Written Comments from Pentair

Please accept the following initial comments to ENERGY STAR Pool Pumps Connected Functionality Discussion Document August 2012.

- Will the "connected functionality" rating be dependent on the local utility's ability to communicate with the end device for Smart Grid interconnection?
- Demand Response (DR) is a logical first step to establish a network of connected end devices. There are several home automation systems with proprietary processes and protocols. Should we consider separating Smart Grid interconnection and Home Energy Management (HEM) as independent "connected functionalities"?
- Should we consider graduated levels of "connected functionality"? For example,:
    1. DR and/or HEM enabled
    2. DR and/or HEM enabled with daily and weekly scheduling
    3. 1, 2, and data collection
- In real application, the true frequency of DR events may not warrant default scheduling limitations of operation. This will likely turn off the end user. Scheduling should be left to the end user with the penalty of usage during peak periods driven by the price of power.
- The standard does not mention a provision for consumer override. This capability should be included as a global option in the standard with an override usage penalty again driven by the price of power.
- Data collection and recall is useful and important. Besides the home owner, who would be considered an interested party? Utilities have generally expressed an inability to process or manage collected data.
- Is a standards-based modular communications interface universally and unanimously accepted by utilities and home automation companies across the nation? If not, will this likely be adopted by January 2013?
- What level of detail is expected from collected data? Will the standard specify the types of sensors required to capture certain data metrics? Can the appliance manufacture offer suggestions for product monitoring and data capture?
- How will the collected data be used? Primarily for real-time monitoring and short–term historical review?
- What standards for "connected functionality" are being established for other appliance manufactures; Residential Climate Controls, Refrigerators/Freezers, and Room Air Conditioner, plus all other Energy Star rated products?

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Pentair comments to ENERGY STAR Drafts:

1. **Draft 2 Test Method**

   a. **1.3 Product Sub-Types** – Add ***D) Variable Flow Pump: a pump which has an electric motor that automatically adjusts speed to control flow***
   b. **Table 1 in section 4.1** - Add ***230 Volt 60 Hz input power***
   c. **5.2 B) 3) –** Should this be "volt amps (VA)" aka "apparent power" or "volts and amps"?
   d. **6.1 A) 3) a)** - After this initial warm-up period is completed, pumps need only be run for 30 minutes before subsequent tests. ***If pump is stopped during a test for less than 5 minutes, further testing may continue immediately without the 30 minute runtime requirement.***
   e. **6.2 A) 3) d) – Power (W)** - This should be consistent with 5.2 B) 3) - Power (watts and "volt amps?")
   f. **6.3 Standby Mode Testing** – We recommend this test.
   g. **7 References – *ANSI/APSP/ICC-15 2011 American National Standard for Residential Swimming Pool and Spa Energy Efficiency.***

2. **Eligibility Criteria**
   a. **1.3 Product Sub-Types** – Add ***D) Variable Flow Pump: a pump which has an electric motor that automatically adjusts speed to control flow***
   b. **1.5 F) & G) Technical Definitions** – define the constant "1000" and provide units for all variables
   c. **1.5 H)** Time clocks used on two speed pumps will also consume power while in standby mode (also while running)
   d. **1.6 Note:** We do feel the definition adequately characterizes and differentiates residential pumps from commercial. We do however recommend adding ***single phase*** as and additional characteristic for residential since three phase motors are definitely for commercial applications.
   e. **2.1 A) Included Products –**
      i. Multi-Speed, Variable Speed, ***or Variable Flow…***
      ii. References Section 2.B which doesn't exist.
   f. **2.2 A) Excluded Products –**
      i. **NOTE: – Pump Size, ABG, Pump Controls** – Future efforts should include above ground and commercial products. Note that many above ground pumps are sold as an assembled system that incorporates the pump, filter, piping, hoses, and base and the above ground specification should allow for these systems to qualify. A system can be designed and factory constructed for both maximum pump performance and optimal hydraulic efficiency.
   g. **3.1 A) Table 1 –**
      i. "low speed" is used throughout and not clearly defined. Recommend this table allow ***most efficient speed***
      ii. Recommended definition; most ***efficient speed*** is the speed at which the energy factor is highest.
      iii. Energy Factor requirement of $\geq$ 3.8 seems quite low. The minimum allowable should be higher.
   h. **3.1 Notes:** High speed energy factors should not be required

i. **4.1 A) Informational statement** – recommend character height be no less than **1/8”** to be consistent with UL labeling requirements and limited space for such a wordy label.
j. **5.1 B)** A product family approach is recommended for minor variations that do not impact product performance, for example variations in product color, brand name, or private label.
k. **6 EFFECTIVE DATE** – A list of third-party CBs is needed ASAP to meet the February 1, 2013 launch