Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council

November 12, 2013

Ms. Brenda Edwards
U.S. Department of Energy
Building Technologies Program
1000 Independence Avenue, SW
Mailstop EE-2J
Washington, DC 20585

RE: Docket Number EERE–2008–BT–STD–0015/ RIN 1904–AB86: Notice of Proposed Rulemaking for Walk-In Coolers and Freezers

Dear Ms. Edwards:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), and Natural Resources Defense Council (NRDC) on the notice of proposed rulemaking (NOPR) for walk-in coolers and freezers. 78 Fed. Reg. 55782 (September 11, 2013). We appreciate the opportunity to provide input to the Department.

DOE's analysis for the NOPR showed that there are very large, cost-effective potential energy savings from walk-in coolers and freezers: the proposed standards would save 5.39 quads from purchases over 30 years and would yield net present value savings of $8.6-$24.3 billion for purchasers. However, these savings will only be achieved in the field if there is a workable compliance and enforcement regime. We applaud DOE for making significant progress throughout this rulemaking to attempt to design a framework for standards whereby manufacturers, not contractors, are responsible for certification, and we support the approach for the envelope of setting standards for panels and doors. However, we are concerned that the approach for the refrigeration system of treating the complete system as a "component" could result in a standard with a high rate of non-compliance and that would be difficult to enforce. At the DOE public meeting on October 9, there seemed to be consensus among the stakeholders present that it would be preferable to set separate standards for unit coolers and dedicated remote condensing units.

Below we describe an approach that we believe would significantly improve the proposed rule by providing a clear framework under which manufacturers of unit coolers and condensing units would test and certify their respective products. We then address a few additional issues in response to the NOPR.

We urge DOE to adopt separate standards for unit coolers and dedicated remote condensing units. For dedicated remote condensing systems, we understand that in many cases a contractor will purchase a unit cooler from one manufacturer and a condensing unit from a

different manufacturer to match up in the field. We also understand that some refrigeration system manufacturers only produce unit coolers or condensing units, but not both. In situations where the unit cooler and condensing unit are supplied by different manufacturers, it seems unclear as to who would be responsible for compliance and certification and how DOE would enforce the standards. We believe that a workable framework for certification and enforcement for refrigeration systems is especially important since DOE's analysis shows that more than 75% of the potential savings from the proposed standards would come from improved refrigeration system efficiency.

Specifically, we urge DOE to set standards for three types of refrigeration equipment: (1) packaged dedicated refrigeration systems, where the unit cooler and condensing unit are integrated into a single piece of equipment; (2) unit coolers designed to be paired with either a dedicated remote condensing unit or a multiplex condensing system; and (3) dedicated remote condensing units. For packaged dedicated refrigeration systems, no change would need to be made to the proposal in the NOPR. However, this equipment would be in a separate equipment class since it would be the only equipment for which the standards would apply to a complete walk-in refrigeration system. Similarly, for unit coolers, no change would need to be made to the proposal in the NOPR for unit coolers designed to be connected to multiplex systems, but the equipment class would now include all unit coolers designed for use with either a dedicated remote condensing unit or a multiplex condensing system. Finally, there would be a separate equipment class for dedicated remote condensing units, which were not separately analyzed for the NOPR.

Table 1 below shows potential refrigeration system equipment classes for the three types of refrigeration equipment. Each type of refrigeration equipment would be subdivided by operating temperature as proposed in the NOPR: equipment designed for medium-temperature applications and equipment designed for low-temperature applications. For packaged dedicated refrigeration systems and dedicated remote condensing units, these equipment classes would be further subdivided by condenser unit location (indoor and outdoor units) as proposed in the NOPR for dedicated condensing systems.

Table 1. Potential Equipment Classes for Refrigeration System Components.

Refrigeration Equipment Type	Operating Temperature	Condenser Location
Packaged Dedicated Refrigeration Systems (self-contained)	Medium	Indoor
	Low	Outdoor
Unit Coolers (for use with either a dedicated remote condensing unit or a multiplex condensing system)	Medium	--
	Low	--
Dedicated Remote Condensing Units	Medium	Indoor
		Outdoor
	Low	Indoor
		Outdoor

In the NOPR, DOE proposed to further subdivide the dedicating condensing refrigeration equipment classes based on capacity. We do not have specific comments on using capacity to define equipment classes. However, the equipment classes in Table 1 for packaged dedicated

refrigeration systems and dedicated remote condensing units could be further subdivided based on capacity as proposed in the NOPR.

