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PHTA Comments on FDAS for pool controls

Additional submitted attachment is included below.

August 31, 2022

Submitted via: Docket Log 20-FDAS-01

Commissioner J. Andrew McAllister, Ph.D.
California Energy Commission
Dockets Office, MS-4
1516 9th Street
Sacramento, CA 95814

Re: Comments on Flexible Demand Appliance Standards for Pool Controls, Draft Staff Report and Proposed Regulatory Language, Docket # 20-FDAS-01

Dear Commissioner McAllister:

The Pool & Hot Tub Alliance (PHTA) represents more than 3,650 company members and over 11,000 individual members nationwide, including companies that manufacture pool pump controls as well as controls for other pool equipment. PHTA has a long history of working with the California Energy Commission (Commission) and appreciates the opportunity to continue a positive collaboration to ensure the development of Flexible Demand Appliance Standards (FDAS), as required by Senate Bill 49 to benefit citizens of California and the goal to reduce greenhouse gas emissions, are developed for pool controls. At the same time, it is imperative these regulations also ensure both citizens and visitors using the states 1,250,350 residential inground pools, 335,000 aboveground pools, 338,000 inground spas and 42,230 commercial swimming pools continue to enjoy a safe environment. Further, that what is developed is something consumers will utilize.

We submit the following comments to the proposed regulatory language on behalf of our member companies, many of which will also be responding individually. PHTA welcomes your careful consideration of these comments and looks forward to continuing to participate in this rulemaking. If you have any questions on these comments, please contact me at jen@jhatfieldandassociates.com on behalf of the PHTA.

Sincerely,

Jennifer Hatfield
Government Affairs Consultant
Pool & Hot Tub Alliance

cc: Justin Wiley, PHTA VP of GR, Standards and Codes, jwiley@phta.org

PHTA Comments and Suggestions on
Flexible Demand Appliance Standards for Pool Controls

PHTA and its members support California and the Commission's efforts to reduce energy demand and lessen greenhouse gas emissions by establishing a statewide flexible demand appliance standard (FDAS) for pool controls. The good news is that modern pool controls already exist in the market and are being used by many pool owners already to provide a total connected control operation for the entire pool pad. This includes the pumps, sanitizers, chemical regulators, heaters, lighting, etc., and the use of controls can then be optimized for emissions and price rates through user adjustable scheduling.

Having a statewide standard will hopefully mean more pool owners will take advantage of this option to lower their utility bill and lessen demand on the grid for the benefit of all Californians, by shifting equipment operations to lower peak times, *as practically as possible.* It is important to recognize the limitations that do exist because it is also critical to ensure a safe operation of the pool[1]. There must be a minimum flow and turnover rate to maintain proper water quality; otherwise, a consumer who ends up with a green pool may then choose to opt-out of the program. Further, it is imperative any final rule ensure proper human and equipment safety are not jeopardized.

Aspects of the current proposed rule provide the flexibility needed. However, PHTA believes there are additional opportunities for further improvement that the Commission should consider. Critical items to consider are simplicity and value for the end user; if the program is cumbersome, difficult to use or the consumer experiences problems with the pool, they will opt-out.

Default Schedule
PHTA believes the proposed default schedule is too prescriptive and certain aspects have not been considered, as follows:

- By only allowing operation of the pool filter pump at more than 50 percent of the maximum operating speed of the pool filter pump during the default operating schedule of 9 a.m. to 3 p.m. (9-3 window), this means that is the only time the pump can be turned on. This is due to the fact when priming the pump, it must be done at full speed. Therefore, the proposal would only allow the pump to be turned on and off within the 9-3 window. This also poses an additional concern of how prepared the electrical grid is for the over 1.5 million pools to come online at the same time.

- The proposed default schedule would prohibit operation of single speed pumps outside the 9-3 window; this could result in an inadequate turnover period for some pools, depending on the size of the pool. Further, not all controllers can "talk" to the filtration pump. This results in a Variable Speed pump turning into a single speed pump and only being able to run in the 9-3 window.

- The proposed default operating schedule includes specific operations; however, there is no way for the pool control manufacturer to know if a pressure cleaner booster pump (PCBP) or

[1] Pool & Hot Tub Alliance October 29, 2021, comments to FDAS:
https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-FDAS-01

electrical pool water heater, or any equipment for that matter (such as solar), is installed and connected to a given pool control. Further, the proposed language is unclear, in that if a consumer has a pool control, are they required to have a default schedule for all three applications listed (filter, PCBP and pool heater)? And how would the Commission or local utility determine this?

