Short Form Work Paper WPSDGEREWH1062

**Revision 0**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Water Saving Kit**

**December 29, 2017**

**SDG&E Water Saving Kit in Residential Buildings**

## Introduction

This short form workpaper documents the values adopted from READI v2.4.7 for DEER ID Res-DHWSavingsKit-Both. The measure costs are derived from Program’s negotiated price to put the kit and its “elements” together along with shipping and packaging.

## Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 12/29/2017 | Keith Valenzuela/SDGE Contractor | Original Workpaper |
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## Measure Summary

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for water saving kits. The base energy consumption and measure energy consumption values are from READI v2.4.7 for DEER ID Res-DHWSavingsKit-Both. |
| **1.1 Measure & Baseline Data** | |
| **1.2 Technical Description** | A faucet aerator is a device that screws onto an existing faucet head in order to reduce water flow. It splits the flow of water into multiple streams and adds air. This reduces flow while maintaining sufficient water pressure. This work paper assumes an aerator measure case flow of 1.0 gpm in lavatories and 1.5 gpm in kitchens.  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.  Per READI v2.4.7 the measure includes:  Water Saving Kit: 1-1.5 GPM shower head, 1-1.5 GPM kitchen faucet aerator, 2-1.0 GPM lavatory faucet aerators - Residential. Energy savings are based on weighted impacts to include either gas and electric heaters. |
| Measures | Measure 1: 404026- Water Saving Kit |
| Code for All Measures | **Title 20 2016:** Section 1605.1, Table H-3 provides requirements for aerators and Table H-4 provides requirements for kitchen aerators. The measure cases in this work paper have lower flow rates (1.0 gpm for laboratory aerators and 1.5 for kitchen sink aerators) when compared to 2016 Title-20 standards.  Screen Clipping  Screen Clipping  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. |
| **1.3 Installation Type and Delivery Mechanisms** | |
| Installation Type | Retrofit Add-on (REA) |
| Delivery Mechanisms | Measure 1: 404026- Water Saving Kit (PreRebDown) |
| **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.  Faucets:  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-Aertr | Faucet Aerators | Any | SHW | 10 | 3.33 | |
| **Section 2. Calculation Methodology** | |
| Energy Savings/Peak Demand Reduction – All Measures | The base energy consumption and measure energy consumption values are from READI v2.4.7 for DEER ID Res-DHWSavingsKit-Both.  Since SDG&E provides both gas and electric, the workpaper savings use the savings defined as “both” in the Energy Division disposition. |
| **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 | SDGE:19-RES-AllResidential-WAT\_HEAT | Residential | | Residential Multi-family | SDGE:19-RES-AllResidential-WAT\_HEAT | Residential | | Residential Single Family | SDGE:19-RES-AllResidential-WAT\_HEAT | 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 | The measure costs are derived from Program’s negotiated price to put the kit and its “elements” together along with shipping and packaging. The price per kit is $14.25  However, given that the kit is a “giveaway” to the qualified gas account customer, the costs are absorbed through Direct Implementation expenditures. The costs listed for the implementation would be listed as zero. To include the costs would create double costs as it would be picked up again when we report the claims. |