We urge DOE to attempt to ensure that standards for unit coolers and dedicated remote condensing units do not contain any loopholes. As described above, we urge DOE to set separate standards for unit coolers and dedicated remote condensing units. We understand that unit coolers and dedicated remote condensing units that are used with walk-in coolers and freezers can also be applied to other applications. For example, we understand that dedicated remote condensing units can also be used with refrigerated display cases, while unit coolers can also be used in refrigerated warehouses and blast freezers. We also understand that manufacturers will often not know how their unit coolers or condensing units will be used in the field. We are concerned that if the standards only apply to unit coolers and dedicated remote condensing units used with walk-in coolers and freezers, a manufacturer could circumvent the standards by claiming that their product is not designed for use with walk-ins even though it may be clear that it would function perfectly well with a walk-in cooler or freezer.

We see two possible approaches for addressing this potential loophole. The first approach would be to craft a definition that encompasses all unit coolers and dedicated remote condensing units that can be used with walk-in coolers and freezers, regardless of how they are applied in the field. The second approach would be to apply standards to unit coolers and dedicated remote condensing units more broadly. Under the second approach, unit coolers and dedicated remote condensing units meeting certain design or performance parameters would themselves be "covered equipment" under EPCA. We understand that the second approach may require a determination of coverage as a first step. However, we believe that the second approach of broadly defining unit coolers and dedicated remote condensing units would be preferable since it would seem to better ensure that there would be no loopholes.

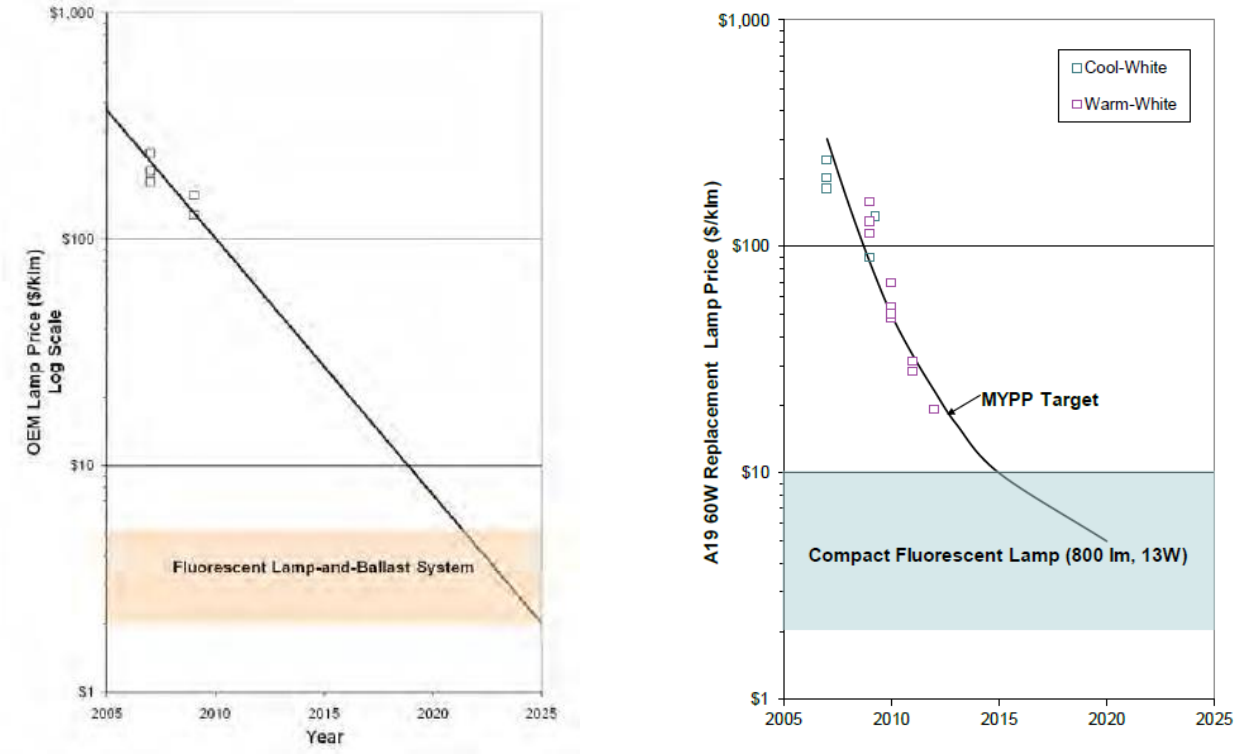
We urge DOE to adopt the maximum cost-effective levels for refrigeration systems. DOE is required to set standard levels that achieve the maximum improvement in efficiency that is technologically feasible and economically justified. DOE has proposed to adopt TSL 4. The TSL 4 levels for envelope components appear to be appropriate. However, for refrigeration systems, we urge DOE to adopt TSL 5 levels, which would deliver even greater cost-effective energy savings than TSL 4. DOE estimates that the TSL 5 levels for refrigeration systems would yield net present value savings for purchasers of $6.9-$19.4 billion.[1] Further, DOE found that 95-100% of customers would experience a net benefit from the TSL 5 levels for refrigeration systems.[2] If DOE adopts the approach for refrigeration systems outlined above, which would establish separate standards for unit coolers and dedicated remote condensing units, the analysis for refrigeration systems would need to be revised. However, we expect that DOE would find that the "max-tech" levels (which are equivalent to TSL 5 in the NOPR) are cost-effective for both unit coolers and dedicated remote condensing units. If this is the case, we would urge DOE to adopt a modified TSL which would combine TSL 4 levels for envelope components with TSL 5 levels for refrigeration system components.

