



**EDISON ELECTRIC  
INSTITUTE**

November 2, 2007

Ms. Brenda Edwards-Jones  
U.S. Department of Energy  
Building Technologies Program  
Framework Document for Home Appliance Products  
Mailstop EE-2J  
1000 Independence Avenue, N.W.  
Washington, DC 20585-0121

RE: Framework Document for Residential Clothes Dryers and Room Air  
Conditioners  
Docket No. EERE-2007-BT-STD-0010

Dear Ms. Edward-Jones:

The Edison Electric Institute (EEI) appreciates the opportunity to submit comments regarding the Department's Framework Document for Residential Clothes Dryers and Room Air Conditioners, which was published at 72 Fed. Reg. 57254 (October 9, 2007) and the workshop which was held on October 24, 2007.

EEI is the association of the U.S. shareholder-owned electric companies, international affiliates and industry associates worldwide. Our U.S. members serve over 97 percent of all customers served by the shareholder-owned segment of the industry. They service 71% of all ultimate customers in the United States. Many of our members are combination electric/gas companies, and provide efficiency services for both fuel types.

These comments will (1) state our views on the Framework document, (2) address some of the important topics raised in the August 23, 2007 Workshop and (3) respond to specific issues on which the Department has sought comment.

EEI believes that energy efficiency has a very important role in our Nation's energy strategy. Our Board of Directors has approved a new EEI Energy Efficiency Initiative. We believe new and advanced technologies and controls provide important new tools to implement efficiency measures and achieve energy savings.

We are pleased that DOE is moving forward with this appliance rulemaking in a timely manner. Room Air Conditioners will have to meet new refrigerant standards as of January 1, 2010, due to regulations of the Montreal Protocol, and clothes dryers are one of the “backlog” products for DOE to catch up to in terms of updated efficiency standards. According to the published DOE schedule, the Department will finalize a rule by June of 2011, with an implementation date of 2014.

### **General Comments / Technical Comments on the Framework Document and Workshop**

- 1) Based on the information in the Framework Document and presented at the workshop, the new DOE standard will take effect after room air conditioners will have to change the refrigerant that they use. To accelerate the rulemaking to provide more energy savings, EEI suggests that DOE work with the Association of Home Appliance Manufacturers (AHAM) and other stakeholders to create a negotiated energy efficiency standard for room air conditioners. It may be possible to have standards for room air conditioners go into effect in 2010 to maximize energy savings and minimize manufacturer costs due to refrigerant standards taking effect in 2010 and efficiency standards taking effect at a later date. A negotiated rule may also be suitable for residential clothes dryers, with a different deadline since refrigerants are not an issue for these products.
  
- 2) EEI agrees with the comments to amend the clothes dryer test procedure to account for lower remaining moisture content (due to newer high efficiency clothes washers that remove more moisture than older clothes washers), fewer use cycles based on RECS data and demographic projections, and the use of automatic cycle termination in more clothes dryers being sold.
  
- 3) EEI agrees that DOE should use updated ANSI and ASHRAE tests for room air conditioners, and also agrees with other stakeholders to keep the EER metric for room air conditioners (rather than using the SEER metric). In terms advanced technologies for DOE to consider for this equipment, EEI suggests that DOE examine the use of variable speed drives for evaporator fans and compressors for possible energy efficiency improvements.
  
- 4) DOE may want to update and expand the definition of clothes dryers to account for new technologies that are in use or will be in use (such as “cabinet” clothes dryers and microwave units that would not include a “tumble type drum” in their application. DOE should make a decision about covering combination clothes washer/dryer units for coverage under this rulemaking. EEI would

support such an expansion if combination units obtain a significant share of new sales (e.g., at least 4 or 5 percent). EEI would also support the addition of other vent-less clothes dryer products.

5) In terms of advanced technologies, EEI is aware that EPRI did research on microwave and heat pump clothes dryers in the 1990's. Unfortunately, the prototypes did not work as well as expected. DOE should contact EPRI to see if there is any recent information about research and development in this area, or if there are any case studies from other countries. If there is no new research, then DOE may want to consider "screening out" these technologies as "advanced" types for efficiency standards.

6) In terms of energy efficiency baseline levels, EEI has questions about the metric for gas clothes dryers. Currently, the baseline is shown as an Energy Factor (EF) of 2.67 lb / kWh. However, natural gas usage is not measured in kWh, but in Btu's or therms or Mcf. Does this metric account for the natural gas and electric usage of the gas clothes dryer, or just the electric usage (tumbler motor and electronic controls)? Are the Btu's of gas converted to kWh using the traditional conversion formula of 3,412 Btu/kWh? It may be more appropriate to create a metric that is something like lb / Btu of total site energy input from heating, motor, and controls. According to the *AGA Gas Facts 2005 Data* book, gas clothes dryers use an average of 5.1 Mcf (about 51 therms, or 51 Million Btu's) per year, with range of 3.4 to 14.5 Mcf depending on the region of the US where the dryer is located. Providing a proper efficiency metric is very important for consumers.

7) In terms of maximum available efficiency versus maximum technology efficiency for room air conditioners, EEI suggests that DOE use values published by AHAM or the Energy Star web site, rather than using values that can not be met or verified currently.

8) In terms of other regulatory changes, one of the workshop participants mentioned that Underwriters Laboratory is creating a new fire safety standard for electric (and/or gas) dryers. This new standard could have an impact on how dryers are produced, and on their energy usage (for example, requiring more sensors or controls to prevent fires).

9) In terms of energy use determination of room air conditioners and residential clothes dryers, EEI supports the use of RECS, utility, and industry data to provide baseline information. In the case of room air conditioners, several factors should

be taken into account: diversity factors, primary/secondary usage, and their use in commercial buildings.

