Work Paper SCE17AP003.0

**Revision 0**

**Short Form**

**Southern California Edison**

**Energy Star Clothes Washer**

**Introduction**

This short form workpaper documents (WP) the values adopted from PGE’s WP entitled “Clothes Washers” (PGECOAPP127 R4). SCE adopts all the values in PGECOAPP127 R4 – “Clothes Washers” with the following changes:

* SCE will offer downstream incentives for Energy Star, Energy Star Most Efficient, and CEE Tier 3 residential sized clothes washers installed in single-family, multifamily (in-unit), and domestic mobile home. Multifamily common areas and commercial buildings have been removed.
* Mid-Stream was added as a delivery method.

# Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 4/12/18 | Stephen Brett Reno | * Transferred savings values to SCE Calculation template for the 2017 program year. * Calculation templates were developed based on PGE’s template “PGECOAPP127 R4 Clothes Washers”. * Mid-stream was added as a delivery method. * Energy Star, Energy Star Most Efficient, and CEE Tier 3 residential sized clothes washers are only eligible installed in single-family, multifamily, and domestic mobile homes. Multifamily common areas and commercial buildings have been removed. * PG&E solution codes CWME and CWMEF are no longer offered so the Measure CostID is not included in the PG&E ExAnte Tables, thus it was assigned a SCE Cost ID of SCE17AP003\_00\_M001 |