[1] 78 Fed. Reg. 55864.
[2] *Ibid*. 55851-52.

We strongly support the incorporation of LED price projections. In the analysis for the NOPR, DOE incorporated price projections from its Solid-State Lighting Program into the estimates of manufacturing production cost (MPC) for display doors with LEDs as a design option.[3] The incorporation of LED price projections significantly improves the analysis by better reflecting a realistic estimate of LED costs.

As part of the Solid-State Lighting Program, DOE has tracked both the prices of LED luminaires and how they compare to the Multi-Year Program Plan (MYPP) projections of LED luminaire prices. Figure 1 below shows DOE's price projections in the 2010 MYPP (left) and the 2013 MYPP (right). As can be seen in Figure 1, prices have dropped at a faster rate than DOE's 2010 MYPP projected. In the 2011 MYPP, DOE updated the MYPP price targets due to this rapid decrease in prices—DOE found that normalized prices in 2010 had dropped to about $50/klm some two years ahead of the original schedule.[4] In the 2013 MYPP, DOE noted that 2012 prices of about $19/klm are slightly ahead of the MYPP projection (as can be seen in Figure 1).[5] These data suggest that DOE's price projections for LED lamps have actually been somewhat conservative.

Figure 1. DOE Price Projections of LED Lamps ($/klm) in the 2010 MYPP (left) and the 2013 MYPP (right).[6]

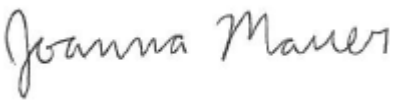


[3] *Ibid*. 55810.
[4] http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/ssl_mypp2011_web.pdf. p. 39.
[5] http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/ssl_mypp2013_web.pdf. p. 12.
[6] http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/ssl_mypp2010_web.pdf. p. 71; http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/ssl_mypp2013_web.pdf. p. 13.

We urge DOE to adopt a compliance date that is 3 years after publication of the final rule. In the NOPR, DOE proposes to provide 3 years for compliance with new standards, but also seeks comment on whether the Department should consider a longer compliance date.[7] DOE's analysis of manufacturer impacts suggests that conversion costs to meet the proposed standards would be modest. For panels, DOE found that significant investment would be required only if a standard required 6-inch panels,[8] while the proposed standards are based on panels no thicker than 5 inches.[9] For display doors, DOE found that the design options assumed to reach TSL 4 (EL 2 for medium-temperature display doors and EL 1 for low-temperature display doors) only require component substitutions and/or additions that can be accommodated by current production lines.[10] For solid doors, DOE found that almost all solid-door manufacturers also produce panels, and therefore these manufacturers would not incur any additional capital conversion costs beyond any conversion costs associated with panels.[11] Finally, DOE found that conversion costs are limited for walk-in refrigeration manufacturers since most of the refrigeration design options could be implemented with component swaps.[12] We urge DOE to adopt a 3-year compliance date since 3 years appears to be feasible for manufacturers and a longer compliance date would result in lost energy savings.

Thank you for considering these comments.

Sincerely,



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[7] 78 Fed. Reg. 55885.
[8] Technical Support Document. p. 12-8.
[9] *Ibid*. p. 10D-3.
[10] *Ibid*. p. 12-28.
[11] *Ibid*.
[12] *Ibid*. p. 12-29.