 6—NSPS test—maximum achievable hourly emissions; output basis.

Under Option 2, if a physical or operational change at an existing EGU is found to be a modification according to this hourly emissions test, the EGU would then be subject to all the substantive major NSR requirements of the existing regulations. Accordingly, we are also proposing to revise the substantive provisions in all the current major NSR regulations that apply to major modifications to apply also to modifications at EGUs. The amendatory language in this proposed rule does not include specific provisions for these changes. The substantive provisions to be amended would include, but not be limited to, the provisions in § 51.166(a)(7)(i) through (iii), (b)(9), (b)(12), (b)(14)(ii), (b)(15), (b)(18), (i)(1) through (9), (j)(1) through (4), (m)(1) through (3), (p)(1) through (7), (r)(1) through (7), and (s)(1) through (4). For example, we are proposing to amend § 51.166(a)(7)(iii) as follows.

(iii) No new major stationary source, major modification, or modification at an EGU to which the requirements of paragraphs (j) through (r)(5) of this section apply shall begin actual construction without a permit that states that the major stationary source, major modification, or modification at an EGU will meet those requirements.

We are proposing to amend all other provisions in the current regulations at 40 CFR 51.165, 51.166, 52.21, and 52.24 and in appendix S to 40 CFR part 51 in an analogous manner to require that the substantive provisions in all the current major NSR regulations apply to modifications at EGUs.

VI. Legal Basis and Policy Rationale

This section supplements the legal arguments in our October 2005 proposal. (70 FR 70565.) In that action, we provided our legal basis and rationale for the proposed maximum achievable hourly emissions test and our alternative proposal, the maximum achieved hourly emissions test. We noted that the key statutory provisions provide, in relevant part, that a ''modification'' that triggers NSR occurs when a physical change or change in the method of operation ''increases the amount of any air pollutant emitted'' by the source. Although the Court in *New York* v. *EPA* held that the quoted provision refers to increases in actual emissions, the Court further indicated that the statute was silent as to the method for determining whether increases occur.

When a statute is silent or ambiguous with respect to specific issues, the relevant inquiry for a reviewing court is whether the Agency's interpretation of the statutory provision is permissible. *Chevron U.S.A., Inc.* v. *NRDC, Inc.* 467 U.S. 837, 865 (1984). Accordingly, we have broad discretion to propose a reasonable method by which to calculate emissions increases for purposes of NSR applicability.

This action continues to propose both the maximum achievable hourly emissions increase test and the maximum achieved hourly emissions increase test. We set forth legal basis and rationale in the NPR for these two tests. In this SNPR, however, we provide additional legal and policy basis for the hourly emissions increase tests, on both an input and output basis.

We believe that a test based on maximum actual hourly emissions is a reasonable measure of actual emissions. It measures actual emissions at peak, or close to peak, physical and operational capacity. For reasons described elsewhere, and summarized below, we believe this approach implements sound policy objectives.

As we noted at 70 FR 61091, we believe that a test based on maximum achievable hourly emissions remains a test based on actual emissions. The reason is that, as noted in the October 2005 proposal, as a practical matter, for most, if not all EGUs, the hourly rate at which the unit is actually able to emit is substantively equivalent to that unit's historical maximum hourly emissions. That is, most, if not all EGUs will operate at their maximum actual physical and operational capacity at some point in a 5-year period. In general, highest emissions occur during the period of highest utilization. As a result, both the maximum achievable and maximum achieved hourly emissions increase tests allow an EGU to utilize all of its existing capacity, and in this aspect the hourly rate at which the unit is actually able to emit is substantively equivalent under both tests.

Some commenters took issue with this statement, arguing that maximum achievable emissions could differ from maximum achieved emissions for a given EGU for any given period as a result of factors independent of the physical or operational change, including variability of the sulfur content in the coal being burned.

We have long recognized that the highest hourly emissions do not always occur at the point of highest capacity utilization, due to fluctuations in process and control equipment operation, as well as in fuel content and firing method. In fact, we justified an emission factor approach as our preferred approach when we proposed the NSPS regulations at § 60.14 in 1974. (See 39 FR 36947.) As we also noted in developing these NSPS provisions for modifications, ''measurement techniques such as emission tests or continuous monitors are sensitive to routine fluctuations in emissions, and thus a method is needed to distinguish between significant increases in emissions and routine fluctuations in emissions.'' (39 FR 36947.) At that time, we proposed a statistical method for use with stack tests and continuous monitors to measure actual emissions to address this issue.

