Short Form Work Paper WPSDGENRCC0001

**Revision 4**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Commercial Steam Cooker-Electric and Gas**

**December 27, 2016**

# SDG&E Commercial Steam Cooker-Electric and Gas

## Introduction

This short form workpaper documents (WP) the values adopted from PGE’s WP entitled “Commercial Steam Cookers-Electric and Gas” (PGECOFST104 R6 Steam Cookers Comm MD)). SDG&E adopts all of the values in PGECOFST104 R6 Steam Cookers Comm MD, with no exceptions.

## Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 12/11/2007 | David Zabrowski/ Fisher-Nickel, Inc. | Original work paper: Commercial Steam Cooker PGECOFST104 R0.doc |
| 1 | 06/01/2009 | David Zabrowski / Fisher-Nickel, Inc. | Changes to EUL, NTG language and references, costs updated |
| 2 | 07/17/2010 | Lucie Sidibe / SDG&E | Adopted from PGEFST104, Revision 2 (refer to attachment for original work paper)  Summary of changes:  1-Work Paper run ID was changed to mirror SDGE cataloging needs.  2-SDGE Measure code was added |
| 3 | 06/15/2012 | Max Twogood / SDG&E | Adopted from: PGECOFST104 R4 Steamer R4 May 22 2012.doc, dated May 22, 2012. Revised NTGR with DEER 2011. Revised approvers with SDGE management |
| 3.1 | 06/19/2014 | Judelson Enriquez/ RMS Energy Consulting, LLC | INTERNAL REVISION ONLY – No material changes made.  1. Updated measure list, measure requirements, code analysis to include T20/T24 references, EUL ID to DEER2014, NTG ID to 2011, empty references in Section 2, load shape ID and language.  2. Generated calculation spreadsheet based on IOU statewide Calculation Template and added additional columns for Mark M. Removed CZ cost factors in the calcs. |
| 4 | 12/19/16 | Kelvin Valenzuela/SDG&E | Adoption from PGE’s PGECOFST104 R6 Steam Cookers MD.docx. Revised impacts. |

## Measure Summary

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts for Commercial Steam Cooker, both electric and gas. The base energy consumption and measure energy consumption values are from PG&E’s workpaper, PGECOFST104, Revision 6. |
| **1.1 Measure & Baseline Data** | Measure:  402135 – Steamer-Electric  402136 – Steamer-Gas |
| **1.2 Technical Description** |  |
| Measures | See Requirements |
| Code for All Measures | **California Title 20**  State of California Title 20 Appliance Efficiency Regulation[[1]](#endnote-1) has a category for cooking appliances, but commercial steam cookers are not included.  **California Title 24**  There are no State of California Title 24 Efficiency Regulation requirements for commercial steam cookers.  **Federal**  There are no Federal energy efficiency requirements for commercial steam cookers.  **American Society for Testing and Materials (ASTM) Standards**  ASTM Standard Test Method for the Performance of Steam Cookers (F1484) is applicable for estimating energy use and cooking performance. It was used to estimate the energy consumption of the base case and measure equipment. |
| Requirements | The electric commercial steam cooker must meet ENERGY STAR® specifications for energy efficiency or must have a tested heavy load potato cooking energy efficiency of 50% utilizing ASTM Standard F1484[[2]](#endnote-2).  The gas commercial steam cooker must meet ENERGY STAR® specifications for energy efficiency or must have a tested heavy load potato cooking energy efficiency of 38% utilizing ASTM Standard F1484. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | Replace on Burn-out (ROB) |
| Delivery Mechanisms | Downstream Rebate – Deemed  NOTE: Measures are offered in the SDG&E Direct Install program yet require a customer co-pay and are treated as downstream deemed. |
| **1.4.1 DEER Data** |  |
| Net-to-Gross Ratio | Com-Default>2yrs |
| Effective and Remaining Useful Life | Cook-ElecStmCooker  Cook-GasStmCooker |
| **Section 2. Calculation Methodology** | DEER 2016 |
| Energy Savings/Peak Demand Reduction – All Measures | **Electric Steam Cooker (PG&E: F108) (SDG&E: 402135)**  Base Case Energy Consumption: Source: PG&E Calculations – 33,364 kWh/yr; 7.62 kW  Measure Energy Consumption: Source: PG&E Calculations – 3,208 kWh/yr; 0.73 kW  Energy Savings (Base Case – Measure): Source: PG&E Calculations – 30,156 x 0.70 = 21,109 kWh/yr; 0.6.89 kW x 0.90 x 0.70 (CDF) = 4.34 kW  **Gas Steam Cooker (PG&E: F109) (SDG&E: 402136)**  Base Case Energy Consumption: Source: PG&E Calculations – 3,942 therms/yr  Measure Energy Consumption: Source: PG&E Calculations – 235 therms/yr  Energy Savings (Base Case – Measure): Source: PG&E Calculations – 3,707 therms/yr x 0.70 = 2,595 therms/yr |
| **Section 3. Load Shapes** | SDG:35-OTI-OtherIndustrial-PROC\_OTH  WinterOnly |
| **Section 4. Costs** |  |
| **Section 4.1 Base and Measure Costs** |  |
| Base Cost |  |
| 402135 | $5,463 (PG&E F108) |
| 402136 | $8,636 (PG&E F109) |
| Measure Cost |  |
| 402135 | $7,594 (PG&E F108) |
| 402136 | $11,537 (PG&E F109) |

1. 2005 California Energy Commission (CEC) Title 20 Appliance Efficiency Regulations, CEC 400-2005-012, p. 69 [↑](#endnote-ref-1)
2. American Society for Testing and Materials, *Standard Test Method for the Performance of Steam Cookers*; ASTM Designation F1484, in Annual Book of ASTM Standards, West Conshohocken, PA [↑](#endnote-ref-2)