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STATE OF VERMONT
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April 3, 2017

BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Hon. James R. Perry, Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Re: Failure to Submit Final Rules for Publication in Federal Register/ 60-Day Notice Letter for Violation of Energy Policy and Conservation Act, 42 U.S.C. §§ 6291 *et seq.* and Error Correction Rule, 10 C.F.R. § 430.5(f)

Dear Secretary Perry:

We write to express our deep concern over the failure of the Department of Energy ("DOE") to submit for publication in the Federal Register five energy efficiency standards the agency issued in December 2016.[1] These efficiency standards, applicable to air compressors, commercial packaged boilers, portable air conditioners, walk-in coolers and freezers, and uninterruptible power supplies, were promulgated under the Energy Policy and Conservation Act ("EPCA"), 42 U.S.C. §§ 6291 *et seq.* These standards, developed with extensive input from interested stakeholders, were set forth in "final rules" signed and dated by the DOE Assistant Secretary, and posted for pre-publication error correction review pursuant to 10 C.F.R. § 430.5.

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1 https://energy.gov/sites/prod/files/2016/12/f34/Compressors_Standards_Final_Rule.pdf;https://energy.gov/sites/prod/files/2016/12/f34/CPB_ECS_Final_Rule.pdf; https://energy.gov/sites/prod/files/2016/12/f34/PAC_ECS_Final_Rule.pdf; https://energy.gov/sites/prod/files/2016/12/f34/WICF_ECS_Final_Rule_0.pdf; https://energy.gov/sites/prod/files/2016/12/f34/UPS_ECS_Final_Rule.pdf.

As such, the standards represent the culmination of DOE's substantive review and analysis, and reflect the agency's determination that they will result in significant energy conservation, are technologically feasible, and economically justified. 42 U.S.C. § 6295(o)(2)(a). The period for submission of correction requests under DOE's error correction rule has closed, and the time for DOE's required submission of the rules for publication in the Federal Register has also passed. We therefore urge DOE to immediately publish the standards in full compliance with its statutory obligations under EPCA and the Administrative Procedure Act, 5 U.S.C. §§ 551 *et seq.*

This letter serves as notice, pursuant to 42 U.S.C. §§ 6305(a) and (b), that DOE's failure to submit the five standards for publication in the Federal Register violates the Department's non-discretionary duty under EPCA and the DOE's error correction rule, 10 C.F.R. § 430.5(f). In the event DOE fails, or refuses, to perform its discrete, non-discretionary duty within 60 days, the undersigned states intend to commence litigation seeking, among other things, an order directing DOE to immediately submit the rules for publication in full compliance with the law.

I. Energy Policy and Conservation Act, 42 U.S.C. §§ 6291 *et seq.*

Adopted in the aftermath of the 1973 oil crisis, the Energy Policy and Conservation Act of 1975 created a comprehensive approach to federal energy policy. Congress' primary goals in adopting EPCA included reducing domestic energy demand and increasing energy efficiency. EPCA Chapter III, Part A establishes the Energy Conservation Program for Consumer Products Other Than Automobiles, 42 U.S.C. §§ 6291-6309, and gives DOE the authority to develop, revise, and implement minimum energy conservation standards for a variety of appliances and equipment. 42 U.S.C. § 6295. Although Congress established initial federal energy efficiency standards for almost two dozen consumer and commercial products, Congress also imposed upon DOE the nondiscretionary duty to propose and complete rulemakings by specified deadlines to consider revising these standards. For the most part, states are preempted from establishing their own efficiency standards for products regulated by DOE, 42 U.S.C. § 6297, making timely and full implementation of the law by DOE all the more important.

EPCA provides that when considering whether to revise an efficiency standard for a consumer product, DOE must select that standard that is "designed to achieve the maximum improvement in energy efficiency ... which the Secretary determines is technologically feasible and economically justified." 42 U.S.C. § 6295(o)(2)(A). Under EPCA's anti-backsliding provision, 42 U.S.C. § 6295(o)(1), DOE lacks authority to weaken an energy efficiency standard once it has been established by Congress or by a subsequent rulemaking. *See NRDC v. Abraham*, 355 F.3d 179 (2d Cir. 2004). For most types of commercial equipment covered by the statute, as with consumer products, DOE must periodically revise the initial efficiency standards.

