

April 26, 2024

To: EPA ENERGY STAR

From: Jena Ginsburg, Generac Power Systems Inc., ecobee

Re: ENERGY STAR 2.0 for Smart Thermostats

ecobee and Generac Power Systems Inc. thank the United States Environmental Protection Agency (EPA) for the opportunity to share these comments regarding the proposed 2.0 update of the ENERGY STAR criteria for Connected/Smart Thermostats.

In 2016, ecobee was one of the first smart thermostats to earn ENERGY STAR certification, helping ensure that customers have access to products that provide significant energy savings. ecobee has been honored to be named EPA's Partner of the Year every year since 2021. We believe our four-time consecutive Sustained Excellence awards underscore the commitment ecobee has to improving energy efficiency and investing in climate change solutions. ecobee has and will continue to develop and deploy solutions that make energy efficiency accessible to all customers. Creating durable, quality products that maximize the technology's lifetime is central to ecobee's business. Our smart thermostats are designed with increased computing power to provide for customers' needs for 10+ years, ensuring that our devices can continue to support the smart features and automations that drive energy efficiency and reduce peak demand. In 2021, Generac Power Systems Inc. acquired ecobee, expanding its energy technologies portfolio. As an industry leader, ecobee submits these comments for consideration to ensure that a competitive marketplace for smart thermostats will continue to innovate, develop and deliver energy efficiency technologies.

Proposed change to the network standby power criteria

In the version 2.0 eligibility criteria, the EPA has proposed to require the network standby average power consumption to be less than or equal to 1W. ecobee believes that reducing the average power requirement from 3W to 1W will dramatically and adversely impact the market for smart solutions. Standby power does not reflect the net benefits of the device itself. Moreover, optimizing power levels consumed by the device itself will not generate significant enough energy savings to justify barring multiple vendors from being ENERGY STAR compliant.¹ ecobee maintains that the dynamic functionality of connected/smart thermostats is paramount to how customers engage with their energy consumption not only today, but also in the future as home energy demands increase. Benchmarking these technologies to 1W will put a cap on solutions that support broader energy efficiency for customers' homes.

Standby power consumption is not a holistic metric of the net energy efficiency benefits of a smart thermostat

ecobee respectfully requests that the criteria for the version 2 specification delineate the functionalities our connected devices support and each component's respective standby power demands. Reducing standby power will limit how *smart* a connected thermostat can be, while only producing **0.1%** incremental annual savings on the average homeowners' heating and cooling.

Table 1

Feature	Description	Approximate use of Standby Power
Core Smart Thermostat	Core functionality of ecobee Smart Thermostats which includes WiFi, touch screen display, occupancy sensing, and 24VAC relay control	~50%
Home Hub Capabilities	Enhanced capabilities that enable ecobee Smart Thermostats to be an energy control hub in a connected home. This includes remote sensor connectivity, control of major energy devices, smart security keypad, viewing doorbell camera, control of door locks, and Voice Control (via Amazon Alexa or Apple Siri)	~50%

As demonstrated in Table 1, ecobee’s products allow customers to engage with their home’s energy consumption beyond the power demand of the core thermostat itself. ecobee’s current thermostat models have been tested to have standby power consumptions up to 1.8W; however, configuring these devices to comply with the proposed V2 specification will limit the technology from engaging customers in various energy efficiency practices. By the EPA’s own calculation methodology, ecobee thermostats save more than 9 percent on home heating and 12 percent on cooling, accounting for annual savings of more than 1185.1 kWh of energy saved and \$190 hundreds of dollars per household.² By contrast, ecobee’s premium smart thermostat consumes just approximately 16 kWh per year, but only costs approximately \$2.50 to power. In all, ecobee’s thermostat saves the average home 74 times the amount of energy it consumes. This significant energy reduction far exceeds the expenditure of energy to power the thermostat itself, underscoring that the proposed 1W criteria does not account for net energy savings on a whole-house basis.

In addition, because ecobee’s thermostats incorporate various smart home hub capabilities in our thermostat, they are being designed to allow the customer to utilize energy management beyond controls for heating and cooling. As part of the Generac Power Systems Inc. family, ecobee’s products not only can encourage efficient temperature controls, soon they will also integrate additional energy management technologies. ecobee maintains that the inherent communication capabilities within these connected devices positions them to further optimize the net energy consumption within a house. However, the proposed standby power criteria will limit future smart thermostats from dynamically integrating broader energy management. The 1W standby power criteria will force manufacturers like ecobee to reduce the capabilities of our solutions and in turn, lessen the reach and impact of devices like smart thermostats.