In light of these concerns, we developed a statistical approach for the maximum achieved hourly emissions increase test to assure that it identifies the maximum hourly pollutant emissions value (for example maximum lb/hr NO_X during a specific one-year period). The statistical procedure would provide an estimate of the highest value (99.9 percentage level) in the period represented by the data set. We believe that this approach mitigates some of the uncertainty associated with trying to identify the highest hourly emissions rate at the highest capacity utilization.[32] We thus believe that, over a period that is representative of normal operations, in general the maximum achievable and maximum achieved hourly emissions test would lead to substantially equivalent results.

Each of these proposed options would promote the safety, reliability, and efficiency of EGUs. Each of the options would balance the economic need of sources to use existing operating capacity with the environmental benefit of regulating those emission increases related to a change, considering the substantial national emissions reductions other programs have achieved or will achieve from EGUs. The proposed regulations are consistent with the primary purpose of the major NSR program, which is to balance the need for environmental protection and economic growth. As the analyses included in this SNPR demonstrate, the proposed regulations would not have an undue adverse impact on local air quality. Furthermore, as our analyses demonstrate, increases in hours of operation at EGUs, to the extent they may change under a maximum hourly rate test, do not increase national SO_2, NO_X, $PM_{2.5}$, VOC, or CO emissions. Consistent with earlier analyses, our analyses demonstrate that in a system where most of the national emissions are capped, the more hours an EGU operates, the more likely it is to install controls.

Moreover, each of the proposed options also offers additional benefits consistent with our overall policy goals. Option 1 would simplify major NSR for changes where there is no increase in hourly emissions. However, many public commenters urged that we retain the significant emissions increase component of the emissions increase test. Therefore, we propose Option 1, our preferred Option, for the purpose of maintaining the current significant net emissions increase component of the emissions increase test.

Option 2 with the proposed maximum hourly tests would simplify major NSR by reducing applicability determinations complexity. Option 2 with the proposed maximum hourly achievable test provides more simplicity by conforming major NSR applicability determinations to NSPS applicability determinations. We also note that Option 2 (both achievable and achieved alternatives) eliminates the burden of projecting future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, because any increase in the emissions under the maximum hourly achievable emissions test would logically be attributed to the change. In addition, Option 2 reduces recordkeeping and reporting burdens on sources because compliance will no longer rely on synthesizing emissions data into rolling average emissions. Option 2 would also reduce the reviewing authorities' compliance and enforcement burden.

Consistent with our policy goal of encouraging efficient use of existing energy capacity, we are continuing to propose an output-based format for the hourly emissions increase tests. An output-based standard establishes emission limits in a format that incorporates the effects of unit efficiency by relating emissions to the amount of useful energy generated, not the amount of fuel burned. By relating emission limitations to the productive output of the process, output-based emission limits encourage energy efficiency because any increase in overall energy efficiency results in a lower emission rate. Allowing energy efficiency as a pollution control measure provides regulated sources with an additional compliance option that can lead to reduced compliance costs as well as lower emissions. The use of more efficient technologies reduces fossil fuel use and leads to multi-media reductions in environmental impacts both on-site and off-site.

Option 2 does not include steps for determining whether significant net emissions increases have occurred. We recognize that the D.C. Circuit, in the seminal case, *Alabama Power* v. *EPA*, 636 F.2d 323 (D.C. Cir. 1980), which was handed down before Chevron, held that failure to interpret ''increases'' to allow netting would be ''unreasonable and contrary to the expressed purposes of the PSD provisions. * * * '' *Id.* at 401. As we noted at 70 FR 61093, it is important to place this ruling in the context of the rules before the Court at that time. Our 1978 regulations required a source-wide accumulation of emissions increases without providing for an ability to offset these accumulated increases with any source-wide decreases. In finding that we must apply a bubble approach, the Court held that we could not require sources to accumulate increases without also accumulating decreases. It is unclear whether the Court would have reached the same conclusion if the emissions test before the Court only considered the increases from the project under review and not source-wide increases from multiple projects. We request comment on our observations related to the *Alabama Power* Court's decision related to netting and whether a major NSR program without netting can be supported under the Act.

With respect to the significance levels, which, like netting, are not included under Option 2, we recognize that *Alabama Power* also upheld significance levels as a ''permissible * * * exercise of agency power, inherent in most statutory schemes, to overlook circumstances that in context may fairly be considered *de minimis*.'' *Id.* At 360. It is clear, however, that the Court considered the establishment of significance levels as discretionary. We believe that significance levels are not important to include in the rules proposed in Option 2 because under those rules, relatively minor changes for which the significance levels might come into play would not increase the maximum hourly rate. By comparison, the changes that do increase the maximum hourly rate are likely to be capacity increases that should not, by their nature, be considered *de minimis*.

[32] Commenters stated that the maximum achieved test is difficult to comply with due to fluctuations in equipment and control device performance that are beyond the control of the EGU owner/operator.

We request comment on all aspects of our legal and policy basis.

