

January 29, 2014

Amanda Stevens
US Environmental Protection Agency
Ariel Rios Building 6202J
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. Stevens:

The Consortium for Energy Efficiency (CEE) respectfully submits the following comments in response to the *ENERGY STAR® Draft 2 Version 1.0 of the Residential Clothes Dryer Specification*, released by the US Environmental Protection Agency (EPA) on August 5, 2013 and the ENERGY STAR Clothes Dryer Supplemental Proposal released on December 19, 2013.

CEE is the binational organization of energy efficiency program administrators and a staunch supporter of the ENERGY STAR® Program. CEE members are responsible for ratepayer-funded efficiency programs in 45 US states and seven Canadian provinces. In 2011, CEE members directed \$6.1 billion of the \$7.6 billion in energy efficiency and demand response program expenditures in the two countries. These comments are offered in support of the local activities CEE members carry out to actively leverage the ENERGY STAR brand. CEE consensus comments are offered in the spirit of strengthening ENERGY STAR so it may continue to serve as the national marketing platform for energy efficiency.

CEE highly values the role ENERGY STAR plays in differentiating energy efficient products and services that the CEE membership supports locally throughout the US and Canada. We appreciate the opportunity to provide these comments.

Efficiency Programs Support the Development of an ENERGY STAR Specification for Clothes Dryers

CEE thanks EPA for its work over the past several years to develop a specification for this new product category. Efficiency programs are very interested in supporting high performance clothes dryers and promoting this new energy savings opportunity to consumers. In CEE's prior consideration of clothes dryers, we have continually encountered difficulties with differentiating relative energy performance between products. We recognize that pursuing this scope has been

challenging on a number of fronts; limited data on energy performance, evolving test procedures, and emerging technologies, and so we appreciate EPA's care and consideration during the specification development process.

In spite of these challenges, the release of an ENERGY STAR Clothes Dryer Version 1.0 specification is seen as a positive development for many program administrators. It represents the means to promote a new category of efficient products in the market and to capitalize on the significant savings potential estimated to be available within this product category. CEE members have been eagerly anticipating the publication of this specification, and many are preparing to adopt it into their respective residential portfolios in the near term. We also recognize that some limitations remain regarding test procedures and data sets, and that cost effectiveness will likely vary depending on individual program assumptions. In our comments below, we have outlined our support for the improvements proposed by EPA and highlighted the remaining limitations.

CEE Supports Referencing the New Test Method for Clothes Dryers and hence the Removal of Proposed Automatic Termination Criteria

With respect to test procedures, CEE fully supports EPA's decision to reference the new DOE test method for clothes dryers published in July 2013 (appendix D2), which has been amended to better reflect real world energy consumption. In particular, the previous test procedure specified that the test be stopped manually near the end of the cycle (specifically when the test load reached between 2.5 and 5% remaining moisture content (RMC)). For products without moisture or temperature sensors, the result was then multiplied by a fixed value to account for over drying. In contrast, the amended DOE test procedure specifies that tested units be allowed to run until the completion of the drying cycle, including the cool-down period, to achieve a final RMC of no more than 2 percent.

Given the qualities of the original test procedure, EPA developed automated termination criteria as part of its Draft 1 specification that encouraged the use of energy saving, automatically terminated drying cycles. Due to the improvements in DOE's new test procedure, EPA is proposing to remove these more prescriptive criteria from Draft 2. CEE also now believes that the automatic termination criteria is no longer necessary, and thus supports EPA's decision to omit this requirement and reference the new test method. We are particularly appreciative that the new test method captures full cycle energy use as it enables a level of product differentiation that is necessary and sufficient for program promotion.

Given Remaining Limitations of the Amended Test Procedure, Cost Effectiveness Will Vary By Program

While the amended DOE test method represents a significant improvement over the prior version, programs have expressed concerns with some of its aspects; most notably the character of the test cloths used, and assumptions about the total number of cycles per year. Field testing conducted by the Northwest Energy Efficiency Alliance demonstrated that load composition included cloths of varying thicknesses and dimensions, in contrast with the standard test cloths used in the DOE procedure, resulting in longer drying times. In addition, field testing indicated that the number of cycles per year is likely closer 337 versus DOE's assumption of 283. Based on this data, programs believe that the energy savings estimates generated by the amended DOE test method are likely conservative. As a result, program administrators that need to rely on the energy savings numbers provided by ENERGY STAR expect to find it more challenging to deliver cost effective clothes dryer programs.