II. Economic and Environmental Benefits of Energy Efficiency Standards

DOE is authorized under EPCA and its amendments to set minimum energy conservation standards for approximately 60 categories of appliances and equipment used in residences and businesses. It is widely-recognized by federal, state and local governments, industry, the scientific community, consumers and society at-large, that appliance efficiency standards are feasible and economical. A February 2017 report by the Appliance Standards Awareness Project

(ASAP) and the American Council for Energy Efficient Economy (ACEEE) entitled, "Energy-Savings States of America: How Every State Benefits from National Appliance Standards" indicates that consumers and businesses saved an estimated $80 billion on utility bills from existing standards in 2015, and that savings from these standards will grow to nearly $150 billion by 2030.[2] On a cumulative basis, counting both costs and benefits for products sold between 1987 and 2035, total net present value savings from national standards is estimated at $2.4 trillion for U.S. consumers and businesses. According to DOE's website, "Standards saved American consumers $63 billion on their utility bills in 2015, and cumulatively, have helped the United States avoid 2.6 billion tons of carbon dioxide emissions." Thus, DOE's efficiency standards for appliances significantly reduce U.S. energy consumption, lower emissions of greenhouse gases, and save consumers billions of dollars annually. In fact, recent data show that appliance efficiency standards provide the second largest energy savings of all energy conservation programs and initiatives, utility sector energy-efficiency programs, federal tax incentives, and other major national initiatives.[3]

III. DOE Final Rules Setting Efficiency Standards for Air Compressors, Commercial Packaged Boilers, Portable Air Conditioners, Walk-in Coolers and Freezers, and Uninterruptible Power Supplies

In December 2016, DOE concluded its multi-year efforts to develop and/or update efficiency standards for air compressors, commercial packaged boilers, portable air conditioners, walk-in coolers and freezers, and uninterruptible power supplies by issuing final rules, signed by DOE's Assistant Secretary for Energy Efficiency and Renewable Energy, setting forth new energy conservation standards. For each product rule, DOE determined that the newly adopted standard represents the "maximum improvement in energy efficiency that is technologically feasible and economically justified, and will result in significant conservation of energy." Prior to publication in the Federal Register, DOE posted pre-publication versions of the final rules on its website to begin the error correction review process specified under 10 C.F.R. § 430.5.[4]

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[2] https://appliance-standards.org/sites/default/files/Appliances%20standards%20white%20paper%202%202-14-17.pdf

[3] See Appliance Standards Awareness Project, April 6, 2016 Press Release, "Little Known Federal Appliance Standards Rank as #2 Energy-Saving Tool in U.S., Will Play Major Role in Meeting Paris Climate Target". https://appliance-standards.org/sites/default/files/Appliance%20Standards%20national%20news%20release.pdf In 2014, energy savings from appliance standards was surpassed only by EPA/NHTSA's corporate average fuel economy (CAFE) standards for cars and trucks.

[4] DOE's error correction rule, 10 C.F.R. § 430.5(f), provides in pertinent part:

> (f) Publication in the Federal Register.
> (1) If, after receiving one or more properly filed requests for correction, the Secretary decides not to undertake any corrections, the Secretary will submit the rule for publication to the Office of the Federal Register as it was posted pursuant to paragraph (c)(1) of this section.
> (2) If the Secretary receives no properly filed requests after posting a rule and identifies no Errors on the Secretary's own initiative, the Secretary will in due course submit the rule, as it was posted pursuant to paragraph (c)(1) of this section, to the Office of the Federal Register for publication. This will occur after the period prescribed by paragraph (c)(2) of this section has elapsed.

A. Error Correction Rule, 10 C.F.R. 430.5

Under the DOE's "error correction rule," 10 C.F.R. § 430.5, DOE is required to post a final rule establishing or amending an energy efficiency standard on the agency's publicly-accessible website for 45 days prior to submission for publication in the Federal Register. The rule affords DOE and interested parties a limited window of opportunity to alert the agency to non-policy errors (i.e., typographical, calculation or numbering errors) in the regulatory text of a final rule, and request corrections. It further provides DOE a period of time (up to 30 days) to consider correction requests and make any necessary corrections before submission of a rule for publication. Thus, DOE's own rules require that it submit a final standard-setting rule—as originally posted or with corrections—to the Federal Register for publication within 30 days after the close of the 45-day correction request and review period. Only in the event of extenuating circumstances, such as where an error relates to a particularly complex engineering analysis, is departure from these time restrictions permitted.[5] DOE has acknowledged that it "takes the timelines in EPCA as signals of congressional concern that standards rulemakings should not be unnecessarily delayed." 81 Fed. Reg. at 57753.