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a ''significant regulatory action.'' The action was identified as a ''significant regulatory action'' because it raises novel legal or policy issues. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under EO 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action.

In addition, EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis is contained in the Information Collection Request (ICR) document assigned EPA ICR number 1230.19. A copy of the analysis is available in the docket for this action and the analysis is briefly summarized in the Paperwork Reduction Act section.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The ICR document prepared by EPA has been assigned EPA ICR number 1230.19.

Certain records and reports are necessary for the State or local agency (or the EPA Administrator in non-delegated areas), for example, to: (1) Confirm the compliance status of stationary sources, identify any stationary sources not subject to the standards, and identify stationary sources subject to the rules; and (2) ensure that the stationary source control requirements are being achieved. The information would be used by the EPA or State enforcement personnel to (1) identify stationary sources subject to the rules, (2) ensure that appropriate control technology is being properly applied, and (3) ensure that the emission control devices are being properly operated and maintained on a continuous basis. Based on the reported information, the State, local or tribal agency can decide which plants, records, or processes should be inspected.

The proposed rule would reduce burden for owners and operators of major stationary sources. We expect the proposed rule would simplify applicability determinations, eliminate the burden of projecting future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, and reduce recordkeeping and reporting burdens. Over the 3-year period covered by the ICR, we estimate an average annual reduction in burden for all industry entities that would be affected by the proposed rule. For the same reasons, we also expect the proposed rule to reduce burden for State and local authorities reviewing permits when fully implemented. However, there would be a one-time, additional burden for State and local agencies to revise their SIPs to incorporate the proposed changes.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purpose of responding to the information collection; adjust existing ways to comply with any previously applicable instructions and requirements; train personnel to respond to a collection of information; search existing data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR parts 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including use of automated collection techniques, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA–HQ–OAR–2005–1063. Submit any comments related to the ICR for this proposed rule to EPA and OMB. See **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, Northwest, Washington, DC 20503, Attention: Desk Officer for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after May 8, 2007, a comment to OMB is best assured of having its full effect if OMB receives it by June 7, 2007. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act (RFA)

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this notice on small entities, small entity is defined as: (1) A small business that is a small industrial entity as defined in the U.S. Small Business Administration (SBA) size standards. (*See* 13 CFR 121.201); (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; or (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this notice on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. In determining whether a rule has a significant economic impact on a substantial number of small entities, the impact of concern is any significant adverse economic impact on small entities, since the primary purpose of the regulatory flexibility analyses is to identify and address regulatory alternatives ''which minimize any significant economic impact of the proposed rule on small entities.'' 5 U.S.C. 603 and 604. Thus, an agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, or otherwise has a positive economic effect, on all of the small entities subject to the rule.

We believe that these proposed rule changes will relieve the regulatory burden associated with the major NSR program for all EGUs, including any EGUs that are small businesses. This is because the proposed rule would simplify applicability determinations, eliminate the burden of projecting future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, and by reducing recordkeeping and reporting burdens. As a result, the program changes provided in the proposed rule are not expected to result in any increases in expenditure by any small entity.

We have therefore concluded that this proposed rule would relieve regulatory burden for all small entities. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

We have determined that this rule would not contain a Federal mandate that would result in expenditures of $100 million or more by State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. Although initially these changes are expected to result in a small increase in the burden imposed upon reviewing authorities in order for them to be included in the State's SIP, these revisions would ultimately simplify applicability determinations, eliminate the burden of reviewing projected future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, and reduce the burden associated with making compliance determinations. Thus, this action is not subject to the requirements of sections 202 and 205 of the UMRA.

For the same reasons stated above, we have determined that this notice contains no regulatory requirements that might significantly or uniquely affect small governments. Thus, this action is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects 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.''

This proposed rule does not have federalism implications. It will not have substantial direct effects 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, as specified in Executive Order 13132. We estimate a one-time burden of approximately 2,240 hours and $83,000 for State agencies to revise their SIPs to include the proposed regulations. However, these revisions would ultimately simplify applicability determinations, eliminate the burden of reviewing projected future emissions and distinguishing between emissions increases caused by the change from those due solely to demand growth, and reduce the burden associated with making compliance determinations. This will in turn reduce the overall burden of the program. Thus, Executive Order 13132 does not apply to this rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' This proposed rule does not have tribal implications, as specified in Executive Order 13175. There are no Tribal authorities currently issuing major NSR permits. To the extent that this proposed rule may apply in the future to any EGU that may locate on tribal lands, tribal officials are afforded the opportunity to comment on tribal implications in this notice. Thus, Executive Order 13175 does not apply to this rule.

