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Statewide CASE Team Comments on Proposed Regulatory Language for Replacement Pool Pump Motors

Additional submitted attachment is included below.

Replacement Dedicated-Purpose Pool Pump Motors (RDPPPMs)

Codes and Standards Enhancement (CASE) Initiative
Title 20 Standards Development

Comments on Final Analysis and Proposed
Regulatory Language
Replacement Pool Pump Motors
2019-AAER-02

April 6, 2020

Prepared for:



PACIFIC GAS & ELECTRIC
COMPANY



SOUTHERN CALIFORNIA
EDISON



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1. Purpose

The Codes and Standards Enhancement (CASE) initiative presents recommendations to support the California Energy Commission's (Energy Commission) efforts to update California's Appliance Efficiency Regulations (Title 20) to include new requirements or to upgrade existing requirements for various technologies. Three California Investor-Owned Utilities (IOUs) – Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE) – sponsored this effort (herein referred to as the Statewide CASE Team). The program goal is to prepare and submit proposals that will result in cost-effective enhancements to improve the energy and water efficiency of various products sold in California. This document details the Statewide CASE Team's comments on the Energy Commission's proposed regulatory language for pool pump motors.

2. Background

The Statewide CASE Team has been involved with pool energy efficiency for over 15 years, developing and implementing pool-efficiency rebate programs, building codes, and appliance standards.

In 2004, the Statewide CASE Team proposed and supported the Energy Commission's adoption of the first-in-the-nation appliance standards for pool pump motors in California. These initial requirements included prescriptive design standards banning split-phase and capacitor start-induction run motor construction types, which took effect in 2006. These initial standards set a requirement that, starting in 2008, all residential pool filtration pump motors greater than one total horsepower (THP) be able to operate at two or more speeds. Also included in these standards was a test-and-list requirement for pool pumps to report "Energy Factor," a metric developed by the Statewide CASE Team and later adopted by ENERGY STAR®.

The Statewide CASE Team was also successful in 2008 in advocating for building code language that required energy-efficient equipment, plumbing, and design on all newly constructed pools in California through Title 24, Part 6. Years later, some or all of these standards have been adopted in Arizona, Washington, Florida, Oregon, and Connecticut.

The Energy Commission initiated a pre-rulemaking in 2012 to replace the prescriptive pool pump motor construction standard from 2004 with a performance design standard. The Statewide CASE Team has been active in each step of the rulemaking process, including the submission of a CASE Report, with formal recommendations to update the pool pump motor test procedures, standards, and reporting requirements.¹

In September 2015, the United States Department of Energy (U.S. DOE) initiated a formal working group to negotiate standards for dedicated-purpose pool pumps (DPPPs). The Energy Commission and Statewide CASE Team participated as members of the working group, which led to a final term sheet of recommendations to U.S. DOE on July 29, 2016.² U.S. DOE subsequently

¹ http://www.energy.ca.gov/appliances/2013rulemaking/documents/proposals/12-AAER-2F_Residential_Pool_Pumps_and_Replacement_Motors/California_IOUs_Response_to_the_Invitation_to_Submit_Proposals_for_Pool_and_Spas_2013-07-29_TN-71756.pdf

² <https://www.regulations.gov/document?D=EERE-2015-BT-STD-0008-0082>

released a Direct Final Rule on January 18, 2017, which was finalized via publication in the Federal Register on May 26, 2017.³ These new DPPP Standards will apply to self-priming pool pumps, non-self-priming pool pumps, pressure cleaner booster pumps, and integral pool pumps, and will take effect nationally on July 19, 2021. These standards, however, do not apply to replacement motors for DPPPs. Without a standard for replacement motors for DPPPs, there is an increased likelihood of DPPPs being repaired with inefficient low-cost replacement motors, putting the savings from the national DPPP standards at risk.

Considering the finalized U.S. DOE standards for DPPPs, the Energy Commission released a second revised staff report to cover replacement motors for DPPPs on July 12, 2017. This analysis utilized a newly created motor weighted energy factor (MWEF) metric to align with U.S. DOE equipment classes.⁴ On August 4, 2017, the Statewide CASE Team attended the Energy Commission's public staff workshop and presented on several items in the staff report.⁵

On August 10, 2017, U.S. DOE similarly held a public meeting to discuss issues related to the efficiency of DPPP motors. After attending this meeting, the Statewide CASE Team worked extensively with manufacturers, efficiency advocates and other stakeholders throughout 2017 and 2018 in developing a consensus-based agreement to address the replacement pool pump motor loophole, which is reflected in the Joint Stakeholder Proposal submitted to U.S. DOE on August 14, 2018.⁶