By its terms, the error correction rule does not permit DOE to maintain a signed final rule in a state of limbo: that is, issued but non-enforceable for lack of publication. To the contrary, in specifying that "DOE will submit the rule for publication," the error correction rule imposes a non-discretionary duty to do so within the permitted timeframe (within 30 days after the 45-day correction request period). 10 C.F.R. § 430.5(f)(3). Where DOE receives no correction requests for a final rule, it must submit the rule for publication as-is, "in due course." 10 C.F.R. § 430.5(f)(3).

The term "will" imposes a mandatory duty no different than the terms "shall" or "must." *Summit Packaging Sys. v. Kenyon & Kenyon*, 273 F.3d 9, 12 (1st Cir. 2001) (interpreting contractual phrase "will be submitted" and citing Black's Law Dictionary). The error correction rule therefore commands the DOE Secretary to timely submit the rules for Federal Register publication. This is a discrete, non-discretionary agency action that a reviewing court may compel as "agency action unlawfully withheld or unreasonably delayed." 5 U.S.C. § 706(1); *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 62-65 (2004). The non-discretionary nature of DOE's duty to publish the rules is further supported by DOE's acknowledgement that "the posting of an energy conservation standards rule signals the end of DOE's substantive analysis and decision-making regarding the applicable standards."[6] Furthermore, "the Department posts a

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(3) If the Secretary receives a properly filed request after posting a rule pursuant to (c)(1) and determines that a correction is necessary, the Secretary will, absent extenuating circumstances, submit a corrected rule for publication in the Federal Register within 30 days after the period prescribed by paragraph (c)(2) of this section has elapsed.

[5] 81 Fed. Reg. 57745, 57750 (Aug. 24, 2016).

[6] 81 Fed. Reg. at 57751.

rule with the appropriate official's signature only after concluding its deliberations and reaching decisions on the relevant factual determinations and policy choices."[7]

We are aware of no error correction requests received by DOE for four of the five final rules. And although several correction requests by industry were posted on DOE's commercial packaged boilers rulemaking docket, none of them appear to have identified errors as defined by the error correction rule. Under these circumstances, DOE's time to transmit the five rules (including the commercial boilers rule) for publication expired, at the latest, on March 15, 2017.[8] But DOE has yet to submit the rules for publication in accordance with 10 C.F.R. § 430.5(f).

B. Consequence of DOE's Failure to Publish the Five Efficiency Standards

The consequence of DOE's failure to publish the rules is significant. The rulemaking dockets for each of the standards identify significant reductions in electricity consumption and pollution emissions that will be achieved as a result of the rules.[9] A summary of these estimated energy savings and the emissions reductions is presented in Appendix A to this letter.[10] Summaries of the estimated monetized value of these benefits are presented in Appendix B.[11] Both appendices are attached hereto and incorporated by reference. Yet, with continued publication delays, the projected economic, environmental and public health benefits of the rules will also be delayed, as manufacturers' compliance dates are measured from the rules' effective dates.[12]

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[7] 81 Fed. Reg. 26999 (May 5, 2016).

[8] DOE was required to submit the air compressor rule to the Federal Register for publication by no later than February 21, 2017.

[9] For example, the new standards for walk-in coolers and freezers are expected to yield a 24% savings in energy use for those products over a thirty-year period. Similarly, the estimated cumulative reduction in CO2 emissions through 2030 is equivalent to emissions resulting from the annual electricity use of more than 783,000 homes. Walk-In Coolers and Freezers Final Rule (WICF Rule) (posted December 28, 2016) at pp.12-13.

[10] This summary is based on figures presented in DOE's cost-benefit analysis for each of the five final rules and estimates prepared by the Appliance Standard Awareness Project.

[11] These summaries were prepared by DOE and presented in Air Compressor Final Rule (posted December 5, 2016), Table I.3, Summary of Economic Benefits and Costs of Adopted Energy Conservation Standards for Air Compressors at pp.13-14; Commercial Packaged Boilers Final Rule (posted December 28, 2016), Table I.3, Selected Categories of National Economic Benefits and Costs of Energy Conservation Standards for Commercial Packaged Boilers (TSL2) at p.14; Portable Air Conditioners Final Rule (posted December 28, 2016), Table I.3, Selected Categories of Economic Benefits and Costs of New Energy Conservation Standards for Portable Air Conditioners (TSL2) at p.13; WICF Rule , Table I.3, Selected Categories of Economic Benefits and Costs of Adopted Energy Conservation Standards for the Considered WICF Refrigeration Systems (TSL3) at pp.15-16; and Uninterruptible Power Supplies Final Rule (posted December 28, 2016), Table I.3, Selected Categories of Economic Benefits and Costs of Adopted Energy Conservation Standards for UPSs at pp.12-13.

