Short Form Work Paper WPSDGEREWH1061A

**Revision 5**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Low Flow Showerhead**

**November 28, 2017**

**SDG&E Low Flow Showerhead**

## Introduction

This short form workpaper documents the values adopted from SCE’s workpaper entitled “Faucet Aerator and Low Flow Showerhead” (SCE17WP004.0 Faucet Aerator and Low Flow Showerhead\_Final.docx). SDG&E adopts all the values in SCE17WP004.0 Faucet Aerator and Low Flow Showerhead, with the following exceptions:

1. The SCE workpaper values were adjusted for SDG&E territory. Since SDG&E provides gas and electric the savings use the savings defined as “both” in the Energy Division disposition
2. Faucet aerators are covered in a separate workpaper (WPSDGEREWH1012, Rev 2).

## Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 5 | 11/28/17 | Keith Valenzuela/SDGE Contractor | * Adopted SCE workpaper SCE17WP004.0 Faucet Aerator and Low Flow Showerhead |
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## Measure Summary

Table : Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for Low Flow Showerhead measures. The base energy consumption and measure energy consumption values are from SCE’s workpaper, SCE17WP004, Revision 0.  SCE’s workpaper details the installation of low flow showerheads with a measure case flow of 1.5 gpm. This measure was in previous DEER versions but does not remain in DEER 2016. Therefore, savings in this work paper are based on an Energy Division disposition. |
| **1.1 Measure & Baseline Data** | |
| **1.2 Technical Description** | There are 2 types of low flow showerheads:   * Aerating showerheads introduce air into the flow, which produces an even, misty spray while maintaining sufficient water pressure. * Laminar flow showerheads split the flow of water into multiple parallel streams; no air is added. They produce less steam than aerating showerheads.   This work paper assumes a showerhead measure case flow of 1.5 gpm. |
| Measures | Low Flow Showerhead Measures:  421015-Low Flow Showerheads |
| Code for All Measures | **Title 20 2016:** Section 1605.1, Table H-5 provides requirements for showerheads. The measure cases in this work paper have lower flow rates (1.5 gpm for showerheads) when compared to 2016 Title-20 standards. This will still be true on July 1, 2018 when showerhead minimum flow rate is reduced to 1.8 gpm.  Screen Clipping |
| Requirements | Eligible building types are:   * Residential Single Family * Residential Multi-family * Residential Mobile Home - Double-Wide   All SDG&E climate zones are eligible. For direct install measures, the contractor must verify that the product is installed correctly and the installed product must exceed code requirements. |
| **1.3 Installation Type and Delivery Mechanisms** | |
| Installation Type | Retrofit Add-on (REA) |
| Delivery Mechanisms | Low Flow Showerhead Measures:  421015-Low Flow Showerheads (Direct Install) |
| **1.4.1 DEER Data** | |
| Net-to-Gross Ratio | The NTG values were obtained using the DEER READI tool. The relevant NTG values for the measures in this work paper are in the table below.  Screen Clipping |
| Effective and Remaining Useful Life | The EUL and RUL values were obtained using the DEER READI v2.4.7 tool. DEER defines the RUL as 1/3 of the EUL value.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **EUL ID** | **Description** | **Sector** | **UseCategory** | **EUL (Years)** | **RUL (Years)** | | WtrHt-WH-Shrhd | Low-Flow Showerhead | Res | SHW | 10 | 3.33 | |
| **Section 2. Calculation Methodology** | |
| Energy Savings/Peak Demand Reduction – All Measures | The 2/22/13 Energy Division Workpaper Disposition for Water Fixtures provided “basis” savings values for:   * Showerheads 1.5 gpm, 1.6 gpm, and 1.7 gpm   + The average base case flow is 2.25 gpm, according to SCG and SDG&E study data.   These basis values were multiplied by climate zone-specific multipliers to determine final savings. The Single Family, Multi Family, and Mobile Home building types were included. |
| **Section 3. Load Shapes** | |
| Load Shape | The ideal load shape for net benefits estimates would represent the difference between the base case and measure case. The closest load shapes that are applicable to the measures in this work paper are listed in the table below.   |  |  |  | | --- | --- | --- | | **Building Type** | **Load Shape** | **E3 Alternate Building Type** | | Residential Mobile Home - Double-Wide | HeatPump\_WtrHt-RC | Residential | | Residential Multi-family | HeatPump\_WtrHt-RC | Residential | | Residential Single Family | HeatPump\_WtrHt-RC | Residential | |
| **Section 4. Cost** | |
| **Section 4.1 Base and Measure Costs** | |
| Base Cost | The base case is the customer’s existing equipment; therefore, the base case cost is $0.00. |
| Measure Cost | Low flow showerheads have not changed significantly from the cost sources used in the previous SCE workpaper, therefore, the costs were not updated in SCE17WP004.0.  For the low flow showerhead measure, the labor rate is based on 2010-2012 WO17 Ex Ante Measure Cost Study[[1]](#endnote-1) .  Low flow showerheads:  The costs per unit is $18.50 for materials and $15.67 for labor for a total cost of $34.17/unit. |

1. Itron. 2010-2012 WO017 Ex Ante Measure Cost Study Final Report. San Francisco, CA (2014, May 27). Retrieved 11/14/17 at <http://www.energydataweb.com/cpucFiles/pdaDocs/1100/2010-2012%20WO017%20Ex%20Ante%20Measure%20Cost%20Study%20-%20Final%20Report.pdf>. [↑](#endnote-ref-1)