

August 9, 2011

Comments regarding: Residential Refrigerators and Freezers Version 5.0 Specification Framework

Headquartered in Huntington Beach, CA, BSH Home Appliances (BSH) is a subsidiary of Bosch und Siemens Hausgeräte GmbH, the world's third largest appliance manufacturer, headquartered in Munich, Germany. BSH encompasses more than 40 factories and 100 companies in 30 countries, with more than 35,000 employees and sales in excess of \$7 billion. The company's North American products include premium and luxury brands Bosch, Thermador and Gaggenau.

ENERGY STAR® provides an incentive to manufacturers to continuously improve the energy efficiency of their appliances. As the winner of the 2011 ENERGY STAR Award for Sustained Excellence for appliance manufacturing, BSH supports the ENERGY STAR program, and the Environmental Protection Agency's (EPA) efforts to reduce greenhouse gases.

BSH, however, does not support the EPA granting a 5% energy credit for Smart appliances. BSH has come to the following determinations regarding the 5% energy credit for Smart appliances:

- ❖ The appliance itself does not consume less actual energy for the same function just by being Smart.
- ❖ In some circumstances, the actual energy consumption of a Smart appliance can be greater due to interruption and restart of cycles, or additional energy storage at the appliance.
- ❖ It penalizes energy efficient products without Smart functionality, e.g., a non-Smart refrigerator just below the ENERGY STAR threshold will display a higher efficiency than some ENERGY STAR qualified Smart refrigerators.
- ❖ Granting a 5% energy credit can mislead consumers regarding the energy efficiency of the product. With the 5% credit, ENERGY STAR marks will no longer represent the top 25% of energy efficient products.

One component of the EPA's definition for a refrigerator or freezer with Smart Grid functionality is as follows.

"Delay Appliance Load Capability Requirements:

Upon receipt of a signal from a system operator requesting a delay of load for a time duration not exceeding 4 hours, and which does not occur during a defrost cycle, the product shall shift defrost cycles beyond the delay period and do one of the following –

1. Shift ice maker cycles beyond the delay period, or
2. Reduce average wattage during the delay period by at least 9.6 watts relative to average load over a 24 hour period, and may shift this wattage beyond the delay period.
3. This product shall accept at least 1 signal in a 24 hour period."

Based on our analysis, item number 2 penalizes energy efficient appliances.

BSH believes the wattage reduction must be defined as a relative value (percentage) and not as an absolute value (Watts).

Example:

Consider the Thermador T24IR70NSP Single Door Refrigerator

Annual energy consumption: 252 kWh/year -> 0.69 kWh/day

Calculating the average wattage over 24 hours: 28.8W

If we have to reduce 9.6W, this would mean 33%

A reduction of 33% is much more challenging. To do so would mean switching off the refrigerator for an extremely long period, which endangers the cooling performance of the unit during the 4 hour time period.

BSH supports the development, promotion, and use of Smart appliance functionalities. However, as with many appliance and HVAC efficiency functions, they can be overridden by the consumer. As demonstrated in many utility Demand Side Management and Demand Response incentive programs, most utility programmed Smart thermostats are overridden by the consumer, resulting in little or no benefit. We believe consumers will not save from using less energy, but the real consumer benefit from Smart appliances will come as utilities, not just in selected areas but nationwide, implement Time-of-Use and other dynamic utility rates.

Due to the consumer's ability to override any power reduction request from utilities, the 5% credit enables less efficient products to become eligible for rebates, tax credits and/or incentives for ENERGY STAR qualified products. Additionally, not all utilities will be ready for dynamic utility rates and Smart Grid, so many consumers will receive Smart appliance incentives even though no utility Smart Grid infrastructure is in place.

If ENERGY STAR wants to illustrate additional environmental benefits besides energy efficiency, such as Smart appliances or zero Global Warming Potential foam blowing agents, this could be added as a sub-category to ENERGY STAR such as ENERGY STAR Smart or ENERGY STAR Green.

BSH encourages the EPA to continue its transparent promotion of true energy efficient products. To quote the ENERGY STAR Overview of 2010 Achievements, "The American public trusts ENERGY STAR as the national symbol for energy efficiency to inform their purchasing decisions, save them money, and protect the environment. By relying on ENERGY STAR for products, Americans know they can save on utility bills, while reducing the emissions that contribute to climate change." BSH believes that all products, if Smart or non-Smart, should have the same energy threshold for efficiency to qualify for the ENERGY STAR mark.

Andy Sinclair
Sustainability Engineer
252-636-4314