[12] For walk-in coolers and freezers, DOE estimates that the new standards will result in net benefits of over $200 million annually. WIFC Rule, Table I.4, Selected Categories of Annualized Benefits and Costs of Adopted Standards (TSL3) for WICF Refrigeration Systems at p.18. Thus, even a delay of several months can result in a significant loss of economic benefits from the rule.

Thus, leaving the final rules in regulatory "limbo" has very real, negative economic and environmental consequences, essentially frustrating Congress' energy conservation goals under EPCA. Without the benefit of enforceable efficiency standards for air compressors, commercial packaged boilers, portable air conditioners, walk-in coolers and freezers, and uninterruptible power supplies, electricity and natural gas consumption will increase, as will energy bills for states, municipalities and their residents and businesses. Increases in fossil fuel consumption as a result of reduced efficiency will lead to increased emissions of air pollutants that negatively impact public health and the environment, including carbon dioxide and other climate-changing gases. Finally, DOE's failure to adopt improved efficiency standards will also impede state and municipal energy policies that rely on conservation and gains in energy efficiency as part of an overall strategy to transition to cleaner, safer, or more sustainable energy sources.

IV. Citizen Suit Claim for Failure to Perform Non-Discretionary Duty

DOE's failure to timely submit the five final rules for publication in the Federal Register violates the requirements of the error correction rule, and is actionable in a citizen suit under EPCA, 42 U.S.C. § 6305(a). Section 42 U.S.C. § 6305(a)(2) allows commencement of a civil action in federal district court against DOE, after 60-day notice to the Secretary, for "an alleged failure . . . to perform any act or duty under this part which is not discretionary." 42 U.S.C. § 6305(a)(2). We therefore urge DOE to perform its duty under EPCA and the error correction rule, 10 C.F.R. § 430.5(f), to transmit the five final rules for publication. In the event DOE fails to do so, we intend to pursue litigation to compel performance of that duty in compliance with EPCA and DOE's error correction rule. Other parties not signatories to this letter may also join this litigation with respect to the same claims covered by this letter.

Sincerely,

ERIC T. SCHNEIDERMAN
Attorney General of the
State of New York

By: Timothy Hoffman /LSK

Timothy Hoffman, Assistant Attorney General
Lisa Kwong, Assistant Attorney General
Office of the Attorney General
Environmental Protection Bureau
The Capitol
Albany, New York 12224
Tel: (716) 853-8465
(518) 776-2422
Email: Timothy.Hoffman@ag.ny.gov
Lisa.Kwong@ag.ny.gov

XAVIER BECERRA
Attorney General of the
State of California

By: Somerset Perry /LSK

Somerset Perry, Deputy Attorney General
Jamie Jefferson, Deputy Attorney General
Office of the Attorney General
California Department of Justice
1515 Clay St., 20th Floor
Oakland, California 94612
Tel: (510) 879-0852
Email: Somerset.Perry@doj.ca.gov

GEORGE JEPSEN
Attorney General of the
State of Connecticut

By: Matthew Levine /LSK

Matthew Levine, Assistant Attorney General
Robert Snook, Assistant Attorney General
Office of the Attorney General
55 Elm Street
Hartford, Connecticut 06141-0120
Tel: (860) 808-5250
Email: Robert.Snook@ct.gov

LISA MADIGAN
Attorney General of the
State of Illinois

By: James Gignac /LSK

James P. Gignac, Assistant Attorney General
Illinois Attorney General's Office
69 W. Washington St., 18th Floor
Chicago, Illinois 60602
Tel: (312) 814-0660
Email: jgignac@atg.state.il.us

JANET T. MILLS
Attorney General of the
State of Maine

By: _____

Katherine Tierney, Assistant Attorney General
Office of the Attorney General
State House Station 6
Augusta, ME 04333-0006
Tel: (207) 626-8800
Email: katherine.tierney@maine.gov

BRIAN E. FROSH
Attorney General of Maryland

Office of the Attorney General
200 Saint Paul Place, 20th Floor
Baltimore, Maryland 21202
Tel: (410) 576-6330
Email: cquattrocki@oag.state.md.us

