October 20, 2008

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Re: "Energy Conservation Standards for Residential Refrigerators, Refrigerator-Freezers, and Freezers: Public Meeting and Availability of the Framework Document," 73 Fed. Reg. 54,089 (Sept. 18, 2008).

Docket No. EERE–2008–BT–STD–0012; RIN 1904–AB80

Earthjustice submits the following comments on the Department of Energy's (DOE's) rulemaking framework for residential refrigerators, refrigerator-freezers, and freezers (collectively "refrigerators"). These comments address the impact of CO_2 emissions caps on electricity prices and the emissions reduction benefits of efficiency standards.

Item 8-3: DOE seeks stakeholder input on the planned approach for estimating current and forecasted energy prices.

I. DOE must adjust EIA's electricity price projections to account for the impact of a nationwide cap on carbon emissions.

By the time the standards at issue take effect, it is virtually certain that Congress will have enacted a nationally applicable, mandatory regime to limit CO_2 emissions. The high probability of such legislation, and the fact that the predictions of future energy price trends that DOE uses in its analysis do not assume a fee for CO_2 emissions from power plants means that, if DOE fails to incorporate a value for CO_2, its electricity price assumptions will be unjustifiably low.[1] This reduces estimates of the operating cost savings of more efficient products, which arbitrarily weakens the economic justification for stronger standards.

Estimates of the future emissions allowance costs under a mandatory nationwide CO_2 reduction regime are readily available. For example, DOE's own analysis of the impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007, revealed that implementation of this legislation – the most likely starting point for a future U.S. greenhouse gas cap and trade

[1] *See* Energy Information Administration (EIA), *Annual Energy Outlook 2008* (AEO 2008) (2008) at 16 ("The potential impacts of pending or proposed legislation, regulations, and standards . . . are not reflected in the projections."), *available at* http://www.eia.doe.gov/oiaf/aeo/index.html.

regime – would lead to a CO_2 allowance price of $30 per tonne in 2020, rising to $61 per tonne in 2030.[2]

II. Even if DOE refuses to consider the impact of a future nationwide cap, DOE must adjust EIA's electricity price projections to account for the effects of existing regional carbon caps.

Although it is virtually certain that Congress will impose a nationwide cap on CO_2 emissions before the standards under review take effect, should DOE refuse to revise EIA's projections of future electricity prices to reflect a nationwide cap, the Department must nevertheless account for the fact that future price of electricity will be affected by existing regulatory measures not factored into the AEO. Many states are participating in regional cap and trade schemes to reduce CO_2 emissions. These regional pacts either already impose or will impose binding limits on CO_2 emissions from power plants that will increase the future cost of electricity.[3] However, the AEO does not include these programs in its projections.[4] Thus, to develop a realistic picture of future operating cost savings for the products at issue, DOE must account for the impacts of these regional programs on the future price of electricity.

For example, the Regional Greenhouse Gas Initiative (RGGI), which includes the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont, imposes a mandatory cap on CO_2 emissions from electricity generation in these 10 states, effective January 1, 2009. RGGI seeks to reduce power sector CO_2 emissions by 10 percent between 2009 and 2018.[5] RGGI held its first auction of CO_2 emissions allowances on September 25, 2008, yielding a clearing price of $3.07 for all allowances offered.[6] However, RGGI's annual CO_2 emissions budget declines beginning in 2015, from just over 188 million short tons down to less than 170 million short tons of CO_2 in 2018.[7] Thus, it is likely that the allowance price for CO_2 emissions will increase as the supply of allowances constricts in future years. Accordingly, modeling of the impact of RGGI on energy prices projects a regionwide increase that ramps up to approximately 2.8 percent by 2024.[8]

Similarly, the Western Climate Initiative (WCI), which includes the states of California, Washington, Oregon, Montana, Arizona, New Mexico, and Utah, has recently released its design guidelines for the WCI's own cap and trade program. WCI's cap and trade program, which will

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[2] EIA, Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007 (2008), at 12 Table 3, *available at* http://www.eia.doe.gov/oiaf/servicerpt/s2191/index.html.

[3] *See, e.g.*, VT. CODE R. 12 031 002 (regulations implementing cap on power sector CO_2 emissions in Vermont).

