

October 7, 2013

US Environmental Protection Agency  
ENERGY STAR Program  
Ariel Rios Building 6202J  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

To whom it may concern:

This letter includes the comments of Southern California Edison (SCE) on the Connected criteria portion of the Environmental Protection Agency (EPA) ENERGY STAR Draft 2 Version 1.0 Product Specification for Clothes Dryers. SCE's comments on the remaining portions of the Specification are incorporated in joint comments filed by the California Investor Owned Utilities (IOUs).

SCE supports the EPA's effort to introduce demand response and "smart" capabilities in ENERGY STAR appliance specifications; smart products will be a useful tool for utilities and consumers alike to manage their energy use and costs.

From a utility perspective, the financial benefits and peak demand reduction of smart, demand response (DR) capable appliances will depend on a number of variables which can interact in various ways and are not under utility control. It is important to a utility that, despite these variables, DR programs ensure as much reliability and certainty as possible. When a utility or third party sends a signal for a DR event, the DR-capable product, as authorized by the consumer, will respond accordingly to the signal sent and its own capabilities given its then-current state of operation. While the actual response will depend on a number of factors, it is essential that utility DR programs be able to estimate and depend on a reliable response. These factors motivate our comments in this letter.

## **Comments regarding the Draft 2 Version 1.0 Clothes Dryer Specification**

### **1. Connected Demand Response Event Definitions EPA proposes Connected criteria definitions of TALR and DAL based on the 2010 Joint Petition language.**

We support the use of standardized Connected criteria across all appliance types where applicable. However, we believe certain portions of the Joint Petition may be misguided as far as usefulness to utility DR programs. The clearest example is the classification of Temporary Appliance Load Reduction [TALR] events as those with duration of 10 minutes or less. We are not aware of any utility-conducted DR program that would send out such a signal under current program structures.

Additionally, limiting Delay Appliance Load [DAL] response to a maximum event time of 3 hours, as noted in the Joint Petition, is troubling. For other appliances, 4 hours is used as the maximum DAL time. We believe all devices should use the same definition unless there is a significant reason to do otherwise. No clear reason was stated in the Joint Petition.

Further, utility peak periods may be longer than 4 hours. Thus, it would make sense that the events would last for the entire peak period duration. The ability of various appliances to respond to such events would

differ, but we believe the current language in the Joint Petition should be re-evaluated with additional utility input to ensure the most benefit to consumers.

## **2. Response to Price Signals**

**EPA is interested in whether price signals and related consumer feedback are of particular importance for clothes dryers given their schedulable nature.**

In California and across the nation, utilities are moving towards using time-of-use (TOU) pricing. For example, beginning January 2014, small and medium sized non-residential and agricultural/pumping customers of SCE will start transitioning to TOU rates. Currently, almost all SCE residential customers are on a flat rate and are given cash and other incentives for their participation in DR events. It is envisioned that residential customers will shift to TOU rates in the near future as well. A customer that has a Connected appliance or Home Energy Management System (HEMS) will likely be enrolled in a TOU rate to capture the financial benefits of their Connected appliance. This will mean that DR signals sent to an appliance are more likely to be price based signals, not reliability-based signals (such as Delay Appliance Load [DAL] and Temporary Appliance Load Reduction [TALR]).

The current draft test method for DR functionality only tests units using reliability-based signals, though TOU pricing is mentioned as a possible signal type. While reliability will be an important consideration for DR events, the price of power will be more important and will more frequently determine DR events, particularly for delaying and shifting load.

For example, a Connected residential clothes dryer could have a set of operational options that allow the consumer to set a power price limit, above which the appliance will delay load. A test method that can test 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 such as clothes washers. 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 gather stakeholder feedback on using price signals to initiate DR events in the test method. We suggest that DOE and EPA further consider including in the test method, and future DR efforts, a test to determine the Connected unit's ability to respond to a price signal.

## **3. Necessary External Devices**

**The Communication Hardware Architecture requirements do not ensure reliable DR value as currently written.**

In order for DR devices to provide reliable demand reduction, many pieces of hardware must act harmoniously. In recent SCE testing, we have observed that many DR-capable products do not perform as promised when installed in consumer homes. The reasons for underperformance vary, but are commonly attributed to weak communication signals within the home. They may require multiple additional external communicating devices to maintain communication with the Smart Meter or HEMS. Thus, a consumer may have a device that meets the Connected definition but cannot function as a DR asset without additional cost.

The specification (4. B. 2. b. & c.) currently requires that devices have connectivity to an open standards protocol, but do not address the physical limitations that may be present in making that connectivity operational in a real residential setting. Solutions will vary depending on the type of construction, distance between the appliance and communicating device (Smart Meter or HEMS), presence of electrical interference, etc. The specification should require that the potential need for external devices (such as range extenders) should be provided to the consumer at the time of purchase.

#### **4. Response to Multiple DR Signals**

**A Connected clothes dryer should be able to respond to more than one DR signal within a 24-hour period.**

We would like to thank EPA for incorporating our prior comments (on clothes washers) regarding the response of cycle-based appliances to multiple DR signals in a 24 hour period. We believe that these devices can potentially provide demand reduction multiple times in successive operational cycles and the current language makes that achievable.

#### **5. Test Requirements**

**Test method for Connected functionality is still in development.**

We recently conducted several tests of DR-capable refrigerators, clothes washers, and dishwashers at SCE's Technology Test Centers. These tests investigated the various appliances' response to DR signals compared to normal operation. While not directly clothes dryer related, we believe lessons learned are applicable to all appliances and would like to make our findings available to DOE and EPA as well as share insight associated with development of test standards to be followed by manufacturers.

In the near future, we will be installing several connected appliances at customer homes as part of a demonstration project. Data collected will allow much more insight into consumer usage patterns and impacts of DR events on the consumer experience. We plan to make this data available to DOE and EPA as well.

#### **6. Latency of DR Signals**

**DR signal transmission times vary depending on many factors.**

Although not directly called out in the draft specification, EPA staff raised the issue of DR signal system latency. Latency captures the amount of time that passes from DR signal initiation in the utility control room until the signal actually reaches the appliance at a customer site. On SCE's system, the average latency time is typically 2-4 minutes depending on a number of factors, including the distance between the control center and customer site and the amount of data traffic on the network, among others.

#### **7. Operational / DR Status Reporting**

**Status reporting is supported.**

We support the inclusion of status reporting requirements that give information regarding the current operating status for purposes of estimating the magnitude of dispatchable load. Furthermore, for utility evaluation (and potentially rebate program design) purposes, confirmation of load reduction should be included as part of this criteria.

#### **8. Connected definition**

**Allowing multiple methods of connectivity could significantly impact utility DR program design.**

The Final Draft Specification requires: "A product that enables economical and direct, on-premises, open-standards based interconnection is the preferred option for meeting this requirement, but alternative approaches are also available." We request that reference to a known open communication protocol for DR (such as SEP 2.0) be included in this statement. As previous utility comments have indicated, there are trade-offs in terms of functionality for the various methods of interconnection and allowing multiple

methods of communication could significantly impact utility DR program design. For example, it is feasible that a utility would offer more attractive rebates to a customer who purchases a clothes dryer with direct communication through the utility meter, as compared to a consumer who purchased a clothes dryer communicating through a manufacturer's cloud-based solution. Thus, the value to consumers is diminished in the second instance, likely affecting uptake of DR-capable devices.

We thank the EPA and DOE for the opportunity to be involved in this process and encourage the EPA and DOE to carefully consider the recommendations outlined in this letter.

Sincerely,

*I. A. Chisti*

Ishtiaq A Chisti, P.E.

Southern California Edison