

# Proposed Rules

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

## DEPARTMENT OF ENERGY

### 10 CFR Part 431

[Docket No (EERE-2010-BT-NOA-0028)]

RIN 1904-AC24

#### Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Public Meeting and Availability of Statement of Policy for Adopting Full-Fuel-Cycle Analyses Into Energy Conservation Standards Program

**AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.

**ACTION:** Notice of proposed policy and public meeting.

**SUMMARY:** In its effort to adopt several National Academy of Sciences (the Academy) recommendations, the U.S. Department of Energy (DOE) proposes to modify the methods it uses to estimate the likely impacts of energy conservation standards for covered products and covered equipment on energy use and emissions and to expand the energy use and emissions information made available to consumers. Specifically, DOE proposes to use full-fuel-cycle (FFC) measures of energy and greenhouse gas (GHG) emissions, rather than the primary energy measures it currently uses. Additionally, DOE proposes to work collaboratively with the Federal Trade Commission (FTC) to make FFC energy and GHG emissions data available to the public to enable consumers to make cross-class comparisons. DOE will hold an informal public meeting to discuss and receive comments on its planned approach. DOE welcomes written comments from the public on any subject within the scope of this policy document.

**DATES:** DOE will hold a public meeting on Thursday, October 7, 2010, from 9 a.m. to 4 p.m. in Washington, DC. DOE must receive requests to speak at the public meeting before 4 p.m., Thursday, September 23, 2010. DOE must receive

an electronic copy of the statement with the name and, if appropriate, the organization of the presenter to be given at the public meeting before 4 p.m., Thursday, September 30, 2010. DOE will accept written comments, data, and information regarding this announcement before and after the public meeting, but no later than October 19, 2010.

**ADDRESSES:** The public meeting will be held at the U.S. Department of Energy, Forrestal Building, Room 1E-245, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Please note that foreign nationals planning to participate in the public meeting are subject to advance security screening procedures. If a foreign national wishes to participate in the public meeting, please inform DOE of this fact as soon as possible by contacting Ms. Brenda Edwards at (202) 586-2945 so that the necessary procedures can be completed.

Interested parties are encouraged to submit comments by e-mail to the following address: *FFC-2010-NOA-0028@ee.doe.gov*. Include docket number EERE-2010-BT-NOA-0028 and/or RIN 1904-AC24 in the subject line of the message. DOE encourages all written comments, data, and information to be submitted electronically in commonly used searchable text formats (e.g. Adobe Acrobat PDF, Microsoft Word, etc). All comments should clearly identify the name, address and, if appropriate, organization of the commenter.

Alternatively, interested parties may submit comments by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

- *Mail:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J, Notice of Proposed Policy for Full-Fuel-Cycle Analysis Docket No. EERE-2010-BT-NOA-0028 and/or RIN 1904-AC24, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Due to the potential delays in DOE's receipt and processing of mail sent through the U.S. Postal Service, DOE encourages respondents to submit comments electronically to ensure timely receipt.

- *Hand Delivery/Courier:* Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Sixth

Floor, 950 L'Enfant Plaza, SW., Washington, DC 20024.

*Docket:* For access to the docket to read background documents or comments received, visit the U.S. Department of Energy, Resource Room of the Building Technologies Program, 950 L'Enfant Plaza, SW., 6th Floor, Washington, DC 20024, (202) 586-2945, between 9 a.m. and 4 p.m. Monday through Friday, except Federal holidays. Please call Ms. Brenda Edwards at the above telephone number for additional information regarding visiting the Resource Room.

**FOR FURTHER INFORMATION CONTACT:** Mr. Anthony Perkins, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 287-1846. E-mail: *Anthony.Perkins@ee.doe.gov*.

Ms. Ami Grace-Tardy, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-5709. E-mail: *Ami.Grace-Tardy@hq.doe.gov*.