Referencing available field data, certain programs have opted to use different baseline assumptions, which in turn, generate different energy savings estimates than those provided by ENERGY STAR. By assuming a greater number of cycles and longer average dry time, these programs contend that they better estimate real world savings, which translates to overall improved cost effectiveness. We do note however that these early programs will be operating as pilots and so haven't yet been vetted by a full regulatory approval process.

CEE Requests that EPA Collect Additional Data Inputs to Support Program Development

Standard, electric clothes dryers have undergone a significant amount of testing and as a result, EPA has made progress towards compiling a good, representative mix of data points. In particular, we reference the *ENERGY STAR® Residential Clothes Dryer Data and Analysis* document provided on August 5, 2013, in conjunction with the release of Draft 2. We understand that the best available data set consists of: 1) the 20 units tested by DOE during the rulemaking process, 2) test data from the CLASP 2013 report *Analysis of Potential Energy Savings from Heat Pump Clothes Dryers in North America* and 3) additional test data submitted by utility stakeholders.

Although EPA has worked to underpin the baseline level for this new ENERGY STAR category with appropriate data, CEE member programs are concerned that the data currently available may present some challenges when justifying program savings to regulators. While programs have the beginnings of a good foundation to claim energy savings for standard, electric clothes dryers, there is less data associated with gas and compact clothes dryers. These clothes dryer categories in particular may not prove cost effective in the near term, depending on individual program assumptions.

Accordingly, to the extent that EPA continues to develop additional energy consumption data based on the new DOE test procedure, access to this information very likely would enhance CEE members' ability to justify increased energy savings numbers to regulators. We therefore encourage EPA to consider approaches for obtaining additional performance data based on the new DOE test procedure, with the goal being to establish a more robust baseline, provided however that generating this data does not unreasonably burden the program's partners.

CEE Supports Setting Maximum Dry Time Requirement but Recommends that it be Based on Consumer Acceptance and Real-World Dry Times

CEE agrees with EPA's objective of identifying a dry time requirement that is long enough to accommodate various drying technologies and afford manufacturers maximum flexibility, while maximizing consumer acceptance of efficient cycles. Based on the ENERGY STAR brand tenet that product performance be maintained or enhanced, CEE supports the establishment of a maximum dry time requirement for clothes dryers as this is a legacy amenity. However, we continue to be concerned that EPA's analysis of the operating cycles of clothes dryers and clothes washers currently on the market does not provide sufficient insight into consumer preferences or levels of satisfaction. In order to ensure that consumers are satisfied with their ENERGY STAR clothes dryer purchase, CEE again recommends that ENERGY STAR collect data in the US and Canada regarding consumer tolerances for acceptable drying times. This research will allow EPA to justify the proposed maximum drying time of 80 minutes as providing sufficient amenity to consumers.

In setting a maximum dry time, we also recommend that EPA carefully consider real-world dry times based on input from manufacturers and results from field tests, as opposed to relying on values derived solely from current test methods, whose limitations have been described above. In an effort to collect additional data, CEE supports EPA proposal to require manufacturer testing and reporting of per-cycle energy consumption and duration of the manufacturer-defined fastest cycle, if different from that tested under Appendix D2. CEE agrees that this is an important first step toward understanding the extent to which clothes dryers are providing consumers with a faster cycle setting than the normal or default mode as well as the energy use and time savings associated with that setting.

CEE Supports the Inclusion of Ventless Configurations

CEE supports EPA's efforts to promulgate specifications that are inclusive of the various technology options present in the market. This approach maintains consistency with the ENERGY STAR guiding principle that equivalent "energy-efficiency can be achieved through one or more

technologies or configurations, such that qualifying products are broadly available and offered by more than one manufacturer”.

In Draft 1 of the specification, EPA proposed to cover just those clothes dryer technologies that were included in the DOE appliance standard program. In response to Draft 1, stakeholders noted that this approach excluded electric ventless clothes dryers; a closely related technology capable of yielding additional energy savings. Stakeholders also indicated that omitting electric ventless clothes dryers had the potential to impede the advancement of high efficiency ventless technologies in the market. In response to stakeholder input, EPA has proposed to include ventless electric clothes dryers in the Draft 2 specification. CEE agrees with the rationale for adding ventless dryer products to the Version 1.0 specification, and finds it to be consistent with the goals of the ENERGY STAR program. We therefore support EPA’s proposal to include this configuration in the specification.