On November 14, 2018, the Energy Commission released its third revised staff report proposing to update efficiency standards for replacement motors in California to align with the DPPP effective date of July 19, 2021.⁷ The Statewide CASE Team attended the Energy Commission public workshop November 28, 2018, to present feedback on numerous items, and offer comments in support of the proposed regulations.⁸

3. Summary of Statewide CASE Team Support of Final Staff Report and Proposed Regulatory Language

The Statewide CASE Team supports the Energy Commission's Proposed Regulatory Language for replacement dedicated-purpose pool pump motors (RDPPPMs) and the analysis presented in the Final Staff Report. With roughly 20 percent of the nation's pools,⁹ California is the largest pool pump motor market in the country. The standards for RDPPPMs will lead to significant statewide energy savings and benefits for California residential and commercial pool owners. The proposed standards would save roughly 61 gigawatt-hours (GWhs) the first year the standard takes effect in 2021. By 2029, when the stock turns over, the proposed standards would yield an annual savings of roughly 451 GWhs. This amount equates to roughly \$82 million in annual electricity savings to California businesses and individuals after stock turnover. Furthermore, the life-cycle benefits from

³ <https://www.regulations.gov/document?D=EERE-2015-BT-STD-0008-0135>

⁴ <https://efiling.energy.ca.gov/GetDocument.aspx?tn=220120&DocumentContentId=11709>

⁵ <https://efiling.energy.ca.gov/GetDocument.aspx?tn=220521&DocumentContentId=11722>

⁶ <https://www.regulations.gov/document?D=EERE-2017-BT-STD-0048-0014>

⁷ <https://efiling.energy.ca.gov/GetDocument.aspx?tn=225891&DocumentContentId=56568>

⁸ <https://efiling.energy.ca.gov/GetDocument.aspx?tn=225969&DocumentContentId=56661>

⁹ <http://www.apsp.org/Portals/0/2016%20Website%20Changes/2015%20Industry%20Stats/2015%20Industry%20Stats.pdf>

the standards are significant and range from \$70 to \$1,752 in residential pool applications. The savings are even larger in commercial pool applications (which have not previously been subject to Title 20 standards) with life-cycle benefits ranging from \$5,870 to \$10,974.¹⁰ This is due to the long (typically 24-hour) duty cycles for pool pumps in commercial applications as required by health and safety codes.

It should be noted that California currently has a standard for replacement motors, as motors in new residential pool pumps and replacement motors are treated the same in Title 20. To reiterate, currently, residential pool pump motors cannot be split-phase and capacitor start-induction run motor construction types, and if the motor capacity is greater than one THP, it must be able to operate at two or more speeds. However, as has been discussed extensively throughout this pre-rulemaking and acknowledged by the Energy Commission and manufacturers, the word “residential” in “residential pool pump motor” makes the current Title 20 Regulation application specific and thus confusing for pool service contractors and challenging for manufacturers to ensure compliance. For pool pump and motor combinations (i.e., DPPP), this issue will be solved when the U.S. DOE standard takes effect on July 19, 2021, as the U.S. DOE standard makes no differentiation between residential and nonresidential applications. For replacement motors, the Energy Commission’s final proposed standards also makes no differentiation between residential and nonresidential applications. The proposed standard will require variable-speed capabilities for all RDPPMs between 0.5 to 5.0 THP and set minimum motor efficiency requirements for all RDPPMs up to 5.0 THP. As the Final Staff Report has shown, these standards are technically feasible and cost-effective.

In summary, the Statewide CASE Team commends the Energy Commission staff for their thorough proposal and leadership in seeking to improve the energy efficiency of RDPPMs in California. To align with the U.S. DOE DPPP standard effective date on July 19, 2021, it is imperative that California act to implement updated standards for RDPPMs to protect consumer energy and monetary savings and provide regulatory certainty for the largest pool market in the country. In California and nationally, the Energy Commission, the Statewide CASE Team, efficiency advocates, and manufacturers have a long and successful history of working together to develop efficiency standards for pool pumps and motors. The Statewide CASE Team looks forward to working with the Energy Commission and other stakeholders to successfully implement these updated energy efficiency standards for RDPPMs.

¹⁰ Table 7-1, Final Analysis of Efficiency Standards for Replacement Dedicated-Purpose Pool Pump Motors, Energy Commission