Limiting these functionalities to comply with 1W standby power standard will also require that customers purchase additional devices to support home controls like air quality monitoring, smart speakers, and security hubs. This will contribute to an overall increase in power demand within a home, rather than utilizing technologies with various functions built within. Because ecobee’s thermostats have already optimized these functionalities in one device, they make these additional controls accessible to more customers without increased costs and without having to power additional devices in the home.

Customer and marketplace impact

As of 2024, ecobee participates in over 95 utility programs offering customers incentives to make smart thermostat technologies accessible. Within these programs, ecobee's largest income qualified program provides 15,000 smart thermostats annually, which would be at risk under the new specification. Likewise, there are over 600,000 ecobee thermostats currently enrolled in utility demand response programs. These connected devices help users respond to the grid's needs by reducing peak energy demand. If ecobee and other providers no longer qualify as ENERGY STAR certified vendors, this will dramatically reduce customer access to smart thermostats through utility marketplaces since most utility marketplaces require ENERGY STAR certification.

The proposed criteria also will reduce the opportunities for customers to engage with smart thermostats in dynamic ways that can reduce energy consumption. ecobee's single hub technology allows customers to easily control not only how they heat and cool their homes, but as detailed above, additional significant energy management. This interaction enables increased awareness around energy consumption and increasingly, is used by electrical utilities to manage grid load during peak energy demand periods. The proposed rule would preclude ecobee from utility programs and reduce the impact that load reduction programs could have on alleviating increased electrical demand.

In addition, the standby power specification will impact ecobee's position as an industry leader, resulting in a marketplace that is less competitive. ecobee highlights that across the smart thermostat industry, standby power is not uniformly operated across competitors. For smart thermostats, computing to support the algorithms that improve energy efficiency of HVAC usage is carried out either in the device directly on its Central Processing Unit (CPU) or in the cloud in a remote data center. However, certain smart thermostat manufacturers also own cloud compute businesses, which allows them a competitive advantage in terms of the operational expense of utilizing such cloud services. For these manufacturers, they may reduce the computational burden of their smart thermostats by offloading calculations to the cloud, which directly reduces the idle power consumption of their smart thermostat. Competitors that do not own cloud computing data centers, like ecobee, must pay very high premiums to take advantage of the same opportunity to reduce idle power consumption by offloading to the cloud. In this way, reducing idle power consumption creates an unfair advantage to smart thermostat OEMs that can more easily and affordably leverage their cloud compute businesses for energy incentive HVAC calculations. All providers should have equal opportunities to contribute to the marketplace and to encourage broader energy efficiency. Maintaining a marketplace where various smart thermostat solutions provide diverse offerings ensures that customers looking to engage dynamically with their energy consumption beyond heating and cooling can do so without penalty.

ecobee's recommendations to EPA for the proposed 2.0 update of the ENERGY STAR criteria for Connected/Smart Thermostats.

ecobee is grateful for the opportunity to provide these recommendations for consideration in the proposed criteria and welcomes continued dialogue with the EPA to maximize the efficiency of our smart thermostats.

Recommendations:

1. EPA will establish criteria to differentiate between standby power consumption for the smart thermostat independent of additional functionalities of the technology. In considering the base allowance for the core thermostat, EPA will design a power specification that does not limit potential energy management functionalities and considers the impact these controls have on total power reduction within the home.
2. EPA will allow participants to delineate the power demand of the core thermostat from additional features, including home hub capabilities. Additional features, such as control of major energy devices, smart security keypad, doorbell camera viewers etc., will not disqualify products from ENERGY STAR compliance.
3. ENERGY STAR certified technologies will quantify for the EPA the power demands of additional functionalities of the device – separate from the core thermostat – to achieve and maintain ENERGY STAR compliance.
4. Recognize that compliance and ENERGY STAR certification are critical components of the smart thermostat business and the new standard may require companies like ecobee to reconfigure core offerings.
 - a. If the EPA significantly reduces the standby power criteria, we request that the EPA work closely with industry to establish sufficient timelines for adoption and enforcement of the new specification to ensure the smart thermostat market can remain robust and competitive for customers.

Respectfully submitted,

Jena I. Ginsburg
Senior Manager, Policy and Regulatory Affairs
Generac Power Systems Inc.