August 30, 2010

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-TP-0010 / RIN 1904-AC02: Residential Clothes Dryers and Room Air Conditioners Test Procedures

Dear Ms. Edwards:

This letter constitutes the comments of the American Council for an Energy-Efficient Economy (ACEEE), the Appliance Standards Awareness Project (ASAP), and the Natural Resources Defense Council (NRDC) in response to the Department of Energy (DOE) request for comments on the Supplemental Notice of Proposed Rulemaking for residential clothes dryers and room air conditioners test procedures, and the public meeting held to discuss the document on July 14, 2010. We appreciate the opportunity to provide input into this important process.

In the comments below, we address the issues of primary concern to ACEEE, ASAP, and NRDC. Our comments include recommendations regarding items in the Supplemental Notice of Proposed Rulemaking (SNOPR), with references to the Notice of Proposed Rulemaking (NOPR) where applicable.

Clothes Dryer Testing Procedures to Account for Automatic Cycle Termination

We support DOE's proposal to revise the clothes dryer test procedure to account for the effectiveness of automatic termination controls. DOE test data presented in Figure 0.1 of the SNOPR shows that over-drying energy consumption can be significant—as much as 0.6 kWh per cycle. The proposed test procedure change will provide an incentive to manufacturers to improve the effectiveness of automatic termination controls where necessary, which could result in significant energy savings.

Water Temperature for Clothes Dryer Test Load Preparation

We have found that the current clothes dryer test load preparation with a water temperature of 100° ±5°F is not representative of current consumer clothes washer usage habits.

Representative clothes washer rinse temperature data was gathered from two sources: EIA's Residential Energy Consumption Survey (RECS), and the current clothes washer test procedure.

The 2005 RECS[1] gathered information about the rinse water temperature that consumers usually use. Of respondents that used a clothes washer in their home, 78.5% said they used cold water for the rinse cycle. Additionally, in the current clothes washer test procedure[2], temperature use factors[3] are included as coefficients to indicate the relative frequency of different temperatures assumed to be used by consumers. The temperature use factors indicate that warm rinse is only assumed to be used 27% of the time.

Anecdotal evidence also shows that some clothes washers are now being manufactured without a warm rinse option. Furthermore, support by detergent manufacturers for consumers' increasing use of cold wash and cold rinse temperatures is evidenced by the recent introduction of detergents specifically optimized for these conditions[4].

We encourage DOE to change the water temperature for test load preparation to reflect these consumer usage indicators. At the very least, the test procedure should align with the temperatures used in the clothes washer test procedure. Because the clothes washer test procedure assumes that a cold rinse is used the majority of the time, alignment could be achieved by requiring a cold rinse (60° ±5°F) be used for the clothes dryer test load preparation,

This water temperature adjustment would likely have an effect on measured dryer energy use. Part of the drying cycle involves heating the clothes to induce faster moisture evaporation. If the clothes are rinsed in warmer water they may enter the clothes dryer at a higher initial temperature than clothes rinsed in colder water. This preheating effect may in turn result in faster drying times, especially in clothes dryers equipped with moisture sensor technology. The reduction of drying time would correlate to a lower clothes dryer energy use. Using a water temperature that reflects rinse cycles actually used by consumers would allow the test procedure to better approximate clothes dryer energy use in the field.

Room Air Conditioner Fan-Only Mode

In the NOPR, 705 room air conditioning operating hours were allocated to a "fan-only" mode – a mode in which the fan is used while the compressor is not running. However, a method for measuring energy use while in such a mode is not discussed, nor is the energy use resulting from this mode incorporated into the test procedure in the SNOPR.

Our first recommendation on this issue is that these 705 hours allocated to fan-only mode be accounted for in energy consumption calculations. In the NOPR, fan-only mode is classified as an active-mode. Fan-only mode could be tested by duplicating the existing cooling-mode test method with the exception of running the compressor.

While this would create an easy fix to the problem of the omission of the energy used during these 705 fan-only hours, we would also argue that there is no data to support the assumption that consumers generally run their room air conditioners in fan-only mode for 705 hours a year. While we have not been able to find any data indicating the number of hours typically used in fan-only mode, the very lack of data on the topic would indicate that this mode is not used as commonly as assumed in the SNOPR.

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[1] Energy Information Administration. 2005. *Residential Energy Consumption Survey*.
[2] 10 CFR 430 Subpart B Appendix J1
[3] Ibid, table 4.1.1
[4] Proctor & Gamble. 2005. "News Release: Proctor & Gamble Launches Tide Coldwater, First Detergent Specially Designed to Unlock Benefits of Washing in Cold Water". January 13. http://www.pginvestor.com/phoenix.zhtml?c=104574&p=irol-newsArticle&ID=662489&highlight=coldwater

The Department of Energy selected 705 as the number of hours in fan-only mode by default. This was calculated by dividing equally the 1410 cooling season hours not allocated to active cooling mode into two parts: fan-only mode, and inactive mode.

