Residential Variable-Speed Drive Pool Pump and Motor Measures

## ***Applicable for measures C (SCE PM-69234), D (SCE PM-79353), Wading Pool (SCE PM-99453), Spa Pool (SCE PM-99453)***

# **Overview**

This work paper includes variable speed pool pumps and motors offered for filtration pumps for bodies of water in residential building types including single-family residences and “public swimming pools” located in multifamily properties.

# **How the Programs Work**

### Programmed/Commissioned Variable Speed Pumps and Motors

Pool professional and pool manufacturer focus: The respective utility programs work with a network of pool professionals and pump manufacturers to promote the installation of energy efficient variable speed pool pumps. These trade partners already have a loyal customer base that continue to purchase and solicit the services that the pool professionals and manufacturers sell or offer. This ensures that efforts towards obtaining energy savings is maintained throughout the life of the program and helps establish better working relationships with organizations that focus specifically on residential and commercial swimming pools.

### Noncommissioned Variable Speed Pool Pumps and Motors

A subset of utility customers prefer a self-installation approach. The respective utility programs educate customers on the benefits of a VS pool pump and proper installation through various marketing strategies such as email, print, and in-store material. The respective utility shall identify a high inspection rate for noncommissioned measures.

### Benefits of Variable Speed Pool Pumps and Motors

* Energy savings
* Quieter than single-speed models
* Lower flow rates allow the filter to more effectively remove debris, which improves water clarity.

# **Commissioned Contractor Eligibility Requirements**

The commissioned measures must be installed by authorized contractors to be eligible for rebates. Contractors must participate in a utility approved training to become an authorized contractor. Training covers both technical topics and utility program requirements. Training may be offered through a different channels which include pool pump manufacturers, trade organizations, and online training that provide details on program requirements and participation. Installers who participate in either downstream or direct install channels are required to satisfy utility approved training requirement.

### Training Overview

The purpose this specialized training is to ensure that contractors understand how to properly install and configure variable speed pool pumps, and ensure that the commissioning of the pool pump coincides with the program requirements.

* **Technical Training Topics**

Technical training covers numerous topics including: pool hydraulics, proper pump sizing (calculating volume, determining pipe size and turnover, determining system resistance), commissioning or tuning VSD pumps for energy savings. Training also provides an overview of applicable CA Title 20 code relative to pump installations.

* **Utility Program Requirement Topics**

Utility program requirement topics include customer eligibility, qualifying bodies of water, pump filtration setting requirements, as well as the rebate application process including program site verifications or inspections.

### Training Channels

* **FPSIE** - Foundation for Pool & Spa Industry Education (FPSIE) is a career-technical school that offers education and training for pool industry professionals. Courses are available on-line or at the FPSIE Education Center.
* **Manufacturer Training** – Leading manufacturers such as Hayward Pool Products and Pentair Aquatic Systems offer on-line training and in-person training for contractors at local distribution centers.
* **Utility Training –** Training for contractors is also available at utility training facilities, trade industry events or on-line.

### California State License Board

California Code of Regulations (Title 22, Chapter 20) definition and scope of “Public Swimming Pools” includes bodies of waters located in multifamily properties; therefore contractors must be licensed by the California State License Board (CSLB) to be eligible for rebates offer under the Multifamily Rebate Program.

* **C53, Swimming Pool Contractor**

A swimming pool contractor constructs swimming pools, spas or hot tubs, including installation of solar heating equipment using those trades or skills necessary for such construction.

* **C61-D35 Pool and Spa Maintenance Contractor**

A pool and spa maintenance contractor installs, replaces or repairs pool motors, pumps, filters, gas heaters and any above ground piping in connection with pools; includes electrical switches, breakers, pool lights, diving boards, existing solar systems that heat pools, pool and spa acid baths and applies vinyl liners to existing surfaces.

# **Customer and Property Eligibility Requirements**

### Single Family

Rebates are available for existing single-family properties with private in-ground pools. Single family properties with an active service account(s) served by the utility offering rebate are eligible to participate in the program. The property must have active service and the existing pool must not already have a Variable Speed Pool Pump. The existing pool pump must be single or two speed type units.

### Multifamily

Property Owners and Managers of residential multifamily property with an active service account(s) served by rebating utility may be eligible to participate in the programs.

The following residential property and pool types that are eligible for Multifamily pool pump rebates.

* Apartment house pools
* Residential Community pools
* Townhouse pools
* Condominium pools
* Mobile home park pools
* Homeowner association pools, and others.

### Eligible Bodies of Water

|  |  |  |
| --- | --- | --- |
| **Bodies of Water** | **Single Family** | **Multifamily[[1]](#footnote-1)** |
| Swimming Pool | ● | ● |
| Wading Pool |  | ● |
| Spa |  | ● |

# **Product Specifications**

* Variable speed pool pump must replace existing single or two speed pool pump.
* Only main filtration pumps are eligible. Booster pumps which are solely used for added spa jet circulation or secondary pumps used for cleaning purposes are not eligible.
* Equipment and materials must meet or exceed all applicable local, state and federal standards.
* Contractor must follow all manufacturer installation requirements.
* Must be configured to meet program pump configuration requirements (see below).

