Short Form Work Paper WPSDGENRWH0021

**Revision 4**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Ozone Laundry System**

**November 5, 2018**

# Ozone Laundry System Short Form WP

## Introduction

This short form workpaper (WP) documents the values adopted from PG&E’s WP entitled “Ozone Laundry Nonresidential” (PGECOAPP123 Rev 6). SDG&E adopts all of the values in PGECOAPP123 Rev 6 with the exception of:

1. New Construction (NC) installation type changed to REA since SDG&E only offers this as REA.
2. E3 load profile in Section 3 changed to SDG&E specific approved value for ozone laundry system.
3. Measures are only applicable to Non-Residential systems.

## Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 03/08/2010 | PG&E | Adopted from PG&E Workpaper PGECOAPP123 |
| 1 | 10/13/2010 | SDGE | SDGE, WPNRWH0021, Ozone laundryR1.final |
| 2 | 06/26/2012 | Peter Ford/SDGE | Update NTG for DEER 2012 |
| 2.1 | 06/25/2014 | Phillip Hasley/Hasley Consulting | INTERNAL REVISION ONLY – no material changes made   1. Updated to new workpaper format. 2. Generated calculation spreadsheet based on IOU statewide Calculation Template output, with additional columns and non-CZ cost factor adjustments. 3. Updated NTG ID to greater than 2 years in program. |
| 3 | 09/18/2016 | Travis Richards/RMS  P. Ford/SDG&E | 1. Updated Program Type from NEW to REA 2. Updated Pre Description to conventional washing machine without an ozone generator 3. Added information in Section 1.2 Technical Description 4. Added Measure Requirements that align with PG&E’s workpaper and SDGE’s EEBR Catalog. 5. Developed Short Form standard workpaper for this submission |
| 4 | 11/5/2018 | Eduardo Reynoso / SDG&E | 1. Updated cost calculations to align with PGE and SCG data. 2. Revised measure eligibility requirements. 3. Expanded applicability to DEER building types: Fhc – Fitness Center, Nrs - nursing homes, Com – commercial for correctional facilities, and Htl/Mtl - large hotels/motels (>250 rooms) based on SCG project data. |

**At a Glance Offering**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Implementation ID | Cost IDs | Delivery Type | MeasApp Type | Therm savings /yr | IMC |
| 402421 | Measure Cost ID: ClothesWash\_equip\_OzoneGen-Full  Standard Cost ID: BaseCostZero | PreRebDown | REA | 39.3 | $138.41 |

Table 1: Measure Summary Table

|  |  |
| --- | --- |
| **Section** | **Value** |
| **Summary & Purpose** | This short form workpaper documents the adoption of latest version of PG&E Workpaper PGECOAPP123 by SDG&E. All PG&E workpaper parameters are adopted and are as shown in this table with the exception of Items 1, 2 and 3 called out in the previous Introduction section (Measure Type REA and LoadShape). |
| **1.1 Measure & Baseline Data** | Measure and Baselines are documented in the PG&E WP. Herein, the measure is an REA measure type Installation of an ozone generator on an existing or new non-residential laundry facility. The base case is a conventional washing machine without an ozone generator. |
| **1.2 Technical Description** | REA measure for an ozone generator installed as a retrofit to a conventional commercial laundry system. Natural gas energy savings will be achieved at the hot water heater/boiler per PG&E workpaper. |
| Measure 1 | Ozone Laundry System |
| Code for Measure 1 | The base case is a conventional washing machine without an ozone generator with a hot water boiler meeting minimum regulated thermal efficiency standards, i.e. 80% thermal efficiency as required by Title 20. |
| Requirements for Measure 1 | * Customer must have a natural gas-fired boiler or natural gas water heater that supplies hot water to the on-premise laundry equipment. * Rebate only applies to the following facilities with on-premise laundry operations:   + - Hotels/motels with fewer than 250 guest rooms.     - Fitness and recreational sports centers.     - Nursing Home – Health/Medical     - Correctional Facilities * The ozone laundry system(s) must be a new purchased product and installed with a new or existing commercial washing machine(s). * The ozone laundry system(s) must transfer ozone into the water through Venturi Injection or Bubble Diffusion |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | Retrofit Add On (REA)  Full EUL is assumed since the conventional laundry system will likely be replaced without ozone generation so the RUL of the host equipment does not apply. |
| Delivery Mechanisms | * Downstream Deemed Rebate |
| **1.4.1 DEER Data** |  |
| DEER Measure ID | DEER does not contain this type of measure. |
| Net-to-Gross Ratio | Com-Default>2yrs |
| Effective and Remaining Useful Life | OzoneGen  EUL = 10 years / RUL = 3.33 Per Support Tables |
| **Section 2. Calculation Methodology** |  |
| Energy Savings Measure 1 | 39.3 therms/process lbs. of laundry capacity Per PG&E WP |
| Water Savings Measure 1 | 2,789 gallons/process lbs. of laundry capacity Per PG&E WP |
| **Section 3. Load Shapes** | SDGE:35-OTI-OtherIndustrial-PROC\_OTH Changed to SDG&E LoadShape  Annual |
| **Section 4. Costs** |  |
| Base Cost – Measure 1 | $0 REA measure, no RUL of Host |
| Measure Cost – Measure 1 | $138.41/process lbs. of laundry capacity Per PG&E WP |
| IMC – Measure 1 | $138.41/process lbs. of laundry capacity Per PG&E WP |