**Measure Summary**

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form work paper documents the inputs for measures that reduce the energy associated with efficient clothes washers that meet minimum criteria for Energy Star, Energy Star Most Efficient, and CEE Tier 3 residential sized clothes washers installed in single-family, multifamily dwelling units, and domestic mobile home. Energy Star commercial sized clothes washers in commercial building types are also covered.  The savings values are based on PGE’s workpaper PGECOAPP127 R4 – “Clothes Washers”. |
| **1.1 Measure & Baseline** | **AP-58952** (PGE ID – AP002)  Measure: Energy Star Residential Top-Loading Clothes Washer with a minimum Integrated Modified Energy Factor of 2.06 and maximum Integrated Water Factor of 4.3  Baseline: Title 20 compliant top-loading standard clothes washer with IMEF of 1.57 and IWF of 6.5  **AP-70168** (PGE ID – AP003)  Measure: Energy Star Residential Front-Loading Clothes Washer with a minimum Integrated Modified Energy Factor of 2.38 and maximum Integrated Water Factor of 3.7  Baseline: Title 20 compliant front-loading standard clothes washer with IMEF of 1.84 and IWF of 4.7  **AP-12634** (PGE ID – CWME, CWMEF)  Measure: Energy Star Most Efficient Clothes Washer with a minimum Integrated Modified Energy Factor of 2.74 and maximum Integrated Water Factor of 3.2  Baseline: Title 20 compliant top-loading and front-loading standard clothes washer weighted by market share  **AP-73704** (PGE ID – AP004, CWWA)  Measure: CEE Tier 3 Clothes Washer with a minimum Integrated Modified Energy Factor of 2.92 and maximum Integrated Water Factor of 3.2  Baseline: Title 20 compliant top-loading and front-loading standard clothes washer weighted by market share  **AP-61333** (PGE ID – AP001)  Measure: Energy Star Commercial Clothes Washer with a minimum Modified Energy Factor\_J2 of 2.2 and maximum Water Factor of 4.1  Baseline: Title 20 compliant top-loading and front-loading standard clothes washer weighted by market share  **AP-75192** (PGE ID – AP001)  Measure: Energy Star Commercial Leased Clothes Washer with a minimum Modified Energy Factor\_J2 of 2.2 and maximum Water Factor of 4.1  Baseline: Title 20 compliant top-loading and front-loading standard clothes washer weighted by market share |
| **1.2 Technical Description** |  |
| **Measures** | AP-58952: Energy Star Residential Top-Loading Clothes Washer with a minimum Integrated Modified Energy Factor of 2.06 and maximum Integrated Water Factor of 4.3  AP-70168: Energy Star Residential Front-Loading Clothes Washer with a minimum Integrated Modified Energy Factor of 2.38 and maximum Integrated Water Factor of 3.7  AP-12634: Energy Star Most Efficient Clothes Washer with a minimum Integrated Modified Energy Factor of 2.74 and maximum Integrated Water Factor of 3.2  AP-73704: CEE Tier 3 Clothes Washer with a minimum Integrated Modified Energy Factor of 2.92 and maximum Integrated Water Factor of 3.2  AP-61333: Energy Star Commercial Clothes Washer with a minimum Modified Energy Factor\_J2 of 2.2 and maximum Water Factor of 4.1  AP-75192: Energy Star Commercial Leased Clothes Washer with a minimum Modified Energy Factor\_J2 of 2.2 and maximum Water Factor of 4.1 |
| **Code for All Measures** | **Title 20 2017:**  Section 1605.1, Table P-2: Standards for Residential Clothes Washers  Section 1605.1, Table P-3: Standards for Commercial Clothes Washers    **Title 24 2016:**  These measures do not fall under Title 24 of the California Energy Regulations.  **Federal Standards:** These measures fall under Federal DOE Energy Regulations. Title 20 minimum standards for residential and commercial clothes washers follow DOE federal minimum efficiency requirements.  Refer to Section 1.4.2 of PGECOAPP127 R4 for additional details. |
| **Requirements** | * The clothes container volume must be ≥ 1.6 and ≤ 6.0 cubic ft. * Configurations other than a front-loading or top-loading design do not qualify. * Combination washer-dryers and residential clothes washers with an optional dry cycle do not qualify. * Note that this work paper only offers the ESME measure for residential models greater than 2.5 cubic ft. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| **Installation Type** | Replace on Burnout (ROB) |
| **Delivery Mechanisms** | Residential Measures:  Down-Stream Programs: Down-Stream Incentives  Mid-Stream Programs: Mid-Stream Incentive  Commercial Measures:  Down-Stream Programs: Down-Stream Incentives  Direct Install  Mid-Stream Programs: Mid-Stream Incentive |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | * AP-58952: 0.31 (Res-sAll-mCW) * AP-70168: 0.31 (Res-sAll-mCW) * AP-12634: 0.55 (Res-Default>2) * AP-73704: 0.55 (Res-Default>2) * AP-61333: 0.60 (Com-Default>2yrs) * AP-75192: 0.60 (Com-Default>2yrs) |
| **Effective and Remaining Useful Life** | * AP-58952 (Appl-EffCW):   EUL: 11.0, RUL: 3.7   * AP-70168 (Appl-EffCW):   EUL: 11.0, RUL: 3.7   * AP-12634 (Appl-EffCW):   EUL: 11.0, RUL: 3.7   * AP-73704 (Appl-EffCW):   EUL: 11.0, RUL: 3.7   * AP-61333 (ComLau-EffCW):   EUL: 11.0, RUL: 3.7   * AP-75192 (ComLau-EffCW-Leased):   EUL: 5.0, RUL: N/A |
| **Section 2. Calculation Methodology** |  |
| **Energy savings/Peak Demand Reduction – All Measures** | The energy savings for residential clothes washers installed in single-family, domestic mobile home, and multi-family in-unit locations are based on DEER Measure IDs. DEER does not contain measures for commercial-sized clothes washers. IOU calculation methodology was used to calculate savings for commercial-sized washers. Impacts for washers in commercial buildings are scaled using clothes washer cycles per year values available in the DOE commercial clothes washers technical support documents. The “small office” building type was used for the commercial measures.  Please refer to Section 2 of the PECOAPP127 R4 for additional details. |
| **Section 3. Load Shapes** | Residential Measures: DEER:Res\_ClothesDishWasher  Commercial Measures: HorizAxisClothesWasher-RC |
| **Section 4. Costs** | The PG&E workpaper measure description for SCE AP-12634 is equivalent to PG&E’s solution codes CWME and CWMEF. The measure cost for SCE AP-12634 ($714.01) is included in Section 4.2 of the workpaper (table below). However, PG&E solution codes CWME and CWMEF are no longer offered so this Measure CostID is not included in the PG&E ExAnte Tables. Thus it was assigned a SCE Cost ID of SCE17AP003\_00\_M001. |
| **Section 4.1 Base and Measure Costs** | Please refer to Attachment #1 Calculation Templates for detailed baseline and measure costs. |

*No Changes were required for this short form. The savings were simply transferred to SCE’s 2017 Calculation Template.*

**Attachments**

1. SCE17AP003.0 A1 Calculation Templates