Although Executive Order 13175 does not apply to this proposed rule, EPA specifically solicits comment on this proposed rule from tribal officials. We will also consult with tribal officials, including officials of the Navaho Nation lands on which Navajo Power Plant and Four Corners Generating Plant are located, before promulgating the final regulations. In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local government, EPA specifically solicits comment on this proposed rule from State and local governments.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This proposed rule is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866, and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. We believe that, based on our analysis of electric utilities, this rule as a whole will result in equal environmental protection to that currently provided by the existing regulations, and do so in a more streamlined and effective manner. The public is invited to submit or identify peer-reviewed studies and data, of which the agency may not be aware, that assessed results of early life exposure to electric utilities.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' [66 FR 28355 (May 22, 2001)] because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. In fact, this rule improves owner/operator flexibility concerning the supply, distribution, and use of energy. Specifically, the proposed rule would increase owner/operators' ability to utilize existing capacity at EGUs.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (for example, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards. EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. This proposed rule amendment, in conjunction with other existing programs, would not relax the control measures on sources regulated by the rule and therefore would not cause emissions increases from these sources.

VIII. Statutory Authority

The statutory authority for this action is provided by sections 307(d) (7) (B), 101, 111, 114, 116, and 301 of the CAA as amended (42 U.S.C. 7401, 7411, 7414, 7416, and 7601). This notice is also subject to section 307(d) of the CAA (42 U.S.C. 7407(d)).

List of Subjects

40 CFR Part 51

Environmental protection, Administrative practice and procedure, Air pollution control, Nitrogen dioxide, Sulfur dioxide.

40 CFR Part 52

Environmental protection, Administrative practice and procedure, Air pollution control, Nitrogen dioxide, Sulfur dioxide.

Dated: April 25, 2007.

Stephen L. Johnson,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as follows:

PART 51—[AMENDED]

1. The authority citation for part 51 continues to read as follows:

Authority: 23 U.S.C. 101; 42 U.S.C. 7401—7671q.

Subpart I—[Amended]

2. Add § 51.167 to read as follows:

§ 51.167 Preliminary major NSR applicability test for electric generating units (EGUs).

(a) *What is the purpose of this section?* State Implementation Plans and Tribal Implementation Plans must include the requirements in paragraphs (b) through (h) of this section for determining (prior to or after construction) whether a change to an EGU is a modification for purposes of major NSR applicability. Deviations from these provisions will be approved only if the State or Tribe demonstrates that the submitted provisions are at least as stringent in all respects as the corresponding provisions in paragraphs (b) through (h) of this section.

(b) *Am I subject to this section?* You must meet the requirements of this section if you own or operate an EGU that is located at a major stationary source, and you plan to make a change to the EGU.

(c) *What happens if a change to my EGU is determined to be a modification according to the procedures of this section?* If the change to your EGU is a modification according to the procedures of this section, you must determine whether the change is a major modification according to the procedures of the major NSR program that applies in the area in which your EGU is located. That is, you must evaluate your modification according to the requirements set out in the applicable regulations approved pursuant to § 51.165 and/or § 51.166, depending on the regulated NSR pollutants emitted and the attainment status of the area in which your EGU is located for those pollutants. Section 51.165 sets out the requirements for State nonattainment major NSR programs, while § 51.166 sets out the requirements for State PSD programs.

(d) *What is the process for determining if a change to an EGU is a modification?* The two-step process set out in paragraphs (d)(1) and (2) of this section is used to determine (before beginning actual construction) whether a change to an EGU located at a major stationary source is a modification. Regardless of any preconstruction projections, a modification has occurred if a change satisfies both steps in the process.

(1) *Step 1.* Is the change a physical change in, or change in the method of operation of, the EGU? (See paragraph (e) of this section for a list of actions that are not physical or operational

changes.) If so, go on to Step 2 (paragraph (d)(2) of this section).

(2) *Step 2.* Will the physical or operational change to the EGU increase the amount of any regulated NSR pollutant emitted into the atmosphere by the source (as determined according to paragraph (f) of this section) or result in the emissions of any regulated NSR pollutant(s) into the atmosphere that the source did not previously emit? If so, the change is a modification.

(e) *What types of actions are not physical changes or changes in the method of operation? (Step 1)* For purposes of this section, a physical change or change in the method of operation shall not include:

(1) Routine maintenance, repair, and replacement;

(2) Use of an alternative fuel or raw material by reason of an order under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(3) Use of an alternative fuel by reason of an order or rule under section 125 of the Act;

(4) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(5) Use of an alternative fuel or raw material by a stationary source which the source is approved to use under any permit issued under 40 CFR 52.21 or under regulations approved pursuant to § 51.165 or § 51.166, or which:

(i) For purposes of evaluating attainment pollutants, the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR part 51 subpart I or § 51.166; or

