Work Paper SCE17CC001

**Revision 0**

**Short Form**

**Southern California Edison**

**Reach In Refrigerators and Freezers - Commercial**

**Introduction**

This short form workpaper documents the values adopted from PGE’s WP entitled “Reach In Refrigerators and Freezers - Commercial” (PGECOFST123 R3). SCE adopts all the values in PGECOFST123 R3 with no changes

# Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 6/01/2018 | Ajay Wadhera/SCE | 1. Transferred savings values to SCE Calculation template for the 2018 program year. 2. Calculation templates were developed based on PGE’s template “PGECOFST123 R3 Reach In Ref and Freezer-Statewide”. 3. All 16 climate zones were used in this version. |

**Measure Summary**

Table : Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for Commercial Reach-in Refrigerators and Freezers. The savings values are from PG&E’s workpaper PFECOFST123 R3-Reach in RefFreez document. This work paper details the purchase of new or replacement energy efficient commercial reach-in solid and glass door refrigerators and freezers, in both vertical and chest configurations. |
| **1.1 Measure & Baseline** | Please refer to Attachment #1 Calculation Templates for the list of measure solution codes and baseline condition. |
| **1.2 Technical Description** |  |
| **Measures** | FS-13121: < 15 cubic feet Solid-Door Reach-In Refrigerator  FS-42962: 15 – 29 cubic feet Solid-Door Reach-In Refrigerator  FS-93044: 30 – 49 cubic feet Solid-Door Reach-In Refrigerator  FS-31425: ≥ 50 cubic feet Solid-Door Reach-In Refrigerator  FS-21276: < 15 cubic feet Solid-Door Reach-In Freezer  FS-61432: 15 – 29 cubic feet Solid-Door Reach-In Freezer  FS-86848: 30 – 49 cubic feet Solid-Door Reach-In Freezer  FS-54809: ≥ 50 cubic feet Solid-Door Reach-In Freezer  FS-77373: < 15 cubic feet Glass-Door Reach-In Refrigerator  FS-28291: 15 – 29 cubic feet Glass-Door Reach-In Refrigerator  FS-68882: 30 – 49 cubic feet Glass-Door Reach-In Refrigerator  FS-44686: ≥ 50 cubic feet Glass-Door Reach-In Refrigerator  FS-16170: < 15 cubic feet Glass-Door Reach-In Freezer  FS-38598: 15 – 29 cubic feet Glass-Door Reach-In Freezer  FS-58112: 30 – 49 cubic feet Glass-Door Reach-In Freezer  FS-30794: ≥ 50 cubic feet Glass-Door Reach-In Freezer |
| **Code for All Measures** | 2016 Title 24 code does not apply in this case because solid door reach-in refrigerators, solid door reach-in freezers, glass door reach-in refrigerators, and glass door reach-in freezers do not fall under the CEC Title 24, Building Energy Efficiency Standards or the Department of Energy (DOE) energy regulations.    The 2016 Title 20 code does not apply to the measures within this work paper. As such, Federal Code, 10 CFR 431.66 iv, would cover these measures. As Per the Federal Code #10 CFR 431.66, each commercial refrigerator, freezer, and refrigerator-freezer with a self-contained condensing unit designed for holding temperature applications manufactured on or after March, 2017, shall have a daily energy consumption (in kilowatt hours per day) that does not exceed the base case table shown in PGECOFST123 R3.  As of March 28, 2017, the new ENERGY STAR ® Version 4.0 specification is effective, establishing the measure case equipment efficiencies. Please see the measure case table in PGECOFST123 R3 for more details. |
| **Requirements** | * In all categories, the refrigeration system shall be built-in (packaged). Units with remote refrigeration systems do not qualify. * Used or rebuilt equipment is not eligible. * Each installed equipment must meet minimum prescriptive criteria to qualify for a per unit rebate. * This measure is only applicable to Non-residential building types. This measure is not approved for installation in Residential Single Family, Residential Multi-Family, or Residential Mobile Home – Double Wide building types. * This measure is eligible in all SCE climate zones. * Must meet new ENERGY STAR® Version 4.0 specifications to qualify. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| **Installation Type** | Replace on Burn-out (ROB) |
| **Delivery Mechanisms** | Down-Stream Incentive  Mid-Stream Incentive |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | Com-Default>2yrs |
| **Effective and Remaining Useful Life** | Cook-SDRef 12 years EUL for all ID’s  Cook-SDFreez  Cook-GDRef  Cook-GDFreez |
| **Section 2. Calculation Methodology** |  |
| **Energy savings/Peak Demand Reduction – All Measures** | The nominal size and internal volume range are based on standard widths and each standard width may include multiple (French style) doors and/or multiple sections. The calculated annual energy usage was based on 365 days per year operation, and the daily energy consumption for typical units was determined by applying the code and measure maximum daily energy consumption as shown in the PFECOFST123 R3-Reach in RefFreez file section 1.4.2 tables.  The demand reduction estimations are obtained by dividing the daily energy usage by 24 hours, as the units are plugged in 24/7. |
| **Section 3. Load Shapes** | Refrigeration |
| **Section 4. Costs** |  |
| **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. **SCE17CC001.0 A1 Calculations Final.xlsm**