



Formerly Home Performance Coalition

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May 3, 2019

Abigail Daken
Taylor Jantz-Sell
Energy Star Program
Environmental Protection Agency

Dear Ms. Daken and Ms. Jantz-Sell

Thank you for the opportunity to provide comment on the Energy Star Program Requirements for “Product Specifications” for Smart Home Energy Management System (SHEMS) both for the “Eligibility Criteria, Draft 1 Version 1.0” and the “Draft Method to Determine Field Performance.” I am writing to you on behalf of the **Building Performance Association** which has been newly created to combine the Home Performance Coalition, Efficiency First, and Home Energy Magazine to better advance the home and building performance industry through advocacy, education, community building and publications.

Introduction

The Building Performance Association, and its predecessors the Home Performance Coalition (HPC) and the National Home Performance Council (NHPC), have been deeply engaged in the evaluation and use of the “Smart Home” to advance residential energy efficiency since 2013 when NHPC co-hosted¹ and managed the residential half of the first National Summit on Integrating Energy Efficiency & Smart Grid in Washington, DC. NHPC published our first Smart Home report [Making Sense of the Smart Home: Applications of Smart Grid and Smart Home Technologies for the Home Performance Industry](#) in 2014 and has co-hosted a regular Home Energy Management Systems Working Group meetings with the Northeast Energy Efficiency Partnership (NEEP) for five years. Our team managed the first Smart Home sessions at Affordable Comfort Institute (ACI) before it merged into HPC which has held tracks for four years on the Smart Home that have also tracked its evolution. In October 2018, HPC published [Redefining Home Performance in the 21st Century](#) and in April of 2019 HPC hosted the first

¹ With the Association of Demand-Response and Smart-Grid (ADS) and the National Association of State Energy Officials (NASEO)

[SmartOnSmart Workshop](#) to further engage contractors and programs on the benefits of integrating smart technologies into residential energy efficiency upgrades to maximize home energy performance.

The Building Performance Association applauds the Environmental Protection Agency's Energy Star Program for recognizing the important potential of smart energy technology to improve the energy performance of homes. We believe that the Energy Star label is an important guide to homeowners, helping them make smart energy choices and, if well-designed, an Energy Star SHEMS could be instrumental in advancing energy savings in the emerging smart homes market.

Comments

Eligibility, Draft 1 Version 1.0

In addition to the below specific comments and questions on the draft, the Building Performance Association references the October 2018 recommendations in [Redefining Home Performance in the 21st Century: How the Smart Home Could Revolutionize the Industry and Transform the Home-to-Grid Connection](#), especially the need to *Incentive Interoperability*. Each smart technology provider is understandably aiming to get the market edge on their competitors through alliances and secret coding, but this also makes it difficult for new actors to enter the space and it crowds out innovation. It is critical at times like this when policymakers can provide a free benefit (the marketing heft of utilizing the Energy Star label) to market actors that the government encourage the market in ways that drive innovation and energy savings – and in this case collaboration. As noted below, incentivizing interoperability between manufacturers will help to support the viability of and Energy Star label for SHEMS.

1) INTRODUCTION

- The Building Performance Association appreciates that the SHEMS process is looking to ensure that there is flexibility in the guidelines. We would like clarification that the specification “a participating service provider may not market competing SHEMS packages that are not Energy Star certified” does not apply to home performance or HVAC contractors who may offer to install SHEMS but will also provide different thermostats to customers that are not Energy Star or are proprietary to specific HVAC units.

2) DEFINITIONS

- A) e) “Smart Home Service Provider” (elsewhere referred to as a “SHEMS service provider” – see Sec.4 Line 199). The SHEMS “provider owns the brand which the consumer sees when they interact with their SHEMS” and is “able to provide package data and analysis” which could, for example, be a NEST or an ecobee. However, if the customer uses different manufacturers for different devices (lightings, controls, thermostat) then they may not have one SHEMS Provider. This again brings up the need for interoperability and the opportunity for Energy Star to press for manufacturers to

find commonality in their systems so that data sharing and gathering would be more seamless. Yet, there would still be the question if there are multiple manufacturers, would there be one SHEMS Provider (an aggregator of sorts) or can a homeowner only use packages provided by one manufacturer.

- Installation Professional – there is no definition of who can install the SHEMS. While a homeowner could install some of these devices, others are hardwired and would require electrical expertise (based on Sec. 4 Eligibility Criteria). The Building Performance Association assumes that home performance contractors (a significant part of our membership) would be among the professionals that would install Energy Star SHEMS packages. Home performance and HVAC contractors are the primary conduits for sharing energy saving opportunities with the homeowners – they manage the largest energy using device (HVAC) and work with homeowners to consider their energy consumption and comfort. Appropriate guidance for these contractors who will be educating homeowners is important and we and our SmartOnSmart partners would be happy to work with EPA on designing the appropriate criteria.
- J) Open Standards: Home Performance eXtensible Markup Language (HPXML) HPXML is a set of common definitions, based on Building Performance Institute’s BPI-2100 and BPI-2200 data standards, for the attributes of the systems in a home and the computing language that facilitates the quick and easy transfer of home-related data between different market actors. HPXML is an open source common language for the industry’s transactions, making it easier and less expensive to collect and exchange information among contractors, program administrators, implementers, government, evaluation consultants, and other information trading partners. The Building Performance Association manages the HPXML process and would be happy to work with EPA on the appropriate references within SHEMS.