(ii) For purposes of evaluating nonattainment pollutants, the source was capable of accommodating before December 21, 1976, unless such change would be prohibited under any federally enforceable permit condition which was established after December 21, 1976 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR part 51 subpart I or § 51.166;

(6) An increase in the hours of operation or in the production rate, unless such change is prohibited under any federally enforceable permit condition which was established after January 6, 1975 (for purposes of evaluating attainment pollutants) or after December 21, 1976 (for purposes of evaluating nonattainment pollutants) pursuant to 40 CFR 52.21 or regulations approved pursuant to 40 CFR part 51 subpart I or § 51.166;

(7) Any change in ownership at a stationary source;

(8) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(i) The State Implementation Plan for the State in which the project is located; and

(ii) Other requirements necessary to attain and maintain the national ambient air quality standard during the project and after it is terminated;

(9) For purposes of evaluating attainment pollutants, the installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis; or

(10) For purposes of evaluating attainment pollutants, the reactivation of a very clean coal-fired EGU.

(f) *How do I determine if there is an emissions increase? (Step 2)* You must determine if the physical or operational change to your EGU increases the amount of any regulated NSR pollutant emitted to the atmosphere using the method in paragraph (f)(1) of this section, subject to the limitations in paragraph (f)(2) of this section. If the physical or operational change to your EGU increases the amount of any regulated NSR pollutant emitted into the atmosphere or results in the emission of any regulated NSR pollutant(s) into the atmosphere that your EGU did not previously emit, the change is a modification as defined in paragraph (h)(2) of this section.

Alternative 1 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant for which you have hourly average CEMS or PEMS emissions data with corresponding fuel heat input data, compare the pre-change maximum actual hourly emissions rate in pounds per hour (lb/hr) to a projection of the post-change maximum actual hourly emissions rate in lb/hr, subject to the provisions in paragraphs (f)(1)(i) through (iii) of this section.

(i) *Pre-change emissions.* Determine the pre-change maximum actual hourly emissions rate as follows:

(A) Select a period of 365 consecutive days within the 5-year period immediately preceding when you begin actual construction of the physical or operational change. Compile a data set (for example, in a spreadsheet) with the hourly average CEMS or PEMS (as applicable) measured emissions rates and corresponding heat input data for all of the hours of operation for that 365-day period for the pollutant of interest.

(B) Delete any unacceptable hourly data from this 365-day period in accordance with the data limitations in paragraph (f)(2) of this section.

(C) Extract the hourly data for the 10 percent of the remaining data set corresponding to the highest heat input rates for the selected period. This step may be facilitated by sorting the data set for the remaining operating hours from the lowest to the highest heat input rates.

(D) Calculate the average emissions rate from the extracted (i.e., highest 10 percent heat input rates) data set, using Equation 1:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \qquad \text{Equation 1}$$

Where:
$\bar{x}$ = average emissions rate, lb/hr;
n = number of emissions rate values; and
x_i = i^{th} emissions rate value, lb/hr

(E) Calculate the standard deviation of the data set, s, using Equation 2:

$$s = \sqrt{\frac{\sum_{i=1}^{n} X_i^2 - \frac{\left(\sum_{i=1}^{n} X_i\right)^2}{n}}{n-1}} \qquad \text{Equation 2}$$

(F) Calculate the Upper Tolerance Limit, UTL, of the data set using Equation 3:

$$UTL = \bar{x} + s * \left[\frac{Z_{1-p} + \sqrt{\left(Z_{1-p}^{\ 2}\right) - \left[1 - \frac{Z_{1-q}^{\ 2}}{2*(n-1)}\right] * \left[Z_{1-p}^{\ 2} - \frac{Z_{1-q}^{\ 2}}{n}\right]}}{1 - \frac{Z_{1-q}^{\ 2}}{2*(n-1)}} \right] \quad \text{Equation 3}$$

Where:

Z_{1-p} = 3.090, Z score for the 99.9 percentage of interval; and

Z_{1-q} = 2.326, Z score for the 99 percent confidence level.

(G) Use the UTL calculated in paragraph (f)(1)(i)(F) of this section as the pre-change maximum actual hourly emissions rate.

(ii) *Post-change emissions—preconstruction projections.* For each regulated NSR pollutant, you must project the maximum emissions rate that your EGU will actually achieve in any 1 hour in the 5 years following the date the EGU resumes regular operation after the physical or operational change. An emissions increase results from the physical or operational change if this projected maximum actual hourly emissions rate exceeds the pre-change maximum actual hourly emissions rate.

(iii) *Post-change emissions-actually achieved.* Regardless of any preconstruction projections, an emissions increase has occurred if the hourly emissions rate actually achieved in the 5 years after the change exceeds the pre-change maximum actual hourly emissions rate.