For information on how to submit or review public comments, contact Ms. Brenda Edwards, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-2J, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone (202) 586-2945. E-mail: *Brenda.Edwards@ee.doe.gov*.

#### SUPPLEMENTARY INFORMATION:

##### Background

DOE's energy conservation program for consumer products and certain commercial and industrial equipment sets energy conservation standards to reduce U.S. energy consumption in residential and commercial buildings. DOE separates covered products and covered equipment into classes differentiated by energy source, technology, and capacity. The Energy Policy and Conservation Act (EPCA) requires DOE to set standards for covered products and covered equipment based on energy consumption at the point-of-use. (42 U.S.C. 6291(4), 6311(4)).

The point-of-use method for measuring energy consumption

considers the use of electricity, natural gas, propane, and/or fuel oil by an appliance at the site where the appliance is operated. DOE uses point-of-use measures of energy consumption, usually presented in the physical units typically used for the relevant fuel (or electricity), for setting energy conservation standards. Before choosing an energy conservation standard, however, DOE performs several analyses to estimate the likely impacts of candidate standard levels. DOE currently uses primary energy measures of energy consumption in several of these analyses. Primary energy includes energy consumed on-site, plus energy losses that occur in the generation, transmission, and distribution of electricity.

DOE impact analyses include a: Life-cycle cost analysis, manufacturer impact analysis, national impact analysis, engineering analysis, screening analysis, environmental assessment, utility impact assessment, and employment impact assessment. DOE utilizes primary energy consumption in several analyses, including the national impact analysis and the environmental assessment, to estimate the total projected amount of energy savings and emissions likely to result from the imposition of a candidate standard. Based on the results of these various analyses, DOE then proposes (and, ultimately, adopts) the energy conservation standard that it determines achieves the maximum energy efficiency improvement that is technologically feasible and economically justified as required by EPCA. (42 U.S.C. 6295(o)(2)(A)). Additionally, DOE must determine that the establishment of a new or amended energy conservation standard will result in significant energy conservation. (42 U.S.C. 6295(o)(3)(B)).

Section 1802 of the Energy Policy Act of 2005 (EPACT 2005) directed DOE to contract a study with the National Academy of Science (the Academy) to examine whether the goals of energy efficiency standards are best served by measurement of energy consumed, and efficiency improvements, at the actual point-of-use or through the use of FFC, beginning at the source of energy production. (Pub. L. 109–58). The FFC measure includes point-of-use energy plus the energy consumed in extracting, processing, and transporting primary fuels and the energy losses associated with generation, transmission, and distribution of electricity. The study, “Review of Site (Point-of-Use) and Full-Fuel-Cycle Measurement Approaches to DOE/EERE Building Appliance Energy-Efficiency Standards,” was completed in

May 2009 and provided five recommendations. A free copy of the study can be downloaded at: [http://www.nap.edu/catalog.php?record\\_id=12670](http://www.nap.edu/catalog.php?record_id=12670).

The Academy’s primary recommendation is that “DOE consider moving over time to use of a FFC measure of energy consumption for assessment of national and environmental impact, especially levels of greenhouse gas emissions, and to providing more comprehensive information to the public through labels and other means, such as an enhanced Web site.” The Academy further recommended that DOE work with the FTC to consider options for making product-specific GHG emissions estimates available to enable consumers to make cross-class product comparisons. DOE is taking numerous steps to implement these recommendations, including proposing this Statement of Policy.

More specifically, the Academy recommends that DOE use the FFC measure of energy consumption for the environmental assessment and national impact analyses used in energy conservation standards rulemakings. The FFC measure would provide more complete information about the total energy use and GHG emissions associated with operating an appliance than the primary energy measure currently used by DOE. Utilizing the FFC measure for environmental assessments and national impact analyses would not require alteration of the measures used to determine the energy efficiency of covered products and covered equipment as existing law still requires such measures to be based solely on the energy consumed at the point of use. (42 U.S.C. 6291(4), 6311(4)). However, using the FFC measure in lieu of primary energy in environmental assessments and national impact analyses could affect DOE’s consideration of future alternative standard levels. A shift to considering FFC impacts would increase the energy and emission reductions estimated to result from specific efficiency standard levels. This shift would, consequently, increase some of the estimated benefits of such standards.

