Ford
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July 27, 2018

Abigail Daken
U.S. Environmental Protection Agency
SmartHomeSystems@energystar.gov

Re: Smart Home Energy Management Systems Discussion Guide

Dear Ms. Daken:

Thank you for giving Ford Motor Company the opportunity to provide comment regarding Energy Star's Smart Home Energy Management Systems Discussion Guide. Ford is committed to CO2 reductions and believes that the future of transportation is electrified. Working together to achieve this future will benefit both our customers and the environment.

Vehicle electrification is core to Ford Motor Company. We introduced the Escape Hybrid nearly 20 years ago; our Hybrid and Plug-in vehicles are among the best sellers in the industry. Ford recently announced plans to invest more than $11 billion in electrification by 2022, resulting in a lineup of 40 hybrid, plug-in hybrid and fully electric vehicles.

Based on recent studies,[1] Ford expects up to 88% of plug-in electric vehicle charging to occur at home. Plug-in Electric Vehicles (EVs) consume 2-3 times more energy than the next largest home system. Managing that load can have similar effects as reducing consumption, as related to energy supply, generation costs, and efficiency. We see this as an opportunity to develop smart home energy management capability within our plug-in electrified vehicles. Therefore, we would like to provide you with Ford's perspective on the Energy Star certification for Smart Home Energy Management Systems.

Below are Ford's responses to the Energy Star Discussion Guide questions:

	Discussion Guide Questions	Ford Answers
SCOPE	1. Which products or product capabilities should be included in the basic package?	Product – any product that can be connected in the "cloud" and controlled remotely either manually or by a system.
		Capability - energy management, including scheduling time of use.
	2. What devices and/or capabilities should be included to address miscellaneous energy loads (MELs)?	Device – any device that can be connected in the "cloud" and controlled remotely either manually or by a system.
		Capability - energy management, including scheduling time of use.
	3. Which products or capabilities should be expressly included in scope or encouraged beyond the basic package?	Any products with the capability to receive input/direction from the home/site or utility: • Time of use • Load management
	4. Are there any specific products or product capabilities that should be expressly excluded from scope?	No comment.

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[1] NREL, "National Plug-In Electric Vehicle Infrastructure Analysis," September 2017; IEI, EEI, "Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required," June 2017.

	Discussion Guide Questions	Ford Answers
QUALIFICATION CRITERIA	1. Are there hallmarks of optimization strategies for short term, long term, and partially occupied spaces that have been used or piloted that could provide a general framework for this specification?	Example: evolution of the thermostat model – • Originally enabled scheduling capability (energy management) • Recently added sensors for occupancy and interior temperature (automation) • Now enabled with Wi-Fi for remote programming and occupancy detection (automation) • Future enabled with Wi-Fi to connect with utilities regarding TOU rates and grid services
	2. What strategies are effective to address MELs, using the devices and/or capabilities you mentioned in response to the Scope Feedback Request section, question 2?	See above
	3. What is the range of power use of smart switches when they are supplying power independent of what is plugged in?	No comment.
	4. What is the range of power use of smart plugs when they are not supplying power?	No comment.
	5. Are other measures needed to address this concern?	No comment.
	6. What other data and statistical measures would be helpful to analyze savings potentials realized by the population?	SHEMS can schedule energy consumption at times where the grid will realize other benefits (like reduced CO_2 generation from their generating resources). In this use case, the main measure is the time delta between "non-smart" usage (during peak time – which is usually powered by fossil fuel generation) and "smart" usage which pushes consumption into off peak hours that are more heavily based on renewable generation.
POTENTIAL EVALUATION METHODOLOGY	1. Is it practical to report data from the entire population (defined in the Populations to be Analyzed section)? Alternately, EPA could define a procedure to produce a random sample and require analysis of that.	No, it is not practical to report data from our users. Reporting adds significant cost and burden on product makers while increasing consumer unease with any level of public data-sharing on personal devices.
	2. Is there a way to characterize energy savings from optimized unoccupied hours in terms of how deep the energy savings are (e.g., short term away optimization versus long term vacation modes, periods with pets at home, etc.)?	Occupancy should not be a requirement of the SHEMS certification – not every device requires monitoring occupancy to be effective in energy management.
	3. There are a wide range of ways to determine occupancy, some which require user interaction (e.g., geo-fencing, arming an alarm panel) and some which do not. Do data show a difference in frequency of use, depth of energy savings, or total time optimized based on the type of occupancy detection?	No comment.
	4. How would EPA determine, based on a description of product capability, whether a particular system can respond to occupancy?	No comment.

Finally, Ford would like Energy Star to consider the following additional input for the SHEMS certification:

- Incentives – Plug-in Electrified Vehicles that qualify for the Energy Star SHEMS certification should receive access to incentives if the function is enabled and reported to the incentive provider (e.g. federal, state, and utility).

We appreciate your consideration at this time and look forward to continuing the discussion.

Sincerely,

Steve Henderson
Senior Manager, Vehicle Electrification & Infrastructure
Ford Motor Company