Alternative 2 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant for which you have hourly average CEMS or PEMS emissions data with corresponding fuel heat input data, compare the pre-change maximum actual emissions rate in pounds per megawatt-hour (lb/MWh) to a projection of the post-change maximum actual emissions rate in lb/MWh, subject to the provisions in paragraphs (f)(1)(i) through (iii) of this section. For EGUs that are cogeneration units, emissions rates are determined based on gross energy output. For other EGUs, emissions rates are determined based on gross electrical output.

(i) *Pre-change emissions.* Determine the pre-change maximum actual emissions rate as follows:

(A) Select a period of 365 consecutive days within the 5-year period immediately preceding when you begin actual construction of the physical or operational change. Compile a data set (for example, in a spreadsheet) with the hourly average CEMS or PEMS (as applicable) measured emissions rates in lb/MWh and corresponding heat input data for all of the hours of operation for that 365-day period for the pollutant of interest.

(B) Delete any unacceptable hourly data from this 365-day period in accordance with the data limitations in paragraph (f)(2) of this section.

(C) Extract the hourly data for the 10 percent of the remaining data set corresponding to the highest heat input rates for the selected period. This step may be facilitated by sorting the data set for the remaining operating hours from the lowest to the highest heat input rates.

(D) Calculate the average emissions rate from the extracted (i.e., highest 10 percent heat input rates) data set, using Equation 1:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \qquad \text{Equation 1}$$

Where:

$\bar{x}$ = average emissions rate, lb/MWh;

n = number of emissions rate values; and

x_i = i^{th} emissions rate value, lb/MWh

(E) Calculate the standard deviation of the data set, s, using Equation 2:

$$s = \sqrt{\frac{\sum_{i=1}^{n} X_i^2 - \frac{\left(\sum_{i=1}^{n} X_i\right)^2}{n}}{n-1}} \qquad \text{Equation 2}$$

(F) Calculate the Upper Tolerance Limit, UTL, of the data set using Equation 3:

$$UTL = \bar{x} + s * \left[\frac{Z_{1-p} + \sqrt{\left(Z_{1-p}^{\ 2}\right) - \left[1 - \frac{Z_{1-q}^{\ 2}}{2*(n-1)}\right] * \left[Z_{1-p}^{\ 2} - \frac{Z_{1-q}^{\ 2}}{n}\right]}}{1 - \frac{Z_{1-q}^{\ 2}}{2*(n-1)}} \right] \quad \text{Equation 3}$$

Where:

Z_{1-p} = 3.090, Z score for the 99.9 percentage of interval; and

Z_{1-q} = 2.326, Z score for the 99 percent confidence level.

(G) Use the UTL calculated in paragraph (f)(1)(i)(F) of this section as the pre-change maximum actual hourly emissions rate.

(ii) *Post-change emissions—preconstruction projections.* For each regulated NSR pollutant, you must project the maximum emissions rate that your EGU will actually achieve over any period of 1 hour in the 5 years following the date the EGU resumes regular operation after the physical or operational change. An emissions increase results from the physical or operational change if this projected maximum actual emissions rate exceeds the pre-change maximum actual emissions rate.

(iii) *Post-change emissions—actually achieved.* Regardless of any preconstruction projections, an emissions increase has occurred if the emissions rate actually achieved over any period of 1 hour in the 5 years after the change exceeds the pre-change maximum actual emissions rate.

Alternative 3 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant, compare the pre-change maximum actual hourly emissions rate in pounds per hour (lb/hr) to a projection of the post-change maximum actual hourly emissions rate in lb/hr, subject to the provisions in paragraphs (f)(1)(i) through (iv) of this section.

(i) *Pre-change emissions—general procedures.* The pre-change maximum actual hourly emissions rate for the pollutant is the highest emissions rate (lb/hr) actually achieved by the EGU for 1 hour at any time during the 5-year period immediately preceding when you begin actual construction of the physical or operational change.

(ii) *Pre-change emissions—data sources.* You must determine the highest pre-change hourly emissions rate for each regulated NSR pollutant using the best data available to you. Use the highest available source of data in the following hierarchy, unless your reviewing authority has determined that a data source lower in the hierarchy will provide better data for your EGU:

(A) Continuous emissions monitoring system (CEMS).

(B) Approved predictive emissions monitoring system (PEMS).

(C) Emission tests/emission factor specific to the EGU to be changed.

(D) Material balance calculations.

(E) Published emission factor.

(iii) *Post-change emissions—preconstruction projections.* For each regulated NSR pollutant, you must project the maximum emissions rate that your EGU will actually achieve in any 1 hour in the 5 years following the date the EGU resumes regular operation after the physical or operational change. An emissions increase results from the physical or operational change if this projected maximum actual hourly emissions rate exceeds the pre-change maximum actual hourly emissions rate.

