**Workpaper WPSCGNRWH120618A**

**Revision 0**

**Southern California Gas Company**

**Customer Programs Department**

**Faucet Aerators for Bathroom/Kitchen Sinks in Residential Buildings**

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| Revision No. | Date | **Description** | **Author** |
| 0 | June 18, 2012 | Original Workpaper | Chan Paek, SCG |
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Measure Summary Table

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Measure Name | CZ | Building Type | EUL or RUL | NTG | Unit Definition | Program Type (NEW, ROB, RET) | Delivery Method | Incremental Measure Cost ($/unit) | Gas  Savings (Therms) | Gross Unit Annual Electricity Savings (kWh/unit) | % Eligible for TOU AC  Adjustment | Gross  Realization Rate (GRR) |
| Faucet Aerator,  Bathroom Sink,  1.0 gpm | SCG | SF | 10 | 0.59 | Aerator | ER | Direct Install | $13.24 | 3.3 | 0 | N/A | 1.0 |
| Faucet Aerator,  Kitchen Sink,  1.5 gpm | SCG | SF | 10 | 0.59 | Aerator | ER | Direct Install | $13.24 | 13.1 | 0 | N/A | 1.0 |
| Faucet Aerator,  Bathroom Sink,  1.0 gpm | SCG | MF | 10 | 0.65 | Aerator | ER | Direct Install | $13.24 | 3.3 | 0 | N/A | 1.0 |
| Faucet Aerator,  Kitchen Sink,  1.5 gpm | SCG | MF | 10 | 0.65 | Aerator | ER | Direct Install | $13.24 | 13.1 | 0 | N/A | 1.0 |
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# Table of Contents

[Revision History i](#_Toc327800115)

[Measure Summary Table ii](#_Toc327800116)

[List of Tables iii](#_Toc327800117)

[SECTION 1 - General Measure & Baseline Data 1](#_Toc327800118)

[1.01 Measure & Delivery Description 1](#_Toc327800119)

[1.02 DEER Differences Analysis 1](#_Toc327800120)

[1.03 Code Analysis 1](#_Toc327800121)

[1.04 Measure Effective Useful Life 1](#_Toc327800122)

[1.05 Net-to-Gross Ratios for Different Program Strategies 1](#_Toc327800123)

[1.06 Gross Realization Rate 1](#_Toc327800124)

[1.07 Time-of-Use Adjustment Factor 1](#_Toc327800125)

[SECTION 2 - Energy Savings & Demand Reduction Calculations 1](#_Toc327800126)

[2.01 Load Shapes 1](#_Toc327800127)

[2.02 Energy Savings 1](#_Toc327800128)

[SECTION 3 - Base Case & Measure Costs 2](#_Toc327800129)

[3.01 Base Case Cost 2](#_Toc327800130)

[3.02 Gross Measure Cost 2](#_Toc327800131)

[3.03 Incremental Measure Cost 2](#_Toc327800132)

[Attachments 3](#_Toc327800133)

[References 4](#_Toc327800134)

List of Tables

[Table 1. Aerator Savings 2](#_Toc327800135)

1. General Measure & Baseline Data

Measure & Delivery Description

This workpaper addresses the savings associated with the installation of faucet aerators on a bathroom sink or kitchen sink in single- and multi-family homes.

Measures in this workpaper include 1.0-gpm aerator for bathroom sink and 1.5-gpm aerator for kitchen sink.

Measure Application Type & Delivery Method

* + - 1. Measures in this workpaper are direct install (DI) retrofit (ER) for existing faucets with no aerators.

DEER Differences Analysis

The savings for this technology are not included in DEER2011, but EUL, NTG Ratio, and the cost information are provided in DEER.

Code Analysis

* + 1. There are no codes & standards that apply for this technology.

Measure Effective Useful Life

* + 1. The EUL of the aerator provided in DEER table[[1]](#endnote-1) is 10 years.

Net-to-Gross Ratios for Different Program Strategies

* + 1. The NTGR values for this technology are provided in DEER2011 as follows[[2]](#endnote-2).
       1. NTGR for this measure in SF (single-family) building type with direct install delivery method is 0.59.
       2. NTGR for this measure in MF (multi-family) building type with direct install delivery method is 0.65.

Gross Realization Rate

* + 1. The gross realization rate of 1.0 is applied for this workpaper.

Time-of-Use Adjustment Factor

* + 1. N/A

1. Energy Savings & Demand Reduction Calculations

Load Shapes

* + 1. N/A

Energy Savings

* + 1. The savings for this technology is directly taken from the Energy Efficiency Starter (EES) Kit workpaper (SCGWP100309A\_Rev3).
    2. Following table shows the savings values listed in EES Kit workpaper.
       1. The savings from EES Kit workpaper includes the installation rates as it is a single family program with a different delivery strategy. Table 1 below shows the savings taken from EES Kit workpaper before the installation rates are applied.
       2. The baseline flow rates can be found in the table imbedded in the referenced EES kit workpaper (SCGWP100309A\_Rev3).
          1. By averaging the measured values, the baseline flow rates are determined to be 2.2 gpm for both kitchen and bathroom faucets with no aerator according to EES Kit workpaper.

1. Aerator Savings

|  |  |
| --- | --- |
| **Aerator** | **Estimated Savings (therm/yr/aerator)** |
| 1.5 gpm, Kitchen | 13.1 |
| 1.0 gpm, Bathroom | 3.3 |

* + 1. The installation rate for measures covered in this workpaper is 0.665 as provided in DEER2011[[3]](#endnote-3).

1. Base Case & Measure Costs

Base Case Cost

* + 1. The base case of this retrofit is not doing anything, and therefore, the base case cost is $0.

Gross Measure Cost

* + 1. The measure cost is taken from a table provided by DEER 2011[[4]](#endnote-4).
       1. The material cost for 0.5 gpm aerator is $6.54.
       2. The labor cost of installing an aerator is $6.70.
    2. The gross measure cost is $13.24.

Incremental Measure Cost

* + 1. The IMC is equal to the gross measure cost, $13.24 per installation of each aerator.

Attachments

Energy Efficiency Starter Kit Workpaper, SCGWP100309A Rev. 3.



References

1. Expected Useful Life, “EUL\_Summary\_10-1-08.xls”, DEER 2011.

    [↑](#endnote-ref-1)
2. Net-To-Gross Ratio, “DEER2011\_NTGR\_2012-05-16.xls”, DEER 2011

    [↑](#endnote-ref-2)
3. Installation rates, “SupportTable\_GSIA.xlsx”, GSIA\_ID: Res-LowF-FA-All

    [↑](#endnote-ref-3)
4. Measure Cost Information, “Revised DEER Measure Cost Summary (05\_30\_2008) Revised (06\_02\_2008)\_Original.xls”, DEER 2011

    [↑](#endnote-ref-4)