[4] EIA, *AEO 2008* (2008) at 29.

[5] *See* RGGI, *Overview of RGGI CO_2 Budget Trading Program* (Oct. 2007) at 2, *available at* http://www.rggi.org/docs/program_summary_10_07.pdf.

[6] Robin Shulman, *Carbon Sale Raises $40 Million*, WASH. POST, Sept. 30, 2008, at A4.

[7] RGGI, *Overview of RGGI CO_2 Budget Trading Program* at 3.

[8] ICF Consulting, *IPM Results* (Oct. 11, 2006), *available at* http://www.rggi.org/about/history/modeling.

cover electricity generation, will launch January, 1 2012.[9] WCI aims to reduce regionwide emissions of six greenhouse gases, including CO_2, to 15% below 2005 levels by 2020.[10] While the percentage reduction objective of WCI is similar to RGGI's goal, there is reason to believe that WCI will have a greater impact on electricity prices. Specifically, WCI will address emissions leakage by regulating electricity generated outside of the region once it enters the WCI region for consumption.[11]

In sum, substantial evidence supports the proposition that the mandatory caps on CO_2 emissions that RGGI and WCI have established will increase the price of electricity in participating states. These increases in electricity prices will improve the cost-effectiveness of stronger standards by increasing the magnitude of operating cost savings for more efficient products. Thus, to adequately assess whether standards are economically justified DOE must adjust the EIA's projections of electricity price trends to account for the impact of RGGI and WCI.

<u>Item 15-1</u>: DOE invites comments on how to estimate such monetary values associated with CO_2 emissions reductions or on any widely accepted values which might be used in DOE's analyses.

I. DOE must consider the economic impact of standards on CO_2 emissions allowance prices.

The presumption that a nationwide cap on CO_2 emissions will be in place by the effective date for the standards at issue also means that DOE must calculate the economic benefit to the nation as a whole of the reduction in CO_2 allowance prices that will result from the standards at issue. Moreover, even if DOE refuses to recognize the impending enactment of a nationwide cap, DOE must calculate the economic benefit of the reduction in CO_2 allowance prices under RGGI and WCI that will result from the standards at issue. DOE has already recognized that for pollutants subject to an emissions cap, the impact of efficiency standards in reducing the demand for and price of emissions allowances constitutes an economic benefit.[12]

II. DOE's analysis of the economic justification for standards must adequately account for the value of the avoided environmental harm from CO_2 emissions.

[9] WCI, *Design Recommendations for the WCI Regional Cap and Trade Program* (Sept. 23, 2008) at 12, *available at* http://www.westernclimateinitiative.org/ewebeditpro/items/O104F19865.PDF.

[10] WCI, Statement of Regional Goal (Aug. 22, 2007) at 1, *available at* http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf.

[11] WCI, *Design Recommendations for the WCI Regional Cap and Trade Program* at 22-23.

[12] *See, e.g.*, 73 Fed. Reg. 58,772, 58,814 (Oct. 7, 2008) ("the lower generation requirements associated with energy conservation standards could potentially put downward pressure on the prices of emissions allowances in cap and trade markets").

In the Framework Document, DOE announced that it "will consider the use of monetary values to represent the potential value of [CO_2] emission reductions."[13] This statement incorrectly implies that DOE could rationally decline to monetize the value of reductions in CO_2 emissions and incorporate them into its analysis of the economic justification for standards. On the contrary, DOE must assign a monetary value to the reductions in CO_2 emissions that efficiency standards will provide. Failure to do so would be arbitrary, capricious, and contrary to law.

Congress required DOE's analysis of the economic justifiability of potential standard levels to address the economic benefits that accrue to the nation as a whole. In addition to the statutory factors that relate exclusively to the manufacturers and consumers of refrigerators, EPCA mandates that DOE consider "the need for national energy . . . conservation."[14] Thus, in determining whether a standard is "economically justified," DOE is not free to ignore economic benefits that are shared by the nation as a whole.