In homes with multiple room air conditioners, there will be diversity factors to account for. Not all of the room air conditioners will operate at the same time or during the same hours or at the same load factor (e.g, a room air conditioner on the West side of the building will operate more in the afternoon than a room air conditioner on the East side of the building). Some homeowners may follow a “cool room only where people are present” philosophy, which would further reduce the estimate operating hours.

There are homes that have central air conditioning systems along with room air conditioners. At the workshop, a representative from LBNL said that these homes that have both central and room air conditioners would be excluded from the analysis. EEI disagrees with this approach, since there could be a significant number of homes with central systems where room air conditioners are used due to poor air circulation, additions (where homeowners did not add new ductwork to serve new areas with existing central systems), occupant preference (“cool room” approach), or entertainment purposes (used only to cool an area when there are a large number of people present). It is likely that the operating hours of “secondary” room air conditioners is much less than with “primary use” room air conditioners, and their usage patterns should be accounted for in the energy use determination analysis.

In addition, there are room air conditioners that are used in commercial buildings (primarily older ones without central systems). DOE should determine the percentage of room air conditioners shipped to commercial buildings, since the usage patterns will be different than in homes (higher operating hours and diversity factors). Also, the energy prices will likely be lower in commercial buildings. If the percentage is significant (at least 5%), then DOE should incorporate this usage into its analysis.

10) In terms of energy prices, EEI agrees with using EIA data. However, for room air conditioners, it would make more sense to use summer prices (June through September for most of the United States), since this equipment is only operated during the summer season. A similar approach was taken with the efficiency standards rulemaking for central air conditioners in 1999 and 2000. For gas and electric clothes dryers, annual energy prices (or monthly prices for the whole year) can be used.

11) In terms of the impact of standards on shipments, DOE should review the impact of room air conditioner efficiency standards that went into effect in 2000, as well as the impact of new clothes washer standards in 2004 and January 2007.

If the data shows an impact from standards on shipments, then DOE should incorporate the results of recent standards into this analysis.

12) In terms of market pull programs, it is likely that more utilities will offer incentives for high efficiency laundry equipment and room air conditioners in the near future. These programs will increase the use of high efficiency equipment, as it is currently defined. DOE should account for the sales of Energy Star room air conditioners and clothes washers in its analysis. In terms of program resources, EEI has a list of investor-owned utility program on its web site, and DOE may want to review the information found at [www.dsireusa.org](http://www.dsireusa.org) for more information.

13) DOE should account for the increase in efficiency standards and water factors of clothes washers that has occurred over the past several years. New clothes washer efficiency standards took effect in 2004 and 2007, and the sales of Energy Star rated and front-loading horizontal axis units has increased dramatically. According to Energy Star program data, sales of Energy Star clothes washers quadrupled from 9% of the total US market in 2000 to 36% of the total US sales in 2005. According to AHAM, over 16% of US clothes washers sold in 2004 were horizontal-axis types, which use far less water, and lower the remaining moisture content dramatically. DOE should account for these factors in the baseline dryer energy usage analysis and the energy savings potential for high efficiency residential clothes dryers.

In addition, according to Energy Star program data, the sales of Energy Star room air conditioners have ranged from 27.1% to 59.1% of all US sales between 2002 and 2006 (with an average market share of 37.8%, based on data shown on the Energy Star web site). The sales of Energy Star units should be accounted for in the baseline energy usage and the energy savings potential calculations for room air conditioners.

14) In terms of utility impact analysis, if DOE tries to analyze avoided electric generation capacity due to room air conditioner and clothes dryer standards, then DOE should also analyze avoided gas production and pipeline capacity due to higher natural gas clothes dryer standards.

15) In terms of the environmental analysis, one of the workshop slides showed the output of the analysis would be “Estimate of national emission reductions of SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, and Mercury.” The Framework discusses the impact of federal legislation (1990 Clean Air Act and Amendments, Clean Air Interstate Rule, Clean Air Mercury Rule), but it does not project the impact of future legislation.

In terms of electric power generation emissions for CO<sub>2</sub>, SO<sub>2</sub>, Mercury, and NO<sub>x</sub>, DOE should account for the rise in renewable portfolio standards and the possibility of an upcoming CO<sub>2</sub> cap and trade program, which would reduce the amount of CO<sub>2</sub> produced per kWh generated.

Federal legislation has reduced the amount of NO<sub>x</sub>, Mercury, and SO<sub>2</sub> emissions over the past 36 years. According to the DOE Energy Information Administration's *Electric Power Annual 2005, 2006, and 2007*, total electric industry SO<sub>2</sub> emissions in 1993 were 14,472 thousand metric tons. Total NO<sub>x</sub> emissions in 1993 were 7,801 thousand metric tons. By 2005, those numbers had dropped significantly, to 9,524 metric tons of SO<sub>2</sub> (a 34.19% reduction) and 3,799 thousand metric tons of NO<sub>x</sub> (a 51.3% reduction). This occurred while total US electric generation, according to the *Electric Power Annual 2007* rose from 3.197 Trillion kWh to 4.064 Trillion kWh (a 27.1% increase). NO<sub>x</sub> and SO<sub>2</sub> emissions will continue to decline in the future, and DOE should account for this trend in the analysis.

## **Conclusion**

EEI believes that DOE has done a thorough and admirable job with the Framework document and workshop. EEI hopes that DOE will consider our suggestions for negotiations and for the upcoming Advanced Notice of Proposed Rule (ANOPR) analysis, and appreciates the fact that DOE is working to catch up to the backlog of appliance energy efficiency standards rulemakings.

EEI sincerely appreciates the opportunity to submit these comments.

Respectfully submitted,

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