CEE Looks Forward to the Timely Launch of the Clothes Dryer Specification

As currently proposed, the effective date generally aligns with the activities of at least nine CEE members who have either already launched or have provisional plans to launch customer rebates and associated promotional activities relative to the 2013 ENERGY STAR Emerging Technology Award winner. However, we also recognize that significant progress toward market adoption of efficient clothes dryers is likely to remain a challenge until a greater diversity of models enter the marketplace. Given an effective specification at work in the market, programs anticipate being in better position to promote a variety of energy efficient dryers in addition to the 2013 Emerging Technology Award winner.

CEE Comments on “Connected” Criteria

Since 2011, CEE has been actively engaged with EPA and manufacturers to assess the market conditions and specification requirements that would be necessary for the ENERGY STAR Program to successfully address “connected” (i.e. interactive communications with energy consumer devices for energy and non energy related purposes). Below please find our comments, which are consistent with previous comments submitted on the ENERGY STAR Refrigerator Specification, to consider as you evaluate connectivity for residential clothes dryers.

Continue to Deliver Cost-Effective Energy Savings to Consumers

CEE stands committed to assist in supporting the incorporation of “connected” functionality into the ENERGY STAR Program while working to ensure that the Program continues to represent the core tenet of cost-effective energy savings to consumers. We have previously requested a basis to justify a 5% credit for “connected” appliances and expressed concern about compromising measurable energy efficiency benefits. As EPA moves forward with a temporary credit (pending

completion of a suitable DOE test procedure), we believe that ENERGY STAR products must continue to represent cost-effective energy savings independent of the potential benefits of connectivity, and are pleased to see EPA's affirmation of this point.

We Applaud EPA's Commitment to Open, Non-Proprietary Communications and Seek Additional Specification of Pathways to Ensure Consumer Realization of Potential Benefit

CEE applauds EPA's proposal to disallow architectures that do not provide an open, non-proprietary means of achieving grid connectedness with the appliance within the bounds of the customer's premises via interoperability with open standard peripherals and applications. A number of communication technologies and protocols are presently used by consumers depending on available infrastructure and regulatory environments. Maintaining an appropriate focus on openness, function, and communication technology neutrality will allow EPA to define the salient objectives of a "connected" architecture for appliance integration, while avoiding conflicts with the efforts of standards bodies to develop, validate and ratify the evolving portfolio of intelligent grid communications topologies. These bodies include the Institute of Electrical and Electronics Engineers, Society of Automobile Engineers, American Society of Heating, Refrigeration Air-Conditioning Engineers, Consumer Electronics Association, American Society for Testing and Materials, National Institute of Standards and Technology as well as others. We encourage EPA to keep this high-level principle in mind as it develops tight language to ensure open non-proprietary communication.

Such an approach, coupled with the assurance that all communication pathways will be supported by a "connected" product, will ensure that the customer has the ability, and flexibility, to choose how their appliances are connected in the future, and will also avoid any onus on the customer to purchase ancillary devices to fully enable two-way connectedness. EPA's proposal appears to provide the flexibility necessary to allow appliance manufacturers, utilities, and other efficiency and demand response program administrators to support customers' needs. We note the following additional observations:

- While customer-supplied broadband may be a viable way to achieve connectedness within a customer's home, we note that there remains a significant number of customers nationally who do not have broadband and/or wireless access. Furthermore, there are customers who may not be willing to support the use of their broadband connection by the utility or appliance manufacturers. Given that the ENERGY STAR Program is a mass market program, we recommend that a "connected" appliance be equipped to communicate via all major communication pathways so as not to inadvertently preclude or limit market development and participation in potential utility programs. Requiring a standardized modular port is another option that would address the fact that program

administrators operating under diverse sets of conditions (regulatory, terrain, customer density, asset life cycle) are likely to use a variety of communication technologies to reach devices for demand response, energy efficiency, and other amenity afforded by “connected.” A modular approach that is based on an open standard is one option to address this diversity and provide consumers with flexibility

- If in the future, utilities and other third parties are required to interface with each manufacturer’s cloud-based solution, this requirement is likely to result in added cost and complexity. This, in turn, could impact the cost effectiveness of demand response and energy efficiency programs which would ultimately impact customers’ ability to take advantage of appliance “connectedness”.
- Cloud-based solutions could compromise customer data privacy and security due to the introduction of a third party into the flow of customer data and appliance control.
- Requiring that the appliances communicate in an open, non proprietary manner from within the customer’s premises provides the customer with the ability to choose who “manages” their appliances in the future. For example, a customer may choose to pay their local cable company to, in addition to managing cable broadcast recordings, manage when their appliances consume energy based on their current rate structure. However, a few months later, that same customer may decide to allow their security system provider to manage their appliance energy consumption along with their security settings and lighting to maximize savings and comfort. Open access would help ensure that the customer is afforded the ability to choose which offer to participate in based on her own needs and wants.