DOE proposes to use FFC measures of energy and GHG and other emissions in the national impact analyses and environmental assessments included in future energy conservation standards rulemakings. DOE solicits public comment on its proposal to use FFC measures of energy use and emissions in these analyses.

DOE currently measures primary energy consumption for national impact

analyses and environmental assessments using the National Energy Modeling System (NEMS) developed by DOE’s Energy Information Administration (EIA). Similarly, DOE must have an appropriate model(s) of FFC energy use and emissions in order to employ FFC measures.

DOE believes that the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model developed for DOE by Argonne National Laboratory is a model of FFC energy use and emissions that would be appropriate for this purpose. The GREET model is built in Microsoft Excel with graphic user interfaces, generates FFC results in tables that can be readily exported into other table formats, and is available to the public online at no cost.<sup>1</sup> The model uses energy efficiency and emissions information available through the EIA and the Environmental Protection Agency (EPA). GREET was designed to enable users to easily compare the total energy use and GHG emissions of vehicle technologies and different fuels. Since fuel products such as electricity, oil, natural gas, propane, coal, and biomass are already simulated in GREET for their FFC effects, the model can be used to estimate FFC energy use and emissions associated with different fuels used in appliances as well. DOE also solicits public comment on its proposal to use the GREET model to estimate FFC energy use and emissions.

#### **Methodology for Estimating Full-Fuel-Cycle Energy Impacts**

DOE intends to use the GREET model in energy conservation standards rulemakings to convert primary energy impacts to FFC energy impacts. First, for each alternative energy conservation standard under consideration, DOE will estimate primary energy impacts by using NEMS projections that include the use of individual fuels in power plants as well as in home appliances such as water heaters. Second, for each alternative energy conservation standard under consideration, DOE will use the energy conversion factors that are generated using the GREET model to convert primary energy use and emission impacts to FFC energy use and emission impacts.

Preliminary estimates of the current and projected primary energy to FFC energy conversion factors for on-site fuel and power plant use developed using the GREET model can be found in Tables 1 and 2. Table 1 lists the preliminary factors to be used to convert

<sup>1</sup> Available at [http://www.transportation.anl.gov/modeling\\_simulation/GREET/index.html](http://www.transportation.anl.gov/modeling_simulation/GREET/index.html).

primary energy to FFC energy for natural gas and fuel oil used in home appliances. Similarly, Table 2 lists the preliminary factors to use to convert primary energy to FFC energy for natural gas, fuel oil, coal, biomass, and nuclear energy used for electricity generation. The conversion factors represent the ratio of estimated FFC energy use for each unit of primary energy. To provide additional relevant energy use information to consumers, these conversion factors are further broken down into different types of energy (*i.e.*, total energy and fossil energy; the latter is further broken down to petroleum, natural gas, and coal).

To account for the fact that energy production technologies and energy feedstocks will change over time and, consequently, energy conversion factors will change over time, DOE has also calculated preliminary estimates for FFC energy conversion factors in 2030. The year 2030 was chosen because of data limitations in GREET simulations beyond 2030. As can be seen in Tables 1 and 2, the energy conversion factors are not expected to change dramatically over time. The small change in conversion factors from 2010 to 2030 reflects the comparatively slow incremental changes in the U.S. energy sector expected between now and 2030.

DOE may, nevertheless, use conversion factors that more substantially change over time if necessary to reflect evolving expectations regarding the rate of change in energy production technologies and feedstocks.