MAURA HEALEY
Attorney General of the
Commonwealth of Massachusetts

By: _____

I. Andrew Goldberg, Assistant Attorney General
Environmental Protection Division
Joseph Dorfler, Assistant Attorney General
Energy and Telecommunications Division
Office of the Attorney General
One Ashburton Place, 18th Floor
Boston, Massachusetts 02108
Tel: (617) 963-2429
(617) 963-2086
Email: andy.goldberg@state.ma.us
joseph.dorfler@state.ma.us

ELLEN F. ROSENBLUM
Attorney General of the
State of Oregon

By: Paul Garrahan /csk

Paul Garrahan,
Attorney-in-Charge
Natural Resources Section
Jesse D. Ratcliffe,
Senior Assistant Attorney General
Oregon Department of Justice
1162 Court Street, N.E.
Salem, Oregon 97301-4096
Tel: 503-947-4342
Email: paul.garrahan@doj.state.or.us
jesse.d.ratcliffe@doj.state.or.us

ALEXANDRA C. CHIARUTTINI
Chief Counsel for Pennsylvania Department of
Environmental Protection
PA Bar No. 80428

By: Robert Reiley /csk

Robert A. Reiley
PA Bar No. 61319
Department of Environmental Protection
Office of Chief Counsel
400 Market Street, 16th Floor
P.O. Box 8464
Harrisburg, PA 17105-8464
Tel: (717) 787-4449
Email: rreiley@pa.gov

THOMAS J. DONOVAN, JR.
Attorney General of the
State of Vermont

By: Laura Murphy /csk

Laura B. Murphy
Assistant Attorney General
Environmental Protection Division
Vermont Attorney General's Office
109 State Street
Montpelier, VT 05609
Tel: (802) 828-1059
Email: laura.murphy@vermont.gov

BOB FERGUSON
Attorney General of Washington

By: Thomas J. Young /LSK

By: Thomas J. Young
Assistant Attorney General
Washington State Office of the Attorney General
P.O. Box 40117
Olympia, WA 98504-0117
Tel: (360) 586-4608
Email: TomY@atg.wa.gov

ZACHARY W. CARTER
Corporation Counsel of the
City of New York

By: Susan Amron /LSK

Susan E. Amron, Chief,
Environmental Law Division
Sarah Kogel-Smucker, Senior Counsel
New York City Law Department
100 Church Street, Room 6-146
New York, New York 10007
Tel: (212) 356-2070
(212) 356-2315
Email: samron@law.nyc.gov
skogel@law.nyc.gov

cc:
Hon. Maureen Ohlhausen, Acting Chairman
Federal Trade Commission
600 Pennsylvania Avenue, NW
Washington, DC 20580

Appendix A

Estimated Energy Savings and Emissions Reductions*

Product Efficiency Standard	Electricity Saved (billion kilowatt hours)**	Equivalent Annual Electricity Consumption (million households)**	Net Cost Savings ($ billion)**		Emissions Reductions***							
			low	high	CO_2 (million metric tons)	CO_2 (million tons)	SO_2 (thousand tons)	NOX (thousand tons)	SO_2 + NOX (thousand tons)	CH_4 (thousand tons)	N_2O (thousand tons)	HG (tons)
Air compressors	15.6	1.3	0.2	0.4	8.2	9.02	6.5	0.011	6.511	40.8	0.1	0.02
Walk-in cooler/freezers	90	7	1.4	3.2	46	50.6	36	0.058	36.058	218	0.7	0.1
Portable air conditioners	50	4	1.25	3	25.6	28.16	16.4	0.0322	16.4322	124.8	0.4	0.06
Uninterruptible power supplies	87	7	1.3	3	49	53.9	39	63	102	238	0.73	0.13
Commercial packaged boilers	N/A****	N/A	0.5	2	16	17.6	139	3.1	286.6	41	0.1	0.0003

*Estimates are for lifetime energy savings and emissions reductions resulting from products purchased in the 30-year period that begins in the anticipated first full year of compliance with the adopted standards

**Based on estimates by the Appliance Standard Awareness Project (ASAP)

***Based on estimates by the U.S. Department of Energy (DOE)

****Natural gas savings is .27 quadrillion Btu

Table I.3 Summary of Economic Benefits and Costs of Adopted Energy Conservation Standards for Air Compressors*

Category	Present Value billion 2015$	Discount Rate percent
Benefits		
Consumer Operating Cost Savings	0.2	7
	0.6	3
GHG Reduction (using avg. social costs at 5% discount rate)**	0.1	5
GHG Reduction (using avg. social costs at 3% discount rate)**	0.3	3
GHG Reduction (using avg. social costs at 2.5% discount rate)**	0.5	2.5
GHG Reduction (using 95th percentile social costs at 3% discount rate)**	0.9	3
NO_X Reduction†	0.006	7
	0.02	3
Total Benefits‡	0.5	7
	0.9	3
Costs		
Consumer Incremental Installed Costs††	0.1	7
	0.2	3
Total Net Benefits		
Including GHG and NO_X Reduction Monetized Value‡	0.5	7
	0.8	3

* This table presents the costs and benefits associated with compressors shipped in 2022–2051. These results include benefits to consumers that accrue after 2022 from the products shipped in 2022–2051.

