ENERGY STAR Pool Pump Framework Document
Stakeholder Written Comment Summary

Number	Topic	Comment	Response
1	Connected Functionality	Connected functionality is neither precisely defined or understood for consumers.	EPA believes that ENERGY STAR can help deliver connected functionality (CF) that offers both near term consumer benefit and longer term broad societal grid benedits. To that end, EPA is developing Connected Functionality criteria for various product categories (refrigerators, room air conditioners). EPA looks forward to working with stakeholders to develop CF feature set criteria for pool pumps, as well as ways to educate the consumer on their wide ranging benefits.
2	Connected Functionality	The binary nature of ENERGY STAR may not be satisfactory to address Connected functionality, and would fundamentally change the program implications.	EPA proposes recognizing "connected" devices on the qualified product list (QPL) on the ENERGY STAR website for consumer information. This approach is consistent with how the program generally flags functionality of interest to consumers. In addition, energy efficiency program sponsors could leverage these lists to identify “connected” appliances for their own purposes.
3	Connected Functionality	We do not support this technology as a sole means of recognizing a pool pump for ENERGY STAR status due to intellectural property that would have to be public domain.	EPA does not intend to make “connected” a required attribute to recieve the ENERGY STAR , but instead proposes listing it as a product feature for relevant ENERGY STAR qualified models. In addition, EPA is requiring that Open Access Modular Communication Interface (MCI) be used to accelerate the ability for all players to enter the CF market place.
4	Connected Functionality	The criteria and functionality described in this section is an effort well worth pursuing, however the lack of standardized communication protocols have made it difficult for manufactures to dedicate many resources towards this.	EPA agrees that at this stage, there are numerous and differing communication protocols, both privately held and open access, which have not yet been standardized. EPA recognizes that lack of standardization is a barrier to entry for many manufacturers. Therefore, EPA is proposing requiring that connected pool pumps use a standards-based open access modular communication interface (MCI) in order to enable low-cost consumer upgradeability for HEM and/or DR interconnection. EPA may consider more robust criteria in a future revision as relevant standardization efforts mature.
5	Connected Functionality	The ramifications of shutting off pumps during peak times, which may coincide with peak pool usage times and then affect water quality and safety, should be investigated and discussed further.	EPA encourages manufacturers to provide specfics and/or data regarding the impact on cleaning abilitiy when shifting high speed cleaning to off peak hours, or turning off the pump during peak hours.
8	Definitions	Since "Multi-speed" also includes "Two-speed", it should be clearly indicated that "Multi-" includes "Two-speed".	EPA believes that the multi speed definition adequately covers two speed pumps by stating that it is a "pump that has an electic motor that can operatre at multiple discrete speeds."
9	Definitions	Controllers MUST be properly defined. What do we mean by "controller". Is it the "variable-frequency-drive", a "switch", a "time-clock", a remote mountable "user-interface", or a separate automation system designed to control all pool equipment at the property?	EPA is interested in stakeholder comments regarding an appropriate defintion for controllers.
10	Education	There are many methods to ensure proper controller implementation including web campaigns, direct mail, dealer training, in store POP. Industry training / seminars on proper matching of motor and motor control for the intended application - pumps. "User interface" may be used for sending and receiving information and commands to the motor control by the user.	EPA is interested in working with stakeholders to identify opportunities to inform and educate consumers about best practices through ENERGY STAR marketing avenues such as the website and other marketing materials. EPA is also interested to work with manufacturers on how educatinoal content could be leveraged through manufacturer avenues as mentioned.
11	Installation	The program needs to consider that even the best designed pump will perform poorly if not installed and operated correctly in the field.	EPA understands that pool pump energy performance can be diminished by external factors that can change the savings potential when installed in the field. EPA is interested in working with stakeholders to identify opportunities to inform and educate consumers about best practices.