While we believe that an open, non-proprietary means for achieving two way connectedness with the appliances within the bounds of the customer’s premises should be a base requirement for obtaining “connected” certification, CEE supports alternative means as long as these are supported in addition to those that ensure that the customer has the ultimate say and that emerging communication pathways are not squelched. Further, we note the importance of the program supporting compatibility across multiple products and manufacturers so that customers continue to retain flexibility for future product choice across manufacturers.

Additional Measures are Necessary to Minimize Risk to the ENERGY STAR Brand

CEE members who promote ENERGY STAR are driven by a desire to ensure, to the best of their ability, that the customer has a positive experience following an investment in an ENERGY STAR appliance. If a customer chooses to purchase a “connected” appliance as specified by the trusted ENERGY STAR Program, but is ultimately disappointed with the “connected” functionality or experience, how will EPA mitigate the possibility that both ENERGY STAR and the organizations that promote ENERGY STAR would be subject to a negative backlash? This is

particularly challenging given that much of the amenity that is expected to stem from “connected” is unproven. Significant areas of concern that we believe merit additional consideration and specification include: demarcation between the manufacturer and retailer claims regarding “connected” and the energy performance attributed to ENERGY STAR, the minimum testing for the energy and demand performance of “connected,” and expectations surrounding local utility DR program options (if any).

We support the use of a DOE test procedure (as the legal basis for making representations of energy performance) that includes all energy related aspects specified within “connected”. Further, we support having the minimum functionality that would enable the appliance to participate in a DR or IDSM (integrated demand side management) program to be specified and then verified for inclusion in the ENERGY STAR Program.

EPA has indicated that it will rely on a review of product literature and physical equipment inspections for the required specifications for “connected” that are not related to demand response. Therefore, EPA will be relying on claims by manufacturers, as opposed to testing, for some aspects of what the consumer may associate with a “connected” product. We believe that this strategy may be inadequate but at a minimum, additional planning and safeguards could help mitigate potential negative consequences. One risk mitigation approach to protect the integrity of ENERGY STAR as this new element of the Program is introduced would be to expressly prohibit manufacturer and retailer statements of association between “connected” features and the ENERGY STAR program. Messaging could be limited to the ENERGY STAR Program through the website administered by EPA until the brand effect of this program element is fully understood. Any assertion by manufacturers or retailers that suggests the ENERGY STAR Program is responsible for product performance associated with “connected” features could be grounds for dismissal of the product from the Program. Consultation with FTC regarding the logic and possible expansion of their new *Green Guidelines* to cover “connected” may also prove useful.

To mitigate potential consumer confusion and/or dissatisfaction, we recommend that EPA develop a communications strategy to disclose particular action taken— and when particular additional actions are planned — to allow a product to be listed as “connected” on the ENERGY STAR website product list. CEE recommends that EPA be explicit on the website where “connected” products are identified regarding the requirements and the date that the requirements are effective. We further recommend that EPA note that until a final DOE test procedure is in effect, it is only the manufacturers who are standing behind claims of “connected” functionality.

Consider How to Address Price Signals in Addition to Reliability-Based Signals

Some CEE members are moving towards offering time-based pricing in the residential market. A customer may enroll in a time-based rate to capture the financial benefits of their “connected” appliance. In this scenario, signals sent to an appliance would be price-based, as opposed to reliability-based (examples of reliability-based signals would include Delay Appliance Load [DAL] and Temporary Appliance Load Reduction [TALR]).

Our understanding is that the current US Department of Energy (DOE) draft test procedure for DR functionality only addresses reliability-based signals, though time-based pricing is mentioned as a possible signal type. While reliability will be an important consideration for DR events, the price of power will also be important and could more frequently determine DR events, particularly for purposes of delaying and shifting load. Consequently, a test method that can evaluate the appliance’s ability to respond to price signals will be necessary to verify that the consumer will capture the financial benefits of DR. This is especially true of cycle-based intermittent appliances. The consumer’s ability to shift load to lower price, off-peak periods would be greatly enhanced with price signal capabilities.

We suggest that the DOE and EPA take steps to ensure that “connected” appliances are capable of receiving and responding to price signals as well as reliability-based signals.

Thank you for your consideration of these comments. Please contact CEE Program Manager Eileen Eaton at (617) 337-9263 with any questions.

Sincerely,



Ed Wisniewski

Executive Director