** The interagency group selected four sets of SC-CO_2 SC-CH_4, and SC-N_2O values for use in regulatory analyses. Three sets of values are based on the average social costs from the integrated assessment models, at discount rates of 5-percent, 3-percent, and 2.5-percent. The fourth set, which represents the 95th percentile of the social cost distributions calculated using a 3-percent discount rate, is included to represent higher-than-expected impacts from climate change further out in the tails of the social cost distributions. The social cost values are emission year specific. The GHG reduction benefits are global benefits due to actions that occur domestically. See section IV.L for more details.

† DOE estimated the monetized value of NO_X emissions reductions associated with electricity savings using benefit per ton estimates from the Regulatory Impact Analysis for the Clean Power Plan Final Rule, published in August 2015 by EPA's Office of Air Quality Planning and Standards. (Available at www.epa.gov/cleanpowerplan/clean-power-plan-final-rule-regulatory-impact-analysis.) See section IV.L.3 for further discussion. To be conservative, DOE is primarily using a national benefit-per-ton estimate for NOX emitted from the Electricity Generating Unit sector based on an the low-end estimates of premature mortality used by EPA. If the benefit-per-ton estimates were based on the high-end estimates, the values would be nearly two-and-a-half times larger. If the benefit-per-ton estimates were based on the Six Cities study (Lepuele et al. 2011), the values would be nearly two-and-a-half times larger.

‡ Total Benefits for both the 3-percent and 7-percent cases are presented using the average social costs with 3-percent discount rate.

†† The incremental installed costs include incremental equipment cost as well as installation costs. The costs account for the incremental variable and fixed costs incurred by manufacturers due to the proposed standards, some of which may be incurred in preparation for the rule.

Table I.3 Selected Categories of National Economic Benefits and Costs of Energy Conservation Standards for Commercial Packaged Boilers (TSL 2*)

Category	Present Value million 2015$	Discount Rate
Benefits		
Operating Cost Savings	907	7%
	2,585	3%
CO_2 Reduction Monetized Value (using mean SCC at 5% discount rate)**	100	5%
CO_2 Reduction Monetized Value (using mean SCC at 3% discount rate)**	482	3%
CO_2 Reduction Monetized Value (using mean SCC at 2.5% discount rate)**	777	2.5%
CO_2 Reduction Monetized Value (using 95th percentile SCC at 3% discount rate)**	1,468	3%
NO_X Reduction†	35	7%
	99	3%
Total Benefits‡	1,425	7%
	3,166	3%
Costs		
Incremental Installed Costs	350	7%
	609	3%
Total Net Benefits		
Including CO_2 and NO_X Reduction Monetized Value‡	1,075	7%
	2,558	3%

* This table presents the costs and benefits associated with commercial packaged boilers shipped in 2020–2049. These results include benefits to consumers that accrue after 2049 from the equipment purchased in 2020–2049. The incremental installed costs include incremental equipment cost as well as installation costs. The CO_2 reduction benefits are global benefits due to actions that occur nationally.

** The interagency group selected four sets of SCC values for use in regulatory analyses. Three sets of values are based on the average SCC from the integrated assessment models, at discount rates of 5 percent, 3 percent, and 2.5 percent. For example, for 2015 emissions, these values are $12.4/t, $40.6/t, and $63.2/t, in 2015$, respectively. The fourth set ($118/t in 2015$ for 2015 emissions), which represents the 95th percentile of the SCC distribution calculated using a 3-percent discount rate, is included to represent higher-than-expected impacts from temperature change further out in the tails of the SCC distribution. The SCC values are emission year specific. See section IV.L.1 for more details.