12	Metric	Energy Factor alone should not decide the pump selection process. Instead the pump with the highest Energy Factor associated with an indicative System Curve should be used.	The purpose of the ENERGY STAR mark is to identify the most energy efficient product for the need. EPA plans to post curve A, B, and C data to the QPL so that the appropriate system curve Energy Factor is available for pump sizing purposes. EPA is interested in working with stakeholders to identify opportunities to better inform consumers about best practices in sizing pumps to maximize the usefulness of the ENERGY STAR mark.
13	Metric	We suggest that an Energy Factor of 3 be used which will recognize the most efficient single speed pumps that are less than 1 HP, and multi and variable speed pumps. This should not apply to all speeds.	EPA has evaluated the data from the CEC database and has proposed an Energy Factor levels in the Draft 1 specification.

14	Metric	The energy factor will not be favorable at all speeds, even when considering the most efficient variable and two speed pumps. Pumps should not be judged based on the low performance at the higher speed settings.	EPA has proposed in the Draft 1 specification to evaluate the product based on the low speed settings using Curve A.
15	Metric	Small size pumps will intersect the system curve A, but it may not be significant flow.	EPA proposes using Curve A to determine qualification for all size pumps. We will be posing questions in the Draft 1 specification regarding handling small sized pumps.
16	Metric	We support the use of Energy Factor as the qualifying metric because it quantifies the end goal of moving a quanity of water under standardized conditions, and it takes both the impeller and motor design into account.	EPA agrees that Energy Factor is an appropriate qualifying metric.
17	Metric	In the Quebec region the pools are more characteristic of Curve B than Curve A, therefore it is imperative to have testing for curve B.	EPA agrees that testing should be done for all curves A, B, and C and the performance values made available so the most efficient product may be selected for the application, but for the purpose of determining qualification, EPA believes it is reasonable to use curve A to make that determination due to the predominance of this pool type in the US.
18	Metric	APSP-10 Pump Labeling Standard is in development and will provide head, flow, watts, wire-to-water efficiency and Energy Factor in a boxed format suitable for inclusion on the pump, box, and literature. The purpose is to address the differences between high (60 ft), medium (40 ft), and low (10 ft) of head pumps. For example, it should prevent the user from choosing a waterfall pump (due to its high energy factor alone) and then try to apply it to a high head system where it would be inadequate. It is also intended to obsolete the marketing based “full-rated, up-rated” designations, which have no technical or engineering value.	EPA agrees that such an approach as outlined in APSP-10 may provide a means of categorizing pool pumps into bins which allow for application based comparison in terms of Energy Factor, however because APSP-10 is still under development, EPA proposes criteria based on the Curve A Energy Factor values as a starting point for identifying energy efficient pumps for Version 1. There may also be additional testing needed in association with adopting the new standard.
19	Scope	The differences between commercial, residential, inground, and above ground are primarily performance based, which is captured by the current technical attributes. It is generally agreed that residential pumps are < 3 HP, although some 5 Hp equipment is occasionally used for water features. It is also common for many smaller commercial applications to utilize residential sized equipment. Secondary distinctions are in the mounting orientation (vertically mounted commercial pumps are more common), pipe connections, (flange connections for commercial) and quality of construction, which tends to be highest in commercial pumps and lowest in above ground pumps.	As ENERGY STAR criteria development is a data driven process, EPA will set the high end of the size limit to 4 Total HP, the largest qualifying pump size listed in the CEC database covering residential products. EPA would like to work with stakeholders to determine appropriate definitions for residential pumps that would generally exclude commercial pumps, perhaps using more technical distinctions (pipe connections, quality of construction, etc.)
20	Scope	There is a lot of cross over between residential and light-commercial applications especially for higher horse power ranges. Perhaps revise the title to "inground filtration pumps rated up to X horsepower".	The title of the specification has been modified to cover the more general pool pump product category to more easily expand the scope of the specification in the future, as appropriate. Also EPA has proposed a Total HP range in the Included Products section.