(iv) *Post-change emissions—actually achieved.* Regardless of any preconstruction projections, an emissions increase has occurred if the hourly emissions rate actually achieved in the 5 years after the change exceeds the pre-change maximum actual hourly emissions rate.

Alternative 4 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant, compare the pre-change maximum actual emissions rate in pounds per megawatt-hour (lb/MWh) to a projection of the post-change maximum actual emissions rate in lb/MWh, subject to the provisions in paragraphs (f)(1)(i) through (iv) of this section. For EGUs that are cogeneration units, emissions rates are determined based on gross energy output. For other EGUs, emissions rates are determined based on gross electrical output.

(i) *Pre-change emissions—general procedures.* The pre-change maximum actual emissions rate for the pollutant is the highest emissions rate (lb/MWh) actually achieved by the EGU over any period of 1 hour during the 5-year period immediately preceding when you begin actual construction of the physical or operational change.

(ii) *Pre-change emissions—data sources.* You must determine the highest pre-change emissions rate for each regulated NSR pollutant using the best data available to you. Use the highest available source of data in the following hierarchy, unless your reviewing authority has determined that a data source lower in the hierarchy will provide better data for your EGU:

(A) Continuous emissions monitoring system (CEMS).

(B) Approved predictive emissions monitoring system (PEMS).

(C) Emission tests/emission factor specific to the EGU to be changed.

(D) Material balance calculations.

(E) Published emission factor.

(iii) *Post-change emissions—preconstruction projections.* For each regulated NSR pollutant, you must project the maximum emissions rate that your EGU will actually achieve over any period of 1 hour in the 5 years following the date the EGU resumes regular operation after the physical or operational change. An emissions increase results from the physical or operational change if this projected maximum actual emissions rate exceeds the pre-change maximum actual emissions rate.

(iv) *Post-change emissions—actually achieved.* Regardless of any preconstruction projections, an emissions increase has occurred if the emissions rate actually achieved over any period of 1 hour in the 5 years after the change exceeds the pre-change maximum actual emissions rate.

Alternative 5 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant, compare the maximum achievable hourly emissions rate before the physical or operational change to the maximum achievable hourly emissions rate after the change. Determine these maximum achievable hourly emissions rates according to § 60.14(b) of this chapter. No physical change, or change in the method of operation, at an existing EGU shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any regulated NSR pollutant above the maximum hourly emissions achievable at that unit during the 5 years prior to the change.

Alternative 6 for paragraph (f)(1):

(1) *Emissions increase test.* For each regulated NSR pollutant, compare the maximum achievable emissions rate in pounds per megawatt-hour (lb/MWh) before the physical or operational change to the maximum achievable emissions rate in lb/MWh after the change. Determine these maximum achievable emissions rates according to § 60.14(b) of this chapter, using emissions rates in lb/MWh achievable over 1 hour of continuous operation in place of mass emissions rates. For EGUs that are cogeneration units, determine emissions rates based on gross energy output. For other EGUs, determine emissions rates based on gross electrical output. No physical change, or change in the method of operation, at an existing EGU shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum emissions rate of any regulated NSR pollutant above the maximum emissions rate achievable at that unit during the 5 years prior to the change.

(2) *Data limitations for maximum emissions rates.* For purposes of determining pre-change and post-change maximum emissions rates under paragraph (f)(1) of this section, the following limitations apply to the types of data that you may use:

(i) *Data limitations for Alternatives 1–4.*

(A) You must not use emissions rate data associated with startups, shutdowns, or malfunctions of your EGU, as defined by applicable regulation(s) or permit term(s), or malfunctions of an associated air pollution control device. A malfunction means any sudden, infrequent, and not reasonably preventable failure of the EGU or the air pollution control equipment to operate in a normal or usual manner.

(B) You must not use continuous emissions monitoring system (CEMS) or predictive emissions monitoring system (PEMS) data recorded during monitoring system out-of-control periods. Out-of-control periods include those during which the monitoring system fails to meet quality assurance criteria (for example, periods of system breakdown, repair, calibration checks, or zero and span adjustments) established by regulation, by permit, or in an approved quality assurance plan.

(C) You must not use emissions rate data from periods of noncompliance when your EGU was operating above an emission limitation that was legally enforceable at the time the data were collected.

(D) You must not use data from any period for which the information is inadequate for determining emissions rates, including information related to the limitations in paragraphs (f)(2)(i)(A) through (C) of this section.

(ii) *Data limitations for Alternatives 5 and 6.*

(A) You must not use emissions rate data associated with startups, shutdowns, or malfunctions of your EGU, as defined by applicable regulation(s) or permit term(s), or malfunctions of an associated air pollution control device. A malfunction means any sudden, infrequent, and not reasonably preventable failure of the EGU or the air pollution control equipment to operate in a normal or usual manner.