† DOE estimated the monetized value of NO_X emissions reductions associated with electricity savings using benefit per ton estimates from the Regulatory Impact Analysis for the Clean Power Plan Final Rule, published in August 2015 by EPA's Office of Air Quality Planning and Standards. (Available at www.epa.gov/cleanpowerplan/clean-power-plan-final-rule-regulatory-impact-analysis.) See section IV.L.2 for further discussion. To be conservative, DOE is primarily using a national benefit-per-ton estimate for NO_X emitted from the Electricity Generating Unit sector based on an estimate of premature mortality derived from the ACS study (Krewski et al. 2009). If the benefit-per-ton estimates were based on the Six Cities study (Lepeule et al. 2011), the values would be nearly two-and-a-half times larger.

‡ Total Benefits for both the 3-percent and 7-percent cases are presented using only the average SCC with 3-percent discount rate.

Table I.3 Selected Categories of Economic Benefits and Costs of New Energy Conservation Standards for Portable Air Conditioners* (TSL 2)

Category	Present Value billion 2015$	Discount Rate Percent
Benefits		
Consumer Operating Cost Savings	1.8	7
	4.1	3
GHG Reduction (using avg. social costs at 5% discount rate)**	0.2	5
GHG Reduction (using avg. social costs at 3% discount rate)**	1.0	3
GHG Reduction (using avg. social costs at 2.5% discount rate)**	1.5	2.5
GHG Reduction (using 95th percentile social costs at 3% discount rate)**	2.9	3
NO_X Reduction †	0.02	7
	0.06	3
Total Benefits‡	2.8	7
	5.1	3
Costs		
Consumer Incremental Installed Costs	0.5	7
	1.0	3
Total Net Benefits		
Including GHG and NO_X Reduction Monetized Value‡	2.2	7
	4.1	3

* This table presents the costs and benefits associated with portable ACs shipped in 2022–2051. These results include benefits to consumers which accrue after 2051 from the products shipped in 2022–2051. The incremental installed costs include incremental equipment cost as well as installation costs. The costs account for the incremental variable and fixed costs incurred by manufacturers due to the proposed standards, some of which may be incurred in preparation for the rule. The GHG reduction benefits are global benefits due to actions that occur domestically.

** The interagency group selected four sets of SC-CO_2, SC-CH_4, and SC-N_2O values for use in regulatory analyses. Three sets of values are based on the average social costs from the integrated assessment models, at discount rates of 5 percent, 3 percent, and 2.5 percent. The fourth set, which represents the 95th percentile of the SC-CO_2 distribution calculated using a 3-percent discount rate, is included to represent higher-than-expected impacts from climate change further out in the tails of the social cost distributions. The social cost values are emission year specific. See section IV.L.1 of this document for more details.

† DOE estimated the monetized value of NO_X emissions reductions associated with electricity savings using benefit per ton estimates from the Regulatory Impact Analysis for the Clean Power Plan Final Rule, published in August 2015 by EPA's Office of Air Quality Planning and Standards. (Available at www.epa.gov/cleanpowerplan/clean-power-plan-final-rule-regulatory-impact-analysis.) See section IV.L of this document for further discussion. DOE is primarily using a national benefit-per-ton estimate for NO_X emitted from the electricity generating sector based on an estimate of premature mortality derived from the ACS study (Krewski et al. 2009). If the benefit-per-ton estimates were based on the Six Cities study (Lepuele et al. 2011), the values would be nearly two-and-a-half times larger.

‡ Total Benefits for both the 3-percent and 7-percent cases are presented using the average social costs with 3-percent discount rate.

Table I-3 Selected Categories of Economic Benefits and Costs of Adopted Energy Conservation Standards for the Considered WICF Refrigeration Systems (TSL 3)*

Category	Present Value billion 2015$	Discount Rate percent
Benefits		
Consumer Operating Cost Savings	1.7	7
	3.8	3
GHG Reduction (using avg. social costs at 5% discount rate)**	0.4	5
GHG Reduction (using avg. social costs at 3% discount rate)**	1.7	3
GHG Reduction (using avg. social costs at 2.5% discount rate)**	2.7	2.5
GHG Reduction (using 95th percentile social costs at 3% discount rate)**	5.1	3
NO_X Reduction†	0.0	7
	0.1	3
Total Benefits‡	3.5	7
	5.6	3
Costs		
Consumer Incremental Installed Costs	0.3	7
	0.6	3
Total Net Benefits		
Including GHG and NO_X Reduction Monetized Value†	3.1	7
	5.0	3

* This table presents the costs and benefits associated with considered WICF refrigeration systems shipped in 2020–2049. These results include benefits to consumers which accrue after 2049 from the products shipped in 2020–2049. The incremental installed costs include incremental equipment cost as well as installation costs. The costs account for the incremental variable and fixed costs incurred by manufacturers due to the adopted standards, some of which may be incurred in preparation for the rule. The GHG reduction benefits are global benefits due to actions that occur domestically.

