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Abigail, Doug and Alan:

I am writing on behalf of EcoFactor, Inc. in regard to Draft 2 of the Energy Star Program Requirements for Residential Climate Controls.

We remain enthusiastically in favor of the draft specification, though we do have a few minor concerns as set forth below.

We recognize that the draft specification has not been embraced by everyone in the thermostat industry. We have the sense that some participants in this process have sought to cast the discussion about the communications provisions of the specification in terms of the current needs and capabilities of utilities in relation to tools like demand response, to characterize the communicating thermostat as a component of the emerging Advanced Metering Infrastructure, and thereby to limit the capabilities of thermostats based upon the architecture of the currently preferred AMI ecosystem.

EcoFactor strongly believes that the driving force behind the new Energy Star specification for residential climate controls should be consumer benefit, not the needs or limitations of utility programs. The fact that some utilities are not set up to use a given form of data does not mean that data isn't useful for consumers. Similarly, the fact that some utilities may not be currently capable of handling a high volume of data does not mean that the capability of generating a large volume of data isn't potentially useful for consumers. As we understand the goals of the Energy Star program, success should largely be measured by the energy consumers are helped to avoid using. This goal may well coincide with the goals of a given utility at a given time. But even if true, the (asserted) fact that a given piece of information will not benefit a utility should be of little or no significance in the EPA's calculus. Consumer benefit should dominate the discussion, and we are confident that the communications portion of the specification will generate significant energy savings, and thus significant consumer value.

We do have concerns regarding a few specific provisions that I would like to raise.

Issue #1: Certification without communication modules

The slides from the July 14 Webinar include the following language on page 5:

The specification now clearly states our intention that Climate Controls may qualify and be labeled before the communication modules intended to work with them are available.

We completely understand that manufacturers will be anxious to reap the benefits of Energy Star labeling (and of their investments in compliance) as soon as possible, and that it could be unfair to require waiting until complying communications modules are widely available. We have no objections in principle to this approach. If sufficiently robust and detailed standards can be implemented for the way in which the field-upgradable thermostats will work once upgraded, this approach can deliver the expected results.

But we can also imagine scenarios in which this approach could be used as a loophole to avoid delivering meaningful compliance with the communications standards. Will manufacturers self-certify compliance? If a thermostat is certified in anticipation of the release of a specific communications module, and it subsequently turns out that the thermostat is incompatible with most or all available communications modules, or that the thermostat is designed to use a module that is never actually produced, how will these situations be handled? It seems inherently problematic to certify (future) compliance in the absence of at least one actual reference communication module.

We agree that the Energy Star specification should not mandate a specific approach to field upgradability or require that specific modules be used for communication. On the other hand, allowing claims of compliance that are based on a thermostat's asserted ability to work with "vaporware" communications modules could easily undermine the purpose of the specification.

We believe the safer course is to require that manufacturers show that a given field-upgradable thermostat will send and receive the required data and commands with at least one commercially available communication module, without specifying the module, protocol, etc.

Issue #2: Battery Power

Requirement #28 provides:

The product shall be designed for a typical battery life of a minimum of 12 months. This requirement is only applicable to products that use batteries.

Running a thermostat solely on battery power (as opposed to siphoning power from a 24VAC supply generally sourced from the air handler) significantly simplifies installation and is a clear benefit. Many non-communicating thermostats have worked this way for years. But as the proposed specification makes clear, wireless communications increase power usage.

Because many communicating thermostats do not run off of batteries, this requirement may be limited in its impact. But there may be some devices that use

batteries for some functions (e.g., operating as stand-alone thermostats) but not others (e.g., communications). We think the specification should make it clear that such devices can continue to use batteries for some but not all functions, or to be flexible in power source choices for communicating devices. Although we hope that it will eventually be possible to run a communicating thermostat for 12 months on a pair of AA batteries, we think it would be self-defeating to mandate that level of performance today.

Issue #3: Recovery Algorithms

Requirement #16 provides:

The product shall be equipped with installer selectable recovery algorithms. When configured for non Heat Pump HVAC installations, the default recovery algorithm shall comply with the definition for Recovery, Adaptive.

We understand that the purpose of the adaptive recovery algorithms is to build energy saving strategies into all qualified thermostats. We also think it likely that, where nothing better is available, a manufacturer's one-size-fits-all adaptive recovery is likely to be of some value. But the ability of a remote service to optimize HVAC usage is likely to be severely compromised if a given thermostat is locked into recovery mode, which can interfere with the ability of a remote service to properly optimize based on outside weather, the unique thermal characteristics of a specific house, etc. We therefore strongly recommend that any pre-programmed recovery mode should be defeatable by software command accessible to consumer-enabled outside management services. Otherwise, the built-in recovery algorithms will significantly impair the ability of external applications to take individually optimized actions to maximize energy savings on a house-by-house, day-by-day basis.

We again thank the EPA for the opportunity to comment on the proposed specification.

Sincerely,

John Steinberg
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