Moreover, while projecting cumulative reductions in physical quantities of emissions is an important facet of the Department's compliance with the National Environmental Policy Act, DOE must go further to satisfy EPCA's requirement to assess the economic benefits associated with the need for national energy conservation. DOE must convert those emissions reductions into their accompanying economic value for the purposes of its economic justification analysis. DOE cannot rationally weigh the economic benefit of reduced emissions unless it actually calculates the economic dimension of those emissions reductions. We note that OMB guidance provides that agencies are to monetize costs and benefits whenever possible.[15]

DOE must incorporate these economic benefits into its analysis of the nationwide net present value of potential standard levels. The Department currently analyzes the costs and benefits of standard levels from the perspective of individual consumers of the regulated product and then aggregates these consumer impacts into a national net present value. However, this analysis is not a truly *national* analysis. It ignores that saving significant amounts of energy impacts consumers broadly, not just users of the regulated product. The only rational way to weigh the benefits and burdens of efficiency standards as the statute requires is to incorporate into an analysis of those economic effects that reflect the need for national energy conservation.

Failure to assign an economic value to CO_2 emissions is tantamount to valuing those emissions at zero, an approach that the United States Court of Appeals for the Ninth Circuit recently determined is arbitrary and capricious.[16] As in the rulemaking at issue in *Center for Biological Diversity v. NHTSA*, DOE's selection of appliance efficiency standards already involves the monetization of several uncertain economic outcomes, such as increases in maintenance and installation costs. Exclusion of CO_2 emissions reduction benefits from the

[13] DOE, *Framework Doc.* at 61.

[14] 42 U.S.C. § 6295(o)(2)(B)(i)(VI).

[15] OMB, Circular A-4 (2003) at 27.

[16] *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1203 (9th Cir. 2008).

Department's net present value analysis on the basis of alleged uncertainty as to their precise measure would therefore be arbitrary and capricious.[17]

Recently, the Department has begun monetizing the value of carbon emission reductions in a range from $0 to $15 with an annual price escalation of 2.4%, based on estimates from the Intergovernmental Panel on Climate Change.[18] DOE selected as the upper bound the mean value of peer reviewed estimates from Dr. Richard Tol's 2005 meta-analysis, while the lower bound is based on both the possibility that the domestic share of the global cost of carbon emissions will be minimal and the presence of negative values in Dr. Tol's study.[19]

We intend to submit more detailed comments on this issue at a later stage of the rulemaking demonstrating that the upper and lower bounds DOE has recently used are arbitrarily low. In sum, there are several fundamental problems with setting the upper bound of the range of CO_2 values at $15. This figure is based on an analysis that greatly underestimates the social cost of carbon. Further, setting the lower bound at $0 is also arbitrary for several reasons. For example, DOE's argument that assuming a zero value as the low bound reflects the domestic share of global benefits of CO_2 emissions reductions is arbitrary and unreasonable.

<u>Item 15-2</u>: Because court actions have vacated the CAIR, DOE seeks stakeholder input on how it should address NO_x emissions in this rulemaking.

Although CAIR has been vacated, it is likely that future legislation will establish a new cap and trade regime to control NO_x emissions, and such regime is almost certain to be more stringent than CAIR. DOE must continue to monitor developments in this area as the rulemaking progresses.

<u>Item 15-3</u>: Because court actions have vacated the CAMR, DOE seeks stakeholder input on how it should address Hg emissions in this rulemaking.

DOE must assign an economic value to account for the avoided environmental and human health damage costs associated with mercury emissions. Failure to monetize and analyze these benefits would be arbitrary and capricious for the same reasons discussed above with respect to CO_2.

<u>Item 15–4</u>: Are there any other environmental factors DOE should consider in this rulemaking? If so, what are they and why should they be considered?

I. Sulfur Dioxide (SO_2)

[17] *See id.* at 1202 (NHTSA's failure to monetize CO_2 benefits is arbitrary and capricious in light of the agency's monetization of other uncertain benefits).

[18] 73 Fed. Reg. at 58,813-14.

[19] 73 Fed. Reg. at 58,814.