** The interagency group selected four sets of SC-CO_2, SC-CH_4, and SC-N_2O values for use in regulatory analyses. Three sets of values are based on the average social costs from the integrated assessment models, at discount rates of 5 percent, 3 percent, and 2.5 percent. The fourth set, which represents the 95th percentile of the social cost distributions calculated using a 3-percent discount rate, is included to represent higher-than-expected impacts from climate change further out in the tails of the social cost distributions. The social cost values are emission year specific. See section IV.L.1 for more details.

† DOE estimated the monetized value of NO_X emissions reductions associated with electricity savings using benefit per ton estimates from the Regulatory Impact Analysis for the Clean Power Plan Final Rule, published in August 2015 by EPA's Office of Air Quality Planning and Standards. (Available at www.epa.gov/cleanpowerplan/clean-power-plan-final-rule-regulatory-impact-analysis.) See section IV.M.3 for further discussion. To be conservative, DOE is primarily using a national benefit-per-ton estimate for NO_X emitted from the electricity generation sector based on an estimate of premature mortality derived from the ACS study (Krewski et al. 2009). If the benefit-per-ton estimates were based on the Six Cities study (Lepuele et al. 2011), the values would be nearly two-and-a-half times larger.

‡ Total Benefits for both the 3-percent and 7-percent cases are presented using the average social costs with 3-percent discount rate.

Table I-3 Selected Categories of Economic Benefits and Costs of Adopted Energy Conservation Standards for UPSs*

Category	Present Value billion 2015$	Discount Rate percent
Benefits		
Consumer Operating Cost Savings	2.8	7
	5.6	3
CO_2 Reduction (using avg. SC-CO_2 at 5% discount rate)**	0.37	5
CO_2 Reduction (using avg. SC-CO_2 at 3% discount rate)**	1.7	3
CO_2 Reduction (using avg. SC-CO_2 at 2.5% discount rate)**	2.6	2.5
CO_2 Reduction (using 95th percentile SC-CO_2 at 3% discount rate)**	5.0	3
NO_X Reduction †	0.06	7
	0.12	3
Total Benefits‡	4.5	7
	7.3	3
Costs		
Consumer Incremental Installed Costs	1.4	7
	2.6	3
Total Net Benefits		
Including CO_2 and NO_X Reduction Monetized Value‡	3.1	7
	4.8	3

* This table presents the costs and benefits associated with UPSs shipped in 2019–2048. These results include benefits to consumers which accrue after 2048 from the products purchased in 2019–2048. The incremental installed costs include incremental equipment cost as well as installation costs. The costs account for the incremental variable and fixed costs incurred by manufacturers due to the proposed standards, some of which may be incurred in preparation for the rule. The CO_2 reduction benefits are global benefits due to actions that occur domestically.

** The interagency group selected four sets of SC-CO_2 values for use in regulatory analyses. Three sets of values are based on the average SC-CO_2 from the integrated assessment models, at discount rates of 5 percent, 3 percent, and 2.5 percent. For example, for 2020 emissions, these values are $13.5/t, $47.4/t, and $69.9/t, in 2015$, respectively. The fourth set ($139/t in 2015$ for 2015 emissions), which represents the 95th percentile of the SC-CO_2 distribution calculated using a 3-percent discount rate, is included to represent higher-than-expected impacts from climate change further out in the tails of the SC-CO_2 distribution. The SC-CO_2 values are emission year specific. See section IV.L.1 for more details.

† DOE estimated the monetized value of NO_X emissions reductions associated with electricity savings using benefit per ton estimates from the Regulatory Impact Analysis for the Clean Power Plan Final Rule, published in August 2015 by EPA's Office of Air Quality Planning and Standards. (Available at www.epa.gov/cleanpowerplan/clean-power-plan-final-rule-regulatory-impact-analysis.) See section IV.L.2 for further discussion. To be conservative, DOE is primarily using a national benefit-per-ton estimate for NO_X emitted from the electricity generating sector based on an estimate of premature mortality derived from the ACS study (Krewski et al. 2009). If the benefit-per-ton estimates were based on the Six Cities study (Lepuele et al. 2011), the values would be nearly two-and-a-half times larger.

‡ Total Benefits for both the 3-percent and 7-percent cases are presented using the average SC-CO_2 with 3-percent discount rate.