DOE proposes to use these (or similar) conversion factors in its national impacts analysis, which starts with the compliance date of the standard under development and normally covers a period of 30 years, plus the typical useful life of the product being analyzed. In its national impacts analysis, DOE uses product shipment projections and information about the appliance efficiency base case and the new energy conservation standards efficiency case to project energy savings of new energy conservation standards. The methods used are described in the Technical Support Documents accompanying DOE proposed and final energy conservation standards rules. As Tables 1 and 2 show, the preliminary factors for converting primary energy to FFC energy have been estimated for the years 2010 and 2030. DOE intends to use these or similar estimates, generated by the GREET model, as the basis for converting all of the primary energy estimates contained in national impact analyses to their FFC equivalents. For those years beyond 2030 (or the end

year of the most recent GREET model estimates), DOE will develop conversion factors based on a simple extrapolation of prior year estimates. DOE now uses this approach to extrapolate estimates generated by the NEMS model for the next 25 years (current energy trends forecasts are through 2035). This is because of the data limitation of going beyond 2030 in GREET simulations for energy technology efficiencies and emission factors.

TABLE 1—PRELIMINARY ENERGY CONVERSION FACTORS FOR FUELS USED IN HOME APPLIANCES

Conversion factor from primary energy to FFC energy	Natural gas	Fuel oil
<b>GREET 2010 Preliminary Estimates</b>		
Total Energy .....	1.073	1.134
Fossil Fuels .....	1.072	1.126
Petroleum .....	0.004	1.050
Natural Gas .....	1.065	0.056
Coal .....	0.002	0.020
<b>GREET 2030 Preliminary Estimates</b>		
Total Energy .....	1.073	1.147
Fossil Fuels .....	1.072	1.138
Petroleum .....	0.004	1.050
Natural gas .....	1.065	0.068
Coal .....	0.002	0.019

TABLE 2—PRELIMINARY ENERGY CONVERSION FACTORS FOR POWER PLANT FUEL CONSUMPTION

Conversion factor from primary energy to FFC energy	Natural gas	Fuel oil	Coal	Biomass	Uranium
<b>GREET 2010 Preliminary Estimates</b>					
Total Energy .....	1.071	1.134	1.021	1.032	1.065
Fossil Fuels .....	1.070	1.126	1.019	0.030	0.047
Petroleum .....	0.004	1.050	0.013	0.024	0.004
Natural Gas .....	1.063	0.056	0.002	0.004	0.017
Coal .....	0.002	0.020	1.004	0.002	0.026
<b>GREET 2030 Preliminary Estimates</b>					
Total Energy .....	1.071	1.147	1.021	1.032	1.038
Fossil Fuels .....	1.069	1.138	1.019	0.031	0.027
Petroleum .....	0.004	1.050	0.013	0.024	0.003
Natural Gas .....	1.063	0.068	0.002	0.004	0.011
Coal .....	0.002	0.019	1.003	0.002	0.013

The hypothetical example in Table 3 below depicts how DOE estimates of the primary energy savings likely to result from a specific standard level for a particular product might be converted to FFC savings in future rulemakings using

Tables 1 and 2. In this hypothetical example, the product analyzed has two classes, one using natural gas and the other electricity. If DOE adopts the FFC approach, DOE will likely provide tables similar to Table 3 in future

Technical Support Documents. The energy savings estimates included in **Federal Register** notices are likely to remain limited to the total National Energy Savings values now reported.

TABLE 3—HYPOTHETICAL EXAMPLE OF HOW ESTIMATES OF PRIMARY ENERGY SAVINGS MIGHT BE CONVERTED TO FFC ENERGY SAVINGS IN FUTURE RULEMAKINGS ANALYSES

	National energy savings (total)	Natural gas (direct, end-use)	Electric sector (total)	Coal	Natural gas	Petroleum	Nuclear energy	Biomass
Estimated Cumulative Primary Energy Saving (quads) .....	2.952	0.770	2.182	0.908	0.308	0.003	0.179	0.100
FFC Energy Conversion Factors (for year 2030)	N/A	1.073	N/A	1.021	1.071	1.147	1.038	1.021
Estimated Cumulative FFC Energy Savings (quads) .....	3.058	0.826	2.232	0.927	0.330	0.003	0.186	0.102

The early estimates in Tables 1–2 and 4–6 are included in this notice for demonstrative purposes only. These estimates are not necessarily the precise conversion factors that will be used in any given energy conservation standard rulemaking. DOE seeks public comment on the proposed methodology for converting primary energy use to FFC energy use, not on the preliminary estimates themselves.

