

# Comments on Pool Pump Connected Functionality – Draft 2 Criteria

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## Section 4

In addition to being identified on Energy Star website as having 'Connected' functionality, manufacturers should be able to "label" their product for 'Energy Star Connected' functionality either on the product, or on marketing materials or both. This is to aid consumer education of the potential of Connected Functionality being used for Energy efficiency improvement.

### *Justification:*

*Energy Star Connected actually shows a potential for the equipment to be more Energy efficient working with an associated connected service. Users need to know if the appliance falls under the "Energy Star Connected" feature so that they can work with the utility programs that will let their Pool Pump be more power efficient. Otherwise this functionality will not bring any Energy efficiency and EPA will not be able to retain this program.*

*And in case of appliances, they have the right to know since the Connected Energy Star appliances can be consuming more energy than non-connected (5% margin) if they don't sign up for smart grid programs*

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## Add Potential of Energy Star as a Service:

Manufacturers may be allowed to retrofit existing Energy Star installations to meet the Connected Functionality requirements. Such products (for e.g., a new controller with Connected functionality that replaces an existing controller, or an external communication module) could be marketed with either a Utility or a third party Smart Energy service provider.

### *Justification:*

*There are 5.5 Million Pool pump installations in the US (Association of Pool and Spa Professionals, U.S. Swimming Pool and Hot Tub Market 2011). Utility studies have found that smart grid participation by these existing pumps can save a lot of energy (e.g. a 2008 Southern California Edison pool pump demand response potential study determined that savings potential ranges from 70 to 170 MW per hour between the hours of noon and 6 pm). This savings come from the service and not just the end equipment or any hardware in between. In order to promote these services, EPA should allow Energy Star as a service from Utilities and third parties. The energy savings from these services are directly measurable and hence can be managed and improved as well over time*

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## Sec 4.2

### B) Note

[Suggested inclusion]

The consumer should be able to find out CPPS that allows Open Standard Communication on premises allowing user choice of Utility / Service to distinguish from those CPPS that implement Open Standard Communication from their own / contracted cloud service.

*Open Standard Communication on premises will assure consumers that the communication link to their home is secure and that they will have a freedom of choice in selection the Utility or a potential Energy Star third party service. See comment on Sec 4.3 below*

## Sec 4.2

### D)

[Modify as follows. Remove items 2 and 3]

Open Standards are communication protocols that, at a minimum, define the data format for communication of information in Table 1 with sufficient security mechanisms, and are:

1. Included in the Smart Grid Interoperability Panel (SGIP) Catalog of Standards

*[SGIP has done a lot of work in identifying challenges in Smart Grid communication and have listed a set of standards that meet the criteria. Suggest Remove (2) and (3) since it is too generic and does not address the security requirements needed for grid communication, and works against the purpose of SGIP to make grid and grid connected homes safe and secure from potential hacking. SGIP work has been a continuation of NIST work and hence (2) is only a feeder into (3) and not a final list by itself. Going forward, Utilities will only provide interfaces that are in the SGIP catalog of standards. NIST has also published a set of Cyber Security requirements called NISTR 7268 and a panel of Security experts has evaluated products as compliant to be published in the Catalog of Standards]*

## Sec 4.3

### Note 1:

[Suggest removal of Note 1]

*The alternate approach of complying with Sec 4.3A and 4.3B outside of consumer Premises reduces consumer choice and utility adoption of Demand Response. It might be possible that certain utilities will have a service with only select manufacturers, hurting other pool pump manufacturers. Same way it will hurt consumers on their ability to choose between available utilities. This is similar to many programs today where utilities give out Thermostats to their customers.*

#### Sec 4.6

##### A)

##### 1.b

[Suggested modification as] Actual or estimate rate of flow.

*Since consumers cannot comprehend motor speed, we recommend that the manufacturer provide an estimated rate of flow using motor speed measurement.*

#### Sec 4.9

##### A)

[Add this sentence] Any such additional modules, services or infrastructure shall be based on open standards and has the potential to be sourced from multiple vendors or built in house by the manufacturers.

# Comments on “Test Method to Validate Demand Response August-2014”

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## Sec 4.1

The CPPS and Utility Equivalent Communication Device shall be set up in accordance with manufacturer 32 installation instructions

- A) Connect the CPPS to the Utility Equivalent Communication Device via ~~wired or wireless connection depending on the system's capability. A wireless connection is preferred if both are available.~~ applicable communication medium over which the Open Standards Communication method employed by CPPS is available
- B) Ensure that the CPPS is properly connected and can both receive and send data to the Utility Equivalent ~~Communication~~ Communication Device.

## Sec 5.2

The tests should take care of the following aspects

- 1. The Utility Equivalent Communication Device shall send out the time defined in UTC format for each event when it sends out the DR event
- 2. The CPPS shall maintain a real time clock in sync with the Utility Equivalent Communication Device and shall time all events exactly at the requested time
- 3. CPPS shall send a response to the server once it has performed the operation requested by the Utility Equivalent Communication Device

## Additional Questionnaire

The vendor shall fill out the following questionnaire pertaining to the Open Standard Communication employed by the CPPS

- 1. Can the CPPS connect to Utility Equivalent Communication Device using an Open Standards Communication protocol (Yes/No)

*To identify systems that provide proprietary APIs vs Open Communication*

- 2. If the DR events are not received by the Pool pump or additional components on premises, will the communication between such components and the pool pump happen in deterministic time? (Yes/No)

*In case such logic stays on the cloud, the communication between cloud and the pump through public internet will limit the ability of the pump to execute the operation at the exact time as requested by the DR event*

- 3. If such Open Standard Communication is part of SGIP Catalog of Standards (Yes/No)

*SGIP Catalog of Standards are the standards approved by Utilities and NIST as secure enough for the grid connected home*

- 4. If answers to 2 above is *No*, does such standard employ security that comply with NISTR7268 required for grid security (Yes/No)

*In case the vendor is using a standard that is not yet listed in the SGIP catalog of standards, this question will verify if the standard is secure enough for the grid by stating compliant to NISTR7268.*