Because of this arbitrary allocation, our second recommendation on this issue is that the 705 hours be reallocated in such a way as to represent the current consumer usage of fan-only mode. Due to the lack of data on the use of this mode, this would require DOE to perform additional research and data-collection. If no data-collection is able to be performed, a second-best alternative would be to reallocate these hours to active cooling and/or inactive modes. This would at least reflect the lack of data supporting the average consumer use of any fan-only mode.

Network Mode

ACEEE, ASAP, and NRDC agree with PG&E's earlier comments[5] in response to the NOPR with regards to the classification of network mode. If network mode is a mode the appliance would be in at all times, then it should be classified as standby; if it is an intermittent or user-activated condition, it should be considered active mode.

We suggest that DOE's definition of network mode be aligned with the IEC definition. We also recommend creating a test method for network mode. This test method would be similar to the standby test method, but with network connectivity enabled. Units could be tested without actually connecting to a network; simply enabling the network capabilities should be enough to test energy consumption while in a simulated networking state.

We recommend that DOE consider incorporating network mode into energy consumption ratings as the market for network-enabled devices progresses. In the meantime, we suggest that network mode be tested on available appliances, and that research and analysis be conducted on predicted or actual consumer usage in advance of a future revision to the test procedure.

Allocation of Hours to Off Mode and Inactive Mode

In the SNOPR, DOE proposed dividing the standby hours for room air conditioners[6] and clothes dryers equally between off-mode and inactive-mode if both modes are possible, due to a lack of data indicating how these hours are actually allocated. We suggest that DOE conduct research to determine how these hours are commonly divided up in practice. Specifically we are concerned that off-mode usage may differ depending on the mode's user-friendliness, but that this is not accounted for in the current test procedure. For instance, if the method of enabling off-mode for the majority of clothes dryers and room air conditioners were to activate a small switch on the back of the unit, it could be reasonably assumed that very few consumers would take advantage of this "hidden" feature. Crediting 50% of standby hours to off-mode for models that have some sort of off-mode state opens up the test procedure to gaming. The manufacturer could take advantage of the energy rating benefit simply by providing the off-mode option, regardless of how apparent or user-friendly the option was to the consumer. This could lead to misleading metrics regarding the actual energy use of clothes dryers and room air conditioners.

Clothes Dryer Cool-Down Period

We encourage DOE to include the cool-down period as part of the active mode test cycle for automatic termination control dryers. Excluding the cool-down period results in a portion of the energy consumed by a drying cycle not being measured by the test procedure. In addition, as the SNOPR points out, inclusion of the cool-down period could provide manufacturers with an additional option for reducing energy consumption.

[5] Gary Fernstrom representing PG&E, December 17, 2008, NOPR Public Meeting Transcript, page 86.
[6] As stated in the SNOPR, this includes units that have the ability to switch off remote control capabilities.

Clothes Dryers Cycle Length and Active Mode Hours

DOE is proposing to reduce the number of dryer cycles per year from 416 to 283. However, DOE is not proposing to adjust the estimate of 140 annual active mode hours to reflect this lower number of dryer cycles. We recommend that DOE try to obtain data from AHAM on average dryer cycle length and/or test a representative sample of dryers to develop an estimate of average cycle length. The annual active mode hours could then be calculated by multiplying the cycle length by the revised number of cycles per year. This would allow for verifying whether the current estimate of 140 active mode hours is appropriate.

Dividing the assumed 140 hours per year in active mode by the DOE proposed 283 dryer cycles per year results in an average dryer cycle of 30 minutes. According to a report published by Ecos for NRDC[7], average cycle length is 49.5 minutes for dryers with automatic termination controls. Using the Ecos report figures, this would result in 233 hours spent in active mode per year. We recommend basing the number of hours spent in active mode annually on the cycle length multiplied by the average number of cycles per year.

Annual Energy Cost Calculations

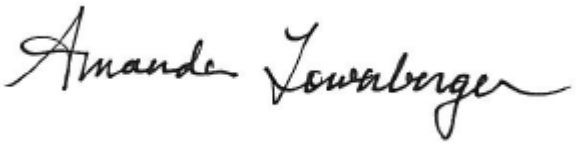
The SNOPR states that DOE is not proposing to amend the annual energy cost calculations for clothes dryers and room air conditioners to include the cost of energy consumed in standby and off modes. The annual energy cost that a consumer pays includes the cost of any energy consumed in standby and off modes in addition to the cost of energy consumed in active mode. Therefore, we encourage DOE to include standby and off mode energy costs in the annual energy cost calculation in order to better represent actual energy costs.

The minimum and maximum energy costs prescribed for the EnergyGuide label will need to be revised when new energy conservation standards go into effect. At that time, the energy consumed in standby and off modes should be able to be incorporated into the revised minimum and maximum energy costs.

[7] Bendt, Calwell, and Morefield. 2010. *Residential Clothes Dryers: An Investigation of Energy Efficiency Test Procedures and Savings Opportunities*. Prepared for Natural Resources Defense Council.

Thank you for consideration of these comments. If you have any questions about these comments, please do not hesitate to contact Amanda Lowenberger (alowenberger@aceee.org, (202) 507-4039).

Sincerely,



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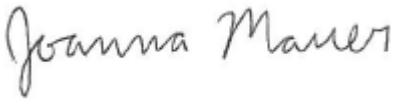

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