



Ecobee Inc comments to Draft 1 version 2.0 of the EnergyStar Program Requirements for Programmable Thermostats- Tier 1

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The following are comments in regards to Draft 1 of the EnergyStar requirement for programmable thermostat. Each comment references the line number and representative text of the document itself. Furthermore I have added some recommendation for your consideration.

Line # 77- Location of Energy Star logo. The fundamental criticism with the original specification is that savings is wholly dependant on the user. If they do not program the thermostat, or consistently leave it in a long hold, any energy and cost saving will simply not be realized. Consumers need to be informed what impact their choices have. Having the logo permanently fixed on the device does not lend itself to this cause and effect relationship.

Recommendation: Have some indication on the product when the system is in a mode that is either in or out of EnergyStar recommended operating parameters.

Line # 322 Compatible with most HVAC systems including 3 stage heat/2 stage cool. Although ecobee complies with this we believe this to be to restrictive and technology dependant. Most multi-stage furnace manufacturers provide the ability for a multi-stage thermostat to control the staging, or it does it through its own algorithms when just a single stage thermostat is installed. Does the EPA have data to suggest one scenario is more efficient than the other? If so then I believe that information is more useful as a basis for a requirement than what is currently proposed here.

Recommendation: Reconsider this requirement or perhaps implement a classification option to indicate what category of equipment this is rated for (i.e. EnergyStar certified as a single stage, multi-stage, geo-thermal, all of the above).

Line #325:- Support for external temperature sensors. This requirement is technology specific and too restrictive. In the case of ecobee we get the outdoor temperature and humidity reading via an internet weather feed. We believe this to be far superior to a simple external temperature sensor as it also allows us to adjust HVAC usage based on weather forecasts.

Recommendation: Change requirement wording to a “means of determining the outdoor temperature” to support dual fuel heat pump systems. Or expand the definition of external temperature sensor to include other means of determining the local outdoor temperature.

Line 384: Minimum size for fonts. If the intent is to make the characters easy to read then simply specifying a size is ineffective, too restrictive and technology dependant. A simple STN, fixed-character, display (on common thermostats) have poor contrast ratios and therefore require larger characters. However ecobee uses a high definition color touch screen. With our technology smaller characters have arguably the same or better visibility that a 16mm character on an older technology display.

Recommendation: Change the requirement to be less technology dependant. i.e. The primary characters must be clearly visible from a distance of 24 inches from the thermostat, secondary characters from 12 inches. Or allow exemptions for higher quality/contrast technologies.

Line 393: Please clarify “standard time signals”

Line 415: Similar to line 325 above. Specifying an outdoor temperature sensor is too restrictive and technology dependant

Recommendation: Change requirement to simply support a “means of determining the outdoor temperature” to support dual fuel heat pump systems.

Line 428: Maximum wattage ratings. I suggest that this document not specify maximum power usage. This would be restrictive and technology dependant. Some technologies consume more power than others, it would be impractical to determine an appropriate level that covers all the technological possibilities. Conversely setting the maximum too low could restrict innovation.

Recommendation: Make it a requirement for manufacturers to list their maximum operating and standby power consumption. This can be audited by EPA to ensure accuracy.

Line 451: Product to use HAN communications module featuring standardized, low power, low bandwidth communications protocol. This is too restrictive. Ecobee chose to implement a WiFi internet connection as a

means to communicate. We recognize that this is not a solution for everyone but it should not exclude us from EnergyStar certification because it is not low-power, nor low-bandwidth. However it does provide significant benefit to a homeowner in their quest to manage and reduce their overall energy consumption.

Recommendation: Remove reference to technology specific requirements (i.e., low-power, low- bandwidth)

Line 454: Retain Usage Data. More details are required. What is considered usage data, and to what resolution (hourly, daily etc). These responses will have significant impact on cost as the amount of data required affects device memory requirements and cost.

Recommendation: Specify the minimum data required to be stored as well change the term “product” to “system”. This enables more sophisticated systems like the ecobee to meet the intent of storing data, without the restriction of having to keep in on the device itself.

Line 485: Feature to facilitate no new wires for retrofit application where a no common wire is available. This requirement is too restrictive and could impede innovation. Certain technologies and advanced features require power to be on all time. If requiring a common wire is not allowed it could restrict the feature set, usability and value to the consumer. The alternative would be large batteries that are clearly more detrimental to a consumer both in long term cost and environmental impact than running additional wires. It should be up to the consumer or installer to determine if having to run an additional wire is worth the added benefit the product provides.

Recommendation: Remove requirement

Line 488: Use commonly available batteries free of special handling and/or hazardous waste disposal requirements. Is there an applicable standard defining special handling or hazardous waste? Regulations vary (i.e. at the Federal level common alkaline batteries are considered non-hazardous, but various States, California, Alaska etc consider them hazardous.

Recommendation: Specify which nationally recognized standard that defines hazardous or special handling requirements are within the scope of this specification

Generally ecobee is pleased with the direction this specification is heading towards. Our company is built of the pillars of Easy, Smart and Green and we are happy to support any efforts to increase our industry’s commitment to these principals.