(B) You must not use continuous emissions monitoring system (CEMS) or predictive emissions monitoring system (PEMS) data recorded during monitoring system out-of-control periods. Out-of-control periods include those during which the monitoring system fails to meet quality assurance criteria (for example, periods of system breakdown, repair, calibration checks, or zero and span adjustments) established by regulation, by permit, or in an approved quality assurance plan.

(C) You must not use data from any period for which the information is inadequate for determining emissions rates, including information related to the limitations in paragraphs (f)(2)(ii)(A) and (B) of this section.

(g) *What are my requirements for recordkeeping?* You must maintain a file of all information related to determinations that you make under this section of whether a change to an EGU is a modification, subject to the following provisions:

(1) The file must include, but is not limited to, the following information recorded in permanent form suitable for inspection:

(i) Continuous monitoring system, monitoring device, and performance testing measurements;

(ii) All continuous monitoring system performance evaluations;

(iii) All continuous monitoring system or monitoring device calibration checks;

(iv) All adjustments and maintenance performed on these systems or devices; and

(v) All other information relevant to any determination made under this section of whether a change to an EGU is a modification.

(2) You must retain the file until the later of:

(i) The date 5 years following the date the EGU resumes regular operation after the physical or operational change; and

(ii) The date 5 years following the date of such measurements, maintenance, reports, and records.

(h) *What definitions apply under this section?* The definitions in paragraphs (h)(1) and (2) of this section apply. Except as specifically provided in this paragraph (h), terms used in this section have the meaning accorded them under § 51.165(a)(1) or § 51.166(b), as appropriate to the situation (for example, the attainment status of the area where your source is located for a particular regulated NSR pollutant of interest). Terms not defined here or in § 51.165(a)(1) or § 51.166(b) (as appropriate) have the meaning accorded them under the applicable requirements of the Clean Air Act, 42 U.S.C. 7401, *et seq.*

(1) *Terms related to EGUs that are defined in § 51.124(q).* The following terms are as defined in § 51.124(q):

Boiler.
Bottoming-cycle cogeneration unit.
Cogeneration unit.
Combustion turbine.
Electric generating unit or *EGU.*
Fossil fuel.
Fossil-fuel-fired.
Generator.
Maximum design heat input.
Nameplate capacity.
Potential electrical output capacity.
Sequential use of energy.
Topping-cycle cogeneration unit.
Total energy input.
Total energy output.
Useful power.
Useful thermal energy.
Utility power distribution system.

(2) *Other terms defined for the purposes of this section.*

Attainment pollutant means a regulated NSR pollutant for which your EGU may be subject to the PSD program that is applicable in the area where your EGU is located. In general, attainment pollutants are the regulated NSR pollutants listed in the PSD program for which there is no NAAQS or for which the area in which your EGU is located is designated as attainment or unclassifiable according to part 81 of this chapter. However, pollutant or precursor transport considerations may cause such regulated NSR pollutants to be treated as nonattainment pollutants as defined in this paragraph (h)(2) (for example, if your EGU is located in an ozone transport region).

Gross electrical output means the electricity made available for use by the generator associated with the EGU.

Gross energy output means, with regard to a cogeneration unit, the sum of the gross power output and the useful thermal energy output produced by the cogeneration unit.

Gross power output means, with regard to a cogeneration unit, electricity or mechanical energy made available for use by the cogeneration unit.

Modification, for an EGU, means any physical change in, or change in the method of operation of, an EGU which increases the amount of any regulated NSR pollutant emitted into the atmosphere by that source or which results in the emission of any regulated NSR pollutant(s) into the atmosphere that the source did not previously emit. An increase in the amount of regulated NSR pollutants must be determined according to the provisions in paragraph (f) of this section. For purposes of this section, a physical change or change in the method of operation shall not include the types of actions listed in paragraph (e) of this section.

Nonattainment pollutant means a regulated NSR pollutant for which your EGU may be subject to the nonattainment major NSR program that is applicable in the area where your EGU is located. In general, nonattainment pollutants are the regulated NSR pollutants listed in the nonattainment major NSR program for which the area in which your EGU is located is designated as nonattainment according to part 81 of this chapter. However, pollutant or precursor transport considerations may cause such regulated NSR pollutants to be treated as attainment pollutants as defined in this paragraph (h)(2).

Useful thermal energy output means, with regard to a cogeneration unit, the thermal energy made available for use in any industrial or commercial process, or used in any heating or cooling application, that is, total thermal energy made available for processes and applications other than electrical or mechanical generation. Thermal output for this section means the energy in recovered thermal output measured against the energy in the thermal output at 15 degrees Celsius and 101.325 kilopascals of pressure.

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