21	Scope	Highly recommends that aboveground swimming pool pumps are not excluded from the initial process. Technical issues are the same. Also in some Eastern regions in North America aboveground pools are more popular than inground pool e.g. in Quebec there are 370,000 abovegound pools (75%) versus 120,000 inground pool (25%).	EPA is not including above ground pool pumps in the scope of the program until there is adequate data available to consider them. Currently the CEC database has limited information regarding above ground pool pumps.
22	Scope	We agree that the program be technology neutral and that the initial launch of the program should not seek to eliminate any particular technology but rather be used as an incentive for continuous improvement for all types of products (single, multi, and variable speed).	It is part of the ENERGY STAR program guiding principles that the program remain as technology nuetral as possible.
23	Scope	We agree with the product mix of the current scope.	
24	Scope	Multispeed relay kits installed with a automation controller are not very prevalent. Our data indicates that less than 10% of two-speed pumps sold in the market are utilizing these relays.	EPA understands that relay kits aren't commonly utilized and also that two-speed pumps with manual speed settings aren't common. EPA has added language to specifcially excluding manually set multi speed pumps because they are not sold ready to interface with a contoller which is integral to ensuring that the pump delivers savings.

25	Scope	This labeling requirement was introduced as part of a minor revision to CEC Title 20 two years after introduction and this caused a lag in compliance as compared to the initial product offering and labeling requirements. This and the lack of ongoing contact with residential pool owners make data hard to acquire, if any exists. It further supports the conclusion that ENERGY STAR® should not include pump controllers sold separately. The sold separately is an important distinction because some multi-speed pumps do not include onboard controls, yet they will not function without one. This is not the case with some two-speed pumps which have a manual toggle switch located on the back of the pump motor. A logical destination might be "if the motor can be wired and operated without the controller, it does not qualify."	EPA intends to include pumps without on-board speed controllers. However, to ensure that external speed controllers are being installed with the pumps in the field, EPA has proposed aligning with the APSP-15 requirement to label these pumps with a visible message that the pump must be interfaced with a controller.
26	Scope	We do not support the exclusion of pump controllers from the scope of the program. Pump technology must allow for on and off- board consumer interfaces.	EPA is interested in only covering pool pumps at this time because it is the energy consuming device, there is an industry consensus test method available, and there is performance data through the CEC database. The specification does not cover the qualification of controllers. EPA is proposing that pumps with controls onboard, sold with, or separate from the product are all included in the program.
27	Scope	We strongly support FG certification only [in regards to replacement motors].	EPA is interest in further stakeholder comments regarding FG certification and its role in addressing replacement motors.
28	Scope	Variable speed pumps can't run without a controller/interface. Some pumps include the controller/interface in the box, and some require the controller/interface to be purchased separately. The difference between on-board and off-board controllers/interfaces is merely a convenience/marketing feature. Pumps should be tested and Energy Star approved with controllers suggested by the pump manufacturer.	EPA understands that products are available with controller/interfaces that range widely. The Draft 1 specification does not make a distinction between these various form factors as EPA does not propose that these would affect whether the product quaifies or not. EPA is proposing that pumps with controls onboard, sold with, or separate from the product are all eligible under the program.
29	Test Method	Lab testing is very time consuming and costly and requiring pumps known to fall in the lower 50% could be burdensome. More specifics on sampling requirements would be needed, then perhaps manufacturers would be willing to conduct testing.	EPA encourages manufacturers to submit any test data available on single speed pumps using the ENERGY STAR Draft 2 test method. If there is data available per the APSP-15, CEC Title 20 test methods, EPA also welcomes this data.
30	Third Party Certification	We prefer that manufacturers be allowed to conduct ENERGY STAR testing in-house under the guidance of the established NRTL's (UL, Intertek, NSF, etc.)	This is actually allowed under Third Party Certification (WMTL and SMTL options). Please see the ENERGY STAR Third Party Certification website for more information: http://www.energystar.gov/index.cfm?c=third_party_certification.tpc_index