Short Form Work Paper WPSDGENRHC1061

**Revision 1**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Space Heating Boilers**

**September 23, 2016**

# Space Heating Boilers Short Form WP

## Introduction

This short form workpaper documents the Ex-ante data by referencing the DEER/READI database Measure IDs. The cost values are adopted from SCG’s approved workpaper entitled “Commercial Boilers” (WPSCGNRWH120206C Rev6).

**Document Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 06/15/2012 | Kelvin Valenzuela / SDG&E | Adopted from WPSCGNRHC120206A\_Rev2\_Space Heating Boiler-May22.docx, updated May 18, 2012. Updated NTG values to DEER 2011 |
| 1 | 09/23/2016 | Eduardo Reynoso / SDG&E | 1. Proposed abridge short form workpaper for EAR team review.  2. Adopted costs from Southern California Gas Company workpaper WPSCGNRWH120206C Rev6 Commercial Boilers dated July 26, 2016. |

**Measure Summary**

**Table 1: Measure Summary Table**

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts cost-effectiveness values for space heating boilers. The cost values and respective Cost IDs are adopted from SCG’s workpaper. All other parameters except for costs are per DEER/READI and are used by SDG&E as noted in this Measure Table Summary (Table 1). |
| **1.1 Measure & Baseline Data** | Per DEER/READI with MeasureIDs as noted herein. |
| **1.2 Technical Description** | * Measure 1-Hot water boiler (< 300 kBtuh, 84.0 AFUE, OA Reset from 140 to 165 F) * Measure 2-Hot water boiler (< 300 kBtuh, 90.0 AFUE, condensing, OA reset from 140 to 165 F) * Measure 3-Hot water boiler (300-2500 kBtuh, 85.0 Et, OA Reset from 140 to 165 F) * Measure 4-Hot water boiler (300-2500 kBtuh, 90.0 Et, condensing, OA reset from 140 to 165 F) |
| Measures | Per DEER/READI with IDs as below |
| Code for All Measures | Title 20 and Title 24 as reflected and referenced in DEER |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | * Replace On Burnout (ROB) |
| Delivery Mechanisms | * Downstream Rebate – Deemed |
| **1.4.1 DEER Data** |  |
| DEER Measure ID 1  DEER Measure ID 2  DEER Measure ID 3  DEER Measure ID 4 | NG-HVAC-Blr-HW-lt300kBtuh-84p0AFUE-Drft  NG-HVAC-Blr-HW-lt300kBtuh-90p0AFUE-CndStd  NG-HVAC-Blr-HW-300to2500kBtuh-85p0Et-Drft  NG-HVAC-Blr-HW-300to2500kBtuh-90p0Et-CndStd |
| Net-to-Gross Ratio | Com – Default>2yrs SDG&E is using the default as there is no other applicable NTGD |
| Effective and Remaining Useful Life | HVAC-Blr (Linked to READI data)) |
| **Section 2. Calculation Methodology** | Measures will be processed using DEER Measure/Impact ID by building type and Building Location. All will be processed and claimed using “Existing” vintage. |
| Energy Savings/Peak Demand Reduction – All Measures | All Energy Impacts per DEER Measure IDs noted above |
| **Section 3. Load Shapes** | Gas: Winter Only |
| **Section 4. Costs** |  |
| Units | Cap-kBTUh |
| Base Cost – Measure 1 | $11.96 Per SCG WP |
| Base Cost – Measure 2 | $11.96 Per SCG WP |
| Base Cost – Measure 3 | $17.94 Per SCG WP |
| Base Cost – Measure 4 | $17.94 Per SCG WP |
| Measure Cost – Measure 1 | $14.83 Per SCG WP |
| Measure Cost – Measure 2 | $14.55 Per SCG WP |
| Measure Cost – Measure 3 | $21.47 Per SCG WP |
| Measure Cost – Measure 4 | $22.01 Per SCG WP |
| Incremental Cost – Measure 1 | $2.87 Per SCG WP |
| Incremental Cost – Measure 2 | $2.59 Per SCG WP |
| Incremental Cost – Measure 3 | $3.53 Per SCG WP |
| Incremental Cost – Measure 4 | $4.07 Per SCG WP |