3) SCOPE

- It is unclear from the draft how solar, storage, and other DERs and their separate control devices will participate in this structure. The answer may be that they are excluded, but as controls expand to make buildings more grid-connected, this feature may be needed or at least explained.

4) ELIGIBILITY CRITERIA

- It is noted that the “SHEMS service provider shall maintain documentation that demonstrates compliance to these requirements.” However, the requirements include allowing 4.1-E) “users to configure system preferences, provide feedback, and to adjust how responsive the system is to detected occupancy”. We agree that this is important to the efficacy of a smart technology and the different needs of homeowners, however it is unclear how the SHEMS service provider can ensure the required compliance if the functionality can be altered by the homeowner.
- 4.1-D) Another recommendation in [Redefining Home Performance in the 21st Century](#) is to **improve data access, data transfer policies, and increase data sharing** and the ability of a consumer to access their energy consumption is vital to increasing homeowner understanding of their energy use. Please consider adding, “including

access to utility meter data if available” to the options. Some platforms have access to the meter data and should receive additional support from EPA as these devices help to translate the consumption data for homeowners.

- 4.2-B) The ability for devices to use time of use (TOU) rates is excellent. **Implement Time of Use Pricing** is another recommendation in our report. We also recommend that EPA gather data regarding where SHERMS are being installed to be able to report to states on the up-take of SHERMS in their states. This information would be very useful to public utility commissions and energy policymakers who may be considering the viability of different rate structures.
- 4.3 The need for interoperability is key in building the packages of devices and allowing flexibility to the market. We encourage EPA to find methods to allow for interoperability. Or, due to time constraints, perhaps a SHERMS app to create the connectivity.
- 4.4 Again, the Building Performance Association recommends that EPA collect and share anonymized state-level implementation numbers of SHERMS so that state policymakers will understand the availability of devices to advance innovation in smart grid and connected home policies.
- 4.5 Because the service providers are required to report “aggregated statistical data every six months to the Energy Star Program” our recommendations for state-specific SHERMS penetration should be possible. We recommend the inclusion of state and zip code in the reporting.

5) TEST REQUIREMENTS

- This is an implementation testing procedure when there is no designated implementation provider. Does that mean that this procedure can be performed by a homeowner, handyman, or other technician? Again, we recommend there be a definition for the provider and the Building Performance Association team is already engaged with the development of SmartOnSmart training for contractors where we would be happy to incorporate testing procedures.

6) EFFECTIVE DATE

- The evolving nature of SHERMS means that the current guidelines will need to be altered therefore we recommend that the effective date also have a shelf-life and undertake a review every 18 months to ensure that it evolved with the market.

7) FUTURE CRITERIA REVISIONS

- The Building Performance Association appreciates the anticipation of revisions and recommends that EPA refer to the first SHERMS label as 2019-V1. If it is revised in 2021, that version would be 2021-V2. In this way, contractors, real estate agents, and homeowners will know if their system needs updating and a service professional will know the differences between the versions.

Draft Method to Determine Field Performance

While the Building Performance Association remains interested in the solutions to the questions and methodology outlined, our primary observation is the need for these systems to be able to integrate into existing energy data modeling. There has been a great deal of on-going work to advance data transfer standards (HPXML), the development of a taxonomy of measures that can be utilized in program and multiple listing services (MLS), and other work to ensure secure and clear home energy data evaluation. This is all needed to ensure the proper **valuation** of energy savings data, not only during demand response but as a result of home upgrades. We look forward to a time when SHERMS can assist programs in measuring and monitoring building performance upgrades and providing additional incentives to homeowners and contractors due to measured performance. The Building Performance Association urges EPA to ensure that the Field Performance methodology syncs with the current and on-going work to value energy savings in the home so that the industry has unified metrics.

Conclusion

The Building Performance Association fully supports the objectives of enhancing the delivery of home performance using state-of-the-art tools. However, it is critical that these tools are integrated into the overall efficiency of the home and do not replace the “bread and butter” efficiency elements of insulation, air sealing, HVAC and fenestration. Smart technology can cost-effectively reduce energy consumption and utility costs when combined with policies and programs that incentive reduction such as time-of-use rates and demand response programs. However, smart technology alone does not make a home energy efficient. Issues related to envelope efficiency, health and safety issues pertaining to indoor air quality, ventilation, and moisture control, and HVAC efficiency are critical to making a home energy efficient. A home can be efficient, but not smart; it can be energy smart but not energy efficient.

We are encouraged by the draft SHERMS program requirements and appreciate the opportunity to comment and look forward to working with you as you develop these guidelines. Please do not hesitate to contact me if you have any questions or concerns.

Sincerely,



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