**Methodology for Estimating Full-Fuel-Cycle Emissions**

The GREET model can also be used to calculate the GHG emissions associated with energy consumption for DOE environmental assessments. This can be accomplished in two ways. Using the conversion factors identified, FFC energy use can be converted to FFC emissions with emission factors per unit of energy. This method would use the FFC energy use and emission factors for individual fuels/energy products. Alternatively, primary energy CO<sub>2</sub> emissions can be converted to FFC GHG emissions, if the type of primary energy is known. The conversion would be identical to the conversion of primary energy to FFC energy, as described previously.

Although methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions were not specifically addressed in the Academy’s report, DOE proposes to include them in its energy conservation standards environmental assessments to provide a

more comprehensive assessment of GHG emissions. These two gases are included in national GHG emission inventories worldwide. According to EPA, CH<sub>4</sub> and N<sub>2</sub>O are among the principal GHGs that enter the atmosphere because of human activities, including energy production. CH<sub>4</sub> is the primary component of natural gas; CH<sub>4</sub> losses occur at all stages of production and distribution of natural gas. CH<sub>4</sub> gas is also commonly found in coal mines and animal farms. N<sub>2</sub>O is released by burning fossil fuels and agricultural farming.

DOE proposes to include CH<sub>4</sub> and N<sub>2</sub>O in environmental assessments of energy conservation standards because the gases have a direct association with the production and use of energy and have significant global warming potential (GWP). Using CH<sub>4</sub> and N<sub>2</sub>O GWPs from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) published in 2007, the GREET model can also be used to calculate CH<sub>4</sub> and N<sub>2</sub>O emissions in terms of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) FFC emissions. CO<sub>2</sub>-equivalents are used to compare the GWP of GHG gases. The CO<sub>2</sub>e of CH<sub>4</sub> and N<sub>2</sub>O emissions can be identified from CH<sub>4</sub> and N<sub>2</sub>O emissions (as in Table 4) and their IPCC-determined GWPs.

Table 4 shows preliminary estimates of GHG emissions per unit energy consumed using the FFC energy use to FFC emissions conversion. For example,

if an energy conservation standard saves 2.76 quads of FFC natural gas over the normal 30-year analysis period, the 3–GHG CO<sub>2</sub>e emission factor from Table 4 of 62,957 kg per billion Btu of FFC natural gas could be used to calculate that the energy conservation standard saves 173.8 million metric tons of 3–GHG CO<sub>2</sub>e emissions over the normal 30-year analysis period (2.76 x 10<sup>15</sup> Btu/1000000000 x 62,957 kg/10<sup>9</sup> Btu/1000). These estimates provide a general idea of how these factors are expected to change during a 25-year span covered by an environmental impact analysis completed in 2010.

Table 5 shows preliminary conversion factors from primary energy CO<sub>2</sub> emissions to FFC GHG emissions. With emissions in Table 4, the conversion factors from primary energy CO<sub>2</sub> emissions to FFC emissions for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O (collectively, 3–GHG) can be developed as presented in Table 5. For example, if the NEMS model estimates that an energy conservation standard for a natural gas water heater saves 10 million tons of CO<sub>2</sub> emissions at the point of natural gas use by the water heater, the FFC 3–GHG CO<sub>2</sub>e emissions saved would be 10 million tons times 1.17 (as shown in Table 5). These estimates provide a general idea of how these factors are expected to change during a 25-year span covered by an environmental impact analysis completed in 2010.