## Products That Are Not Eligible

Products that do not qualify for a rebate include:

* Rebuilt, refurbished, or reconditioned products
* Rented or leased products
* Products won as prizes, or
* New parts installed in existing units.

# **Pump Configuration Requirements**

Variable Speed Pool Pumps must replace main filtration pumps. Booster pumps which are solely used for added spa jet circulation or secondary pumps used for cleaning purposes are not eligible. Pumps and motors being replaced must be disposed of rather than refurbished and sold.

### Single Family

Filtration settings must be configured to operate outside peak hours as defined by the utility. Customers must acknowledge and confirm operation on application form in order to be eligible for rebate.

### Multifamily

#### During Pool Operating Hours

Variable speed drive setting must be “right sized” to meet turn over requirements as specified by California Code of Regulations, Title 24, Building Standards Code (2013) [462]: Chapter 31B “Public Swimming Pools,” Section 3124B

#### During Non-Operating Hours

Variable speed drive setting must be configured to at least 50% of full speed operation to achieve energy savings. Running the pump at half speed theoretically reduces power draw to 1/8 of full power, but actual power draw will likely be higher due to lower motor efficiencies at part load.

#### Environmental Health & Safety Department Permit Requirements

* Must obtain and submit a Permit from the governing Health and Safety Department (i.e. County or City) of jurisdiction; if applicable.
* Health code requirements and inspections must be passed successfully.
* EH&S approves size and model of pump for installation, as well as, the required minimum and maximum flow rates based on specific site conditions.

# **Data Collection Requirements for Single Family**

1. Customer/Site Information
   1. Service Account
   2. Customer Name
   3. Phone Number
   4. Installation/Service Address
   5. Email Address
2. Existing Equipment – collected for Early Retirement Install Type Only
   1. Manufacturer
   2. Model Number
   3. Rated Horsepower
   4. Motor type (1-speed or 2-speed)
   5. Confirmation that existing pump still operational by collecting filtration settings (start/end schedule/times); volumetric flowrate (gpm); and wattage (Watts) - SCE’s addresses this data gathering requirement at the Program level, under Program requirements.
   6. Confirmation that existing pump will be disposed - SCE’s addresses this data gathering requirement at the Program level, under T&C acknowledgement
3. Replacement Model
   1. Manufacturer
   2. Model Number
   3. Rated Horsepower
   4. Filtration Settings
   5. Customer and Contractor Acknowledgement of Pool Pump Settings
   6. Installation Contractor Declaration
4. Preponderance of Evidence (POE) Questionnaire – collected for Early Retirement Install Type only
   1. Questionnaire to answer POE concerns related to the installation of the Pool Pump.
   2. Refer to Appendix A for sample questionnaire.

# **Data Collection Requirements for Multifamily**

1. Customer/Site Information
2. Service Account
3. Customer Name and Contact Info
4. Site Address
5. Property Type (Apartment, Condominium, etc.)
6. Permit Number and Authorizing Agency
7. Contractor Name, Company Name, CSLB Number
8. Contractor phone Numbers
9. Installation Address
10. Pool Identifier
11. Pool Volume (Gallons)
12. Pool Schedule (Open/Close)
13. Purchase Date and Install Date
14. Existing Equipment
    1. Manufacturer
    2. Model Number
    3. Rated Horsepower
    4. Motor type (1-speed or 2-speed)
    5. Confirmation that existing pump still operational by collecting filtration settings (start/end schedule/times); volumetric flowrate (gpm); and wattage (Watts) - SCE’s addresses this data gathering requirement at the Program level, under Program requirements
    6. Confirmation that existing pump will be disposed - SCE’s addresses this data gathering requirement at the Program level, under T &C acknowledgement
15. Replacement Model
    1. Manufacturer
    2. Model Number
    3. Horsepower
    4. Filtration Settings
    5. Customer and Contractor Acknowledgement of Pool Pump Settings
    6. Installation Contractor Declaration

For SCE, as part of Programs requirements and beyond the Department of Public Health and/or city permitting inspections, all projects costing above $20,000 are inspected and 10% of the projects costing less than $20,000 are randomly inspected by the program.

# **Quality Control/Inspections**

IOU programs utilize a sampling approach to randomly select a percentage of post-installation inspections to establish a performance baseline and/or to ensure that the contractor has met all installation criteria. Inspectors evaluate, measure, and verify all retrofit work.

Inspections serve three main purposes:

1. To verify that equipment claimed for incentive is installed properly and configured per Program requirements.
2. To gather data on how well the Program is working, and
3. To ensure customer compliance with Program guidelines

1. Eligible bodies must meet the definition and scope of “Public Swimming Pools” in the California Code of Regulations, Title 22, Chapter 20, Public Pools. [↑](#footnote-ref-1)