Although DOE maintains that standards will not result in a physical reduction in emissions of SO_2, this assertion does not obviate DOE's obligation to consider the economic benefits associated with the impact of these efficiency standards on power plant SO_2 emissions. DOE claims that efficiency standards would not affect the overall level of SO_2 emissions in the United States due to the caps on power plant emissions of SO_2.[20] More specifically, because the Clean Air Act Amendments of 1990 established a "cap and trade" system for power plant SO_2 emissions, DOE claims that "the effect of energy conservation standards on physical emissions will be zero because emissions will always be at or near the ceiling."[21]

There are a number of problems with this assertion. First, it relies on the premise that the SO_2 cap is the controlling constraint on SO_2 emissions. In fact, if reductions in demand for electricity are sufficiently large, they would reduce nationwide power plant SO_2 emissions below the level of the cap, and DOE has not explained why this would not occur here. Moreover, even if the SO_2 cap remains the controlling constraint, the efficiency standards at issue would affect the overall level of SO_2 emissions in the United States for two reasons. First, there are power plants that are not subject to the cap – i.e. existing units with a generation capacity less than or equal to 25 megawatts.[22] Second, the Clean Air Act's SO_2 emissions cap applies on an annual basis, but these efficiency standards would affect SO_2 emissions on a daily basis. The standards at issue would therefore mitigate adverse impacts associated with short-term exposure to SO_2 emissions.[23]

However, even if DOE's assertion that emissions trading programs negate the effect of efficiency standards on physical emissions is correct (a point which we do not concede), the Department must still evaluate the economic benefits of the standards' effects on allowance prices. DOE recognizes that its efficiency standards can decrease the demand for SO_2 emissions allowance credits, which reduces compliance costs for power plants.[24] However, DOE simply asserts, without citing any analysis, that it "does not plan to monetize" this benefit because the impact of any one efficiency standard on the allowance price is "likely small and highly uncertain."[25] This statement is particularly surprising in light of DOE's admission that one module of its National Energy Modeling System software is specifically designed to calculate the impact of changes in energy consumption on SO_2 allowance prices.[26]

Given that DOE clearly has the analytical means at its disposal, the Department's reluctance to accurately assess the economic benefits of stronger efficiency standards is simply inexcusable. Exclusion of these benefits from DOE's analysis is arbitrary, and serves only to artificially depress the economic value of stronger efficiency standards.

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[20] DOE, Framework Doc. at 61.

[21] *Id.*

[22] *See* 42 U.S.C. § 7651a(8).

[23] *See* 40 C.F.R. § 50.4(b) (24-hour air quality standard for SO_2).

[24] DOE, Framework Doc. at 61.

[25] *Id.*

[26] *Id.*

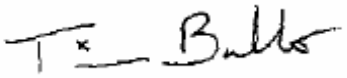
II. Particulate Matter (PM)

DOE should also calculate and monetize the value of the reductions in emissions of PM that will result from the standards at issue. In the past, DOE has refused to calculate PM emissions reductions in efficiency standards rulemakings because PM pollution consists of both primary and secondary emissions.[27] However, DOE's mere assertion that PM formation is "complex" does not excuse the Department from considering the impact of reductions in PM in standards rulemakings. The Department has not explained why this alleged complexity prohibits calculating the impact of efficiency standards on PM emissions. Moreover, even if it were physically impossible for DOE to ascertain the impact of efficiency standards on secondary PM emissions, that would not justify the Department completely ignoring primary PM emissions in its analysis. Thus, DOE would still have to calculate the impact on primary PM emissions.

In previously refusing to calculate PM emissions reductions, DOE has also asserted that PM emissions are not "driven significantly by . . . electric utility power plants."[28] This is not an accurate statement. According to 2003 emissions estimates from EPA, power plants emit 22.1% of all anthropogenic PM_{10} and 22.7% of all anthropogenic $PM_{2.5}$.[29] Thus, power plant emissions are a significant source of PM pollution, and it would be arbitrary and capricious for DOE to ignore the impact of efficiency standards on PM emissions on this basis.

Thank you for the opportunity to participate.

Sincerely,



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[27] *See* 71 Fed. Reg. at 44,384.

[28] DOE, *Environmental Assessment for Proposed Energy Conservation Standards for Residential Dishwashers, Dehumidifiers, and Cooking Products, and Commercial Clothes Washers* at EA-1.

[29] Office of Transportation and Air Quality, EPA, NATIONAL EMISSIONS TRENDS – UPDATED 7/18/2005 (complete tables of national emissions estimates), *available at* http://www.epa.gov/airtrends/2005/econ-emissions.html.