

## DOCKETED

<b>Docket Number:</b>	15-AAER-02
<b>Project Title:</b>	Pool Pumps and Spa Labeling
<b>TN #:</b>	210376
<b>Document Title:</b>	Pool Pump Motors California Investor Owned Utility Staff Workshop Slides
<b>Description:</b>	N/A
<b>Filer:</b>	Sean Steffensen
<b>Organization:</b>	California Investor Owned Utilities
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	2/17/2016 4:31:27 PM
<b>Docketed Date:</b>	2/17/2016

# Pool Pump Motors

CEC Staff Workshop

Developed by Energy Solutions  
On behalf of the California IOUs

February 18th, 2016



# IOU Involvement in Pool Energy Efficiency

**2001:** PG&E voluntary program for time clocks and 2-speed motors

**2004:** IOUs propose CASE study for residential filtration pool pumps motors

**2006:** Prescriptive pool pump motor requirements banning split-phase or capacitor start - induction run type.

**2008:** Two-Speed, Multi-Speed, Variable-Speed requirement for residential filtration pump motors over 1 THP

**2010:** Title 24 Pool efficiency requirements take effect

**2013:** ENERGY STAR certification for pumps Energy Factor >3.8

**2013:** Current rulemaking begins



# Current Title 20 Pool Pump Motor Standards

## Motor Efficiency

Pool pump motors manufactured on or after January 1, 2006 may not be split-phase or capacitor start - induction run type.

## Two-, Multi-, or Variable-Speed Capability.

1. **Residential Pool Pump Motors.** Residential pool pump motors with a pool pump motor capacity of 1 HP or greater which are manufactured on or after January 1, 2010, shall have the capability of operating at two or more speeds with a low speed having a rotation rate that is no more than one-half of the motor's maximum rotation rate. The pump motor must be operated with a pump control that shall have the capability of operating the pump at least at two speeds.
2. **Pump Controls.** Pool pump motor controls manufactured on or after January 1, 2008 that are sold for use with a two- or more speed pump shall have the capability of operating the pool pump at least at two speeds. The control's default circulation speed setting shall be no more than one-half of the motor's maximum rotation rate. Any high speed override capability shall be for a temporary period not to exceed one 24-hour cycle without resetting to default settings.

# IOU Involvement in Current Rulemaking

**July, 29<sup>th</sup> 2013:** Submitted Codes and Standards Enhancement (CASE) Report on Pool Pump Motors

**Jan, 15<sup>th</sup> 2014:** CEC holds workshop, seeks input

**March 3<sup>rd</sup>, 2014:** CEC issues formal data request

**May 23<sup>rd</sup>, 2014:** IOUs docket response to data request

**July/ August, 2014:** IOUs engaged with APSP-15 Committee

**Sept 30<sup>th</sup>, 2014:** IOUs docket revised data request response

**Oct 9<sup>th</sup>, 2014:** IOUs convened Industry Roundtable w/ CEC

**February 18<sup>th</sup>, 2016:** Staff Workshop

# IOUs support CEC Staff Proposal

IOUs support the CEC staff proposal and believe the proposed standards are cost-effective, achievable and will lead to significant savings statewide. (~1,200 GWh)

The CEC Staff proposal makes three important changes to the current Title 20 standards including:

1. Clarification and simplification to the test procedure and reporting requirements
2. Extending the motor design and motor efficiency standards to cover all single phase pool pump motors under 5 THP
3. Shifting from a prescriptive standard to performance standard for motor efficiency

# Test Procedure and Reporting Changes

- Current IEEE-114 test procedure is not ideal for testing motors at multiple speeds
- IOUs worked with APSP-15 committee and manufacturers to identify an appropriate test procedure and testing points
- CEC adopted proposal to switch to CSA C747-09
- New test procedure & reporting requirements will add clarity to manufacturers and strengthen CEC database

CA IOU Proposed Standards Applicability Overview				
Motor Design/ Speed	Full Speed	3/4 Speed	1/2 Speed	1/4 Speed
	3450 RPM*	2600 RPM*	1725 RPM*	900 RPM*
Single Speed				
Dual Speed				
Variable Speed				
Multi-Speed**				
* Tolerance of +/- 50 RPMs				
** If no preset speeds exist within range then test to nearest preset speed.				
	Test/ List Only			
	Test/ List & Minimum Efficiency Requirement			
	No Test/ List or Minimum Efficiency Requirement			

# Expanding Coverage to All Pool Pump Motors

Current Title 20 language only applies to “residential filtration” applications

This has created a significant challenges with compliance as well as confusion among installers, retailers, etc.

This CEC proposal will:

- Extend the motor efficiency standards to cover all pool pump motors under 5 THP
- Expand the dual, multi, variable speed requirement >1THP to all pool pump motors under 5 THP

This change will greatly improve compliance with existing standard and expand savings into new applications.



Booster Pump



Water Features



Replacement  
Motors



Residential  
Filtration



Aboveground  
Pool



Small  
Commercial 7



# Prescriptive to Performance Standards

Shifting to a performance standard will allow all motor types to compete

The IOUs support CEC proposal that treats dual, multi and variable speed motors the same; no difference in utility to the customer.

The IOUs support the CEC's proposed Tier 1 standards, achievable by 2018 and Tier 2 standards achievable by 2021

<b>CEC Staff Motor Efficiency Proposal</b>	<b>Tier 1</b>	<b>Tier 2</b>
Effective Date	Jan 1st, 2018	Jan 1st, 2021
High Speed (3450 RPM)	70%	80%
Low Speed (1725 RPM)	50%	65%
Lifecycle Savings/ Year	610 GWh	569 GWh

# Suggestions for Improvement

The IOUs broadly support the staff proposal, with recommendations to increase clarity including:

- Clarify the compliance data with the expansion of dual, multi, variable speed requirement >1THP
- Revise savings calculations from the expansion of dual, multi, variable speed requirement >1THP with regards to small commercial pumps
- Clarify that all references and standards are described in terms of Total Horsepower (THP) or “Motor Capacity”