TABLE 4—PRELIMINARY ESTIMATES OF GHG EMISSIONS PER UNIT ENERGY CONSUMED

	Natural gas kg/billion BTU	Fuel oil kg/billion BTU	Coal kg/billion BTU	Biomass kg/billion BTU	Uranium kg/billion BTU
<b>GREET 2010 Preliminary Unit</b>					
CO <sub>2</sub> , Fuel Combustion .....	53,620	79,548	102,905	97,212	0
CO <sub>2</sub> , FFC Total .....	58,469	89,438	104,422	–3,993	3,919
CH <sub>4</sub> , FFC Total .....	161.733	99.499	120.356	6.557	6.940
N <sub>2</sub> O, FFC Total .....	1.492	0.537	1.091	11.940	0.064
3-GHG CO <sub>2</sub> e FFC Total .....	62,957	92,086	107,756	–271	4,112

TABLE 4—PRELIMINARY ESTIMATES OF GHG EMISSIONS PER UNIT ENERGY CONSUMED—Continued

	Natural gas kg/billion BTU	Fuel oil kg/billion BTU	Coal kg/billion BTU	Biomass kg/billion BTU	Uranium kg/billion BTU
<b>GREET 2030 Preliminary Unit</b>					
CO <sub>2</sub> , Fuel Combustion .....	53,619	79,548	102,904	97,212	0
CO <sub>2</sub> , FFC Total .....	58,451	90,255	104,406	-3,991	2,185
CH <sub>4</sub> , FFC Total .....	161.917	100.583	120.446	6.560	4.389
N <sub>2</sub> O, FFC Total .....	1.518	0.562	1.178	11.942	0.055
3-GHG CO <sub>2</sub> e FFC Total .....	62,952	92,937	107,768	-268	2,311

TABLE 5—PRELIMINARY ESTIMATES OF GHG EMISSIONS CONVERSION FACTORS

	Natural gas	Fuel oil	Coal	Biomass	Uranium
<b>GREET 2010 Preliminary Estimates</b>					
Primary energy CO <sub>2</sub> to FFC CO <sub>2</sub> .....	1.09	1.12	1.01	-0.04	N/A
Primary energy CO <sub>2</sub> to FFC CH <sub>4</sub> .....	0.00302	0.00125	0.00117	0.00007	N/A
Primary energy CO <sub>2</sub> to FFC N <sub>2</sub> O .....	0.00003	0.00001	0.00001	0.00012	N/A
Primary energy CO <sub>2</sub> to 3-GHG FFC CO <sub>2</sub> e .....	1.17	1.16	1.05	0.00	N/A
<b>GREET 2030 Preliminary Estimates</b>					
Primary energy CO <sub>2</sub> to FFC CO <sub>2</sub> .....	1.09	1.13	1.01	-0.04	N/A
Primary energy CO <sub>2</sub> to FFC CH <sub>4</sub> .....	0.00302	0.00126	0.00117	0.00007	N/A
Primary energy CO <sub>2</sub> to FFC N <sub>2</sub> O .....	0.00003	0.00001	0.00001	0.00012	N/A
Primary energy CO <sub>2</sub> to 3-GHG FFC CO <sub>2</sub> e .....	1.17	1.17	1.05	0.00	N/A

DOE environmental assessments that accompany energy conservation standards rulemakings also include non-GHG emissions that result from energy use. These emissions include mercury (Hg), nitrogen oxide (NO<sub>x</sub>), and sulfur dioxide (SO<sub>x</sub>). NO<sub>x</sub> and SO<sub>x</sub> primary energy consumption emissions can be converted to FFC emissions using the energy conversion factors in Tables 1 and 2 generated from the GREET model (to convert primary energy use to FFC energy use) and the emission conversion factors in Table 6 (to convert energy

combustion emissions to FFC emissions). Again, these emissions were not specifically addressed by the Academy, but addressing them in environmental assessments will give DOE a more complete picture of total emissions benefits associated with energy conservation standards. The current GREET model does not attempt to estimate the emissions of Hg that occur from the point of fossil fuel production to the point of use. Such emissions are expected to be quite small relative to the emissions of Hg

associated with the combustion of fossil fuels and are not expected to be in the future expansion of GREET.