Pool controls are smart and flexible, and can be programmed to do what the user wants with the output they have, but we are not clear how the default schedule will be able to recognize if the function is for the filter pump, PCBP or pool heater? What exists on any given pool equipment pad is not known until the installer adds the pool control. PHTA believes the default schedule, as proposed, is too prescriptive and including aspects not needed. Not all consumers will have, for instance, a PCBP or pool heater. If the goal is to control the filtration pump, that should be all that is listed (recognizing the concerns that remain by only allowing a 9-3 window for even pool filter pumps).

PHTA is concerned that the proposed default schedule is overly burdensome and complicated, and not only will encourage the consumer to opt out, but an installer is also more likely to change the schedule to accommodate a specific pool's needs, in order for the pool to run effectively. With the proposed default schedule, there is a high likelihood of lessening the overall performance of the pool system, which could lead to higher energy use.

PHTA recommends the Commission further review and redevelop the default schedule, as there are too many varying conditions on any given pool that have not been considered. To provide a more comprehensive approach, a technical reference standard may also be needed to detail equipment performance limits and controls associated with connectivity. (Consider a similar approach to what was done in Appendix JA13 – Qualification Requirements for Heat Pump Water Heater Demand Management Systems.)

There are additional unintended consequences related to the proposed default schedule that PHTA would ask the Commission to consider as well:

- Would require the customer to only run a PCBP in the 9-3 window. During the weekdays this may not be problematic if the pool owner and their family are at work and school. This does not account for the weekends, when most people will be utilizing their pool during the day, nor does it account for families who may be at home during a weekday and want to use their pool. Typically, a PCBP is set to run when the pool owner is not using the pool. Will the restraint on when a consumer can use the PCBP increase the chances of them opting out of the program?

- Would require the customer to only run an electric pool water heater in the 9-3 window. This includes heat pump pool heaters, which typically need 40-50 gpm to operate and may need to run outside of the default schedule to heat the pool to the comfort level of the user. Although we recognize that the reduction of gas utilities through REACH codes and decarbonization efforts may be outside the scope of this rulemaking, it should be acknowledged those efforts are moving consumers towards greater utilization of electric pool heaters, which then increases the electrical load exponentially versus a gas heater. The analysis should consider with a greater reliance on electric pool heaters, which typically take longer to properly heat a pool compared to gas, how would the proposed default schedule limit the ability to heat a pool effectively, resulting in consumers opting out of the program or switching to gas.

- Would require a customer to only run a pool solar heating system in the 9-3 window. Although in most cases solar pool heating will typically run in the middle of the day, there is a likelihood the proposed 9-3 window is not long enough. Most solar panels require between 3-5 gpm per panel for optimal solar heat transfer. If a homeowner has ten solar panels this will require the pump to flow between 30-50 gpm for the maximum solar heat transfer. A consumer would not be fully able to utilize the solar panels outside the default schedule without opting out of the program or having to choose not to fully utilize the investment they made in installing a solar pool heating system. This is due to the fact the proposed default schedule is not accounting for end of the day hours when the roof is at its hottest from the day long solar load, allowing for non-solar heat transfer. PHTA believes a number of Californians have chosen to invest in solar to heat their pools, but the proposed default schedule could cause those homeowners to have to rely on gas or electric pool heaters to address the lost heat transfer.

Beyond the specific challenges faced with the proposed default schedule is the larger concerns of *any* default schedule that must come preprogrammed with the product. This is a national product that is shipped across the country, it is impossible to ship only certain product to California. Other states may also have a different position on what the appropriate default schedule should be. It would be an impossible task for industry to control what products with different default schedules are shipped where; distribution channels could not overcome such an enormous challenge.

It is important to recognize that the Energy Star flexible demand requirements for pool pumps chose not to include default schedules for the very reason that it would differ across the nation. Further, the current proposal requires the product to be able to be connected to the internet, but it does not have to be connected, when installed. This poses a challenge on how any product can automatically choose the 9-3 window. Further, this can result in the product not knowing how and when to apply the shift to daylight savings.

The current proposal requires the default schedule to be automatically applied out of the box; however, due to the concerns cited, **PHTA would recommend the Commission consider one of the following alternative solutions:**

- Any final CEC default schedule be included as one of the *selectable* schedules in the product. The consumer or installer then must select that schedule to opt into the FDAS program.

- Require the pool control instructions to include a certain statement, such as "if you reside in California, please select the X default schedule in order to opt into the state's flexible demand program." Pool industry safety items, such as suction outlets (main drains) require important safety instructions be provided with the product; the industry believes this same approach should be sufficient for energy related instructions.

Connectivity

PHTA supports the proposed definition for "connected devices" and its allowance that the pool controls have the ability to be "readily connectable" as pool control products should be required to include provisions for connectability with clear instructions for the necessary set up. PHTA and its members interpret the proposed regulation as allowing the WiFi interface/Radio transmitters to be sold separately and not necessarily be integrated into the product, which we believe is imperative. If our interpretation is not correct, we urge the Commission to make changes that clearly allow a consumer, who already has some type of connectability, from not having to buy a connected device

twice. Said another way, this is to ensure an automation system without a wireless module can be sold when a consumer already has the wireless module installed in their residence and are simply looking to upgrade the pool controls without having to purchase another wireless module.

Another reason for recommending the proposed language is clear that transmitters can be sold separately, to do otherwise will stifle innovation, as well as make it more difficult to encourage consumers to purchase and opt-in to the program. Many existing pool controls do not have the level of scheduling in their design. With transmitters being clearly allowed to be sold separately, a homeowner that already has a connected pool pad and just wants to upgrade their controls can do so without having to pay for internet transmitters twice, if a compatible system is already in place. They can just purchase the pool controls that *include provisions to connect to their existing systems*. If the aim is to encourage consumers to take part in this program, making it as easy and less costly for them to do so will increase participation.

PHTA also supports the proposals current allowance for different protocols to receive the TCP/IP signals. Further, PHTA does not support any suggestions to mandate only one specific communications protocol. The Energy Star specification allows for CTA-2045 or open ADR, the latter allowing for cloud to cloud that integrates into someone's existing IP system. California's program should allow for the same flexibility that the current Energy Star program provides. This allows the use of OEM clouds and at the same time allows use of a CTA-2045 protocol, providing for options.

Pool Controls, Definition & Table 5-1
PHTA recommends that the Commission review Table 5-1 and the definition of pool control in section 1687, to ensure that in the final rule this table and the definition fully align.

Cost-Effectiveness Analysis
PHTA recommends the Commission complete further analysis on the cost of existing compliant and noncompliant products. It is also not clear what type of switch was analyzed. PHTA believes the current cost analysis of a compliant product is not reflective of the current market and does not incorporate all types of pool controls on the market. Further, the cost to integrate the part into the automation solution, i.e., the engineering firmware/software work, supply chain, manufacturing engineering, etc., also needs to be accounted for in the cost analysis.

In addition, the costs to make the internal product does not account for costs associated with challenges that can occur when installed (such as distance from the Wi-Fi router located inside to the product that is located outside). This additional review and clarification is necessary to reflect a true cost-effectiveness analysis and may also provide a greater understanding of what products are functional to any final rule requirements.

Concerns also exist on enforcement of compliant and noncompliant product that should also be accounted for when looking at a cost-effective analysis. We do tend to see a higher percentage of noncompliant product after a new rulemaking is put in place that puts US manufacturers at a disadvantage to those importing their products.

Effective Date
Although connected pool controls are common and available, any FDAS pool control requirement will be new and take time to ensure reliable and secure operation, which will better ensure consumers are

satisfied and want to remain in the program; thereby improving the reliability of the grid in California and lessen greenhouse gas emissions.

Equipment manufacturers will need more time than the current proposed January 1, 2024, effective date. Typically, a *minimum* of at least three years, if not more, is needed to develop, validate, test/certify, and launch connected pool controls.

With all the necessary protocols to interact and react directly with Utilities, MIDAS, Flex alerts etc., more time is required than the current proposal provides. It is also important to note these can be very complicated systems that are in essence a home automation system for your backyard. Further, all these products use microchips where, due to the ongoing supply chain issues, the minimum lead time is a year or more to obtain.

Conclusion

PHTA and its members support the use of connected pool controls and the ability these products have to lessen demand at peak times and reduce greenhouse gas emissions. However, currently, the FDAS program is voluntary for consumers. Considering there is no requirement in the FDAS regulations for a pool owner to purchase and connect a pool control to their pool equipment, PHTA believes the recommended changes we have put forth for the Commission to consider will ultimately improve the use of the flexible demand program by consumers.

PHTA members stand ready to support development of the default schedule, including a technical reference standard that details equipment performance limits and controls associated with connectivity. Making the program easier for a consumer to want to opt-in *and stay in* will thereby reduce both demand on the grid and greenhouse gas emissions. Greater flexibility will also continue to allow for innovation by industry.

Finally, PHTA encourages the Commission and utility companies to consider possible ways to further incentivize consumers from opting into the flexible demand appliance standards program.