Preliminary estimates of conversion factors for NO<sub>x</sub> and SO<sub>x</sub> and estimates of NO<sub>x</sub> and SO<sub>x</sub> emissions per unit energy consumed are provided in Table 6. These estimates provide a general idea of how these factors are expected to change during a 25-year span covered by an environmental impact analysis completed in 2010.

TABLE 6—PRELIMINARY ESTIMATES OF NO<sub>x</sub> AND SO<sub>x</sub> CONVERSION FACTORS

	Natural Gas	Fuel Oil	Coal	Biomass	Uranium
<b>GREET 2010 Preliminary Estimates</b>					
NO <sub>x</sub> fuel combustion to FFC NO <sub>x</sub> .....	1.77	1.24	1.14	1.14	N/A
SO <sub>x</sub> fuel combustion to FFC SO <sub>x</sub> .....	N/A	1.03	1.03	1.06	N/A
Unit .....	kg/billion BTU	kg/billion BTU	kg/billion BTU	kg/billion BTU	kg/billion BTU
NO <sub>x</sub> , FFC Total .....	50.919	203.309	109.747	119.052	7.509
SO <sub>x</sub> , FFC Total .....	11.448	558.361	274.901	30.459	7.795
<b>GREET 2030 Preliminary Estimates</b>					
NO <sub>x</sub> fuel combustion to FFC NO <sub>x</sub> .....	1.64	1.22	1.12	1.09	N/A
SO <sub>x</sub> fuel combustion to FFC SO <sub>x</sub> .....	N/A	1.03	1.03	1.05	N/A
Unit .....	kg/billion BTU	kg/billion BTU	kg/billion BTU	kg/billion BTU	kg/billion BTU
NO <sub>x</sub> , FFC Total .....	47.927	199.443	92.415	111.992	4.673
SO <sub>x</sub> , FFC Total .....	11.277	556.691	220.219	30.734	3.270

DOE proposes to use these emission conversion factors in conjunction with NEMS to conduct environmental assessments for energy conservation standards rulemakings. The environmental assessment estimates changes in emissions from GHGs and other pollutants that would result from the implementation of a new energy conservation standard. The NEMS model uses information on fossil fuel energy consumption and fuel-specific emissions factors to estimate CO<sub>2</sub> emissions, which are projected over approximately a 25-year time horizon (currently 2035, as determined by EIA).

NEMS model energy projections can be used along with the emissions factors from the GREET model to determine the current and projected emissions for CO<sub>2</sub>, and CH<sub>4</sub> and N<sub>2</sub>O in CO<sub>2</sub>-equivalents. If DOE adopts this approach, it will likely provide tables in future Technical Support Documents that indicate how primary energy savings and/or emission reduction values generated by the NEMS model are then converted to estimates of FFC energy savings and/or emission reductions using conversion factors similar to those reported in Tables 4–6. The FFC emission reduction estimates included in standards rulemaking documents are likely to remain limited to the total cumulative emission reduction values now reported for each candidate standard level.

DOE proposes to use the energy savings and/or emission reductions generated by the NEMS model and the emissions factors produced by the GREET model to project emissions for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NO<sub>x</sub>, and SO<sub>x</sub> for environmental assessments. DOE seeks public comment on the proposed methodology for determining FFC GHG and other emissions.

#### Policy for Disseminating Information to Consumers

The Academy has recommended that DOE work with the FTC to provide consumers with information about FFC energy use and emissions of individual appliances so that the public can make more informed purchasing decisions. In particular, the Academy recommended that “DOE/EERE (the Office of Energy Efficiency and Renewable Energy) and the Federal Trade Commission should initiate a project to consider the merits of adding to the Energy Guide label an indicator of how an appliance’s total energy consumption might affect levels of greenhouse gas emissions. Such a project would include development of specific data on greenhouse gas emissions associated with the appliance’s operation, formulation of pertinent information for addition to the

appliance’s energy efficiency label, and research with a sample of consumers to test various options for encouraging consumers’ understanding and use of information on FFC energy consumption and its impacts.”

The FTC maintains online databases of the site energy use and efficiency ratings of appliances currently on the market.<sup>2</sup> These databases do not, however, include FFC energy use or any energy cost or emissions-related data. While it is possible to compare the site energy use and efficiency ratings of different products using these databases, such comparisons are often difficult, especially if they involve products that have different features. Furthermore, comparing products that use different fuels is not feasible because there are no comparable measures of energy use or efficiency for products that use different fuels.

DOE proposes to significantly improve upon the FTC’s existing on-line databases by making FFC energy use and emissions data (and possibly annual energy costs data) available to the public. The improved databases could provide tools to enable users to easily compare a product’s energy use, emissions, and costs to similar products, including products that are in different classes, have different features or use different fuels. Additional energy, emissions, and cost data could be included by updating FTC’s online database with the emissions factors developed with the GREET model and the average energy prices reported by manufacturers on appliance Energy Guide labels. DOE is soliciting public comment on whether this proposed online service would likely benefit consumers and, if so, the most effective way to present this information.

The Academy also recommended consideration of “the merits of adding to the Energy Guide label an indicator of how an appliance’s total energy consumption might affect levels of greenhouse gas emissions.” It is unclear, however, whether such additional label disclosures would be valuable to customers unless they could easily compare the GHG emissions associated with one product to other comparable products or other common energy uses. Because the GHG emissions associated with a particular class of products would be directly proportional to that class of products’ estimated annual energy costs, simply comparing an individual product to products of the same class would add little useful information to the label. In addition, providing comparisons to the energy

use, costs or emissions associated with other comparable products of different classes on the Energy Guide label may increase the complexity of the label, making the label more difficult to understand and decreasing the utility of the basic annual operating cost information already on the label.<sup>3</sup> Nevertheless, DOE seeks comments on whether it should provide this type of information on Energy Guide labels and on the issues associated with disseminating this type of information to consumers via such label or by other means.

#### Public Participation

DOE considers public participation to be a very important part of the process for developing this policy document. DOE actively encourages the participation and interaction of the public during the comment period.

The public meeting will be conducted in an informal, facilitated conference style. There will be no discussion of proprietary information, costs or prices, market shares, or other commercial matters regulated by U.S. antitrust laws.

Public meeting participants need not limit their comments to the issues identified. DOE is also interested in comments on other relevant issues. DOE invites all interested parties, whether or not they participate in the public meeting, to submit in writing by October 19, 2010, comments and information on matters addressed in this notice.

Anyone who wishes to participate in the public meeting, receive meeting materials, or be added to the DOE mailing list to receive future notices and information about this policy document should contact Ms. Brenda Edwards at (202) 586–2945, or via e-mail at [Brenda.Edwards@ee.doe.gov](mailto:Brenda.Edwards@ee.doe.gov).

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<sup>3</sup> For most products covered under the appliance label program, Energy Guide labels display estimated annual operating cost as the primary disclosure, with energy use or efficiency displayed as secondary information. These Energy Guide labels also include a range of costs for models of similar size and features (e.g., natural gas water heaters with first hour ratings between 41 and 47). Labels for a few products, such as furnaces and central air conditioners, do not provide operating cost but, instead, display an efficiency measure and display where that efficiency falls in a range of efficiencies for similar models. See 16 CFR Part 305.

<sup>2</sup> Available at <http://www.ftc.gov/appliancedata>.