Short Form Work Paper WPSDGENRBS0001

**Revision 1**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Window Film –**

**DEER Unit Adjustment and Measure Cost**

**October 4, 2016**

# SDG&E Window Film

## Introduction

This short form workpaper documents the ex-ante load impact and cost-effectiveness values used for Window Film. It also translates the DEER units of per-100-SF of window area to per-1-sf of area, as well as provides window film cost based on customer invoices. Savings are computed as a simple average of DEER orientations.

## Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 08/29/2014 | Rocaciano Vega/RMS | Original workpaper (modified DEER) for Reflective Window Film. |
| 1.0 | 10/4/2016 | **SDGE WP Team** | Updated documentation, unit area, and measure cost |

## Measure Summary

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for Window Film. The energy savings and load impacts are based on DEER. The savings units are adjusted from 100s of square feet to square feet. The DEER 2008 cost values are updated based on actual customer invoices. All other parameters are per DEER/READI and are used by SDG&E as noted in this Measure Table Summary (Table 1). |
| **1.1 Measure & Baseline Data** | Measure: Add Reflective Window Film  Baseline: DEER Pre-Existing window without film. |
| **1.2 Technical Description** | Window film with a SHGC less than 0.39, or SHGC of 0.47 and visible transmittance/solar heat gain coefficient (VT/SHGC) ratio greater than 1.3. |
| Measures | Per DEER/READI with IDs as below |
| Code for All Measures | Not applicable due to Requirements |
| Requirements | * Film must have a minimum 5-year manufacturer’s warranty * Space must be cooled by vapor-compression AC * Rebates not available for northern exposure (+ 45 degrees of due north) * Must be applied to windows installed before 2008 or clear, single-pane glass * Must meet one of the following criteria: * Film must have a SHGC less than 0.39 * Film can have a SHGC less than 0.47 and visible transmittance/SHGC (VT/SHGC) ratio greater than 1.3 * Invoice must document specification and square footage installed |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | * Retrofit Add-on (REA)   Full EUL granted to this REA measure since window EUL well exceeds film EUL |
| Delivery Mechanisms | * Downstream Rebate – Deemed |
| **1.4.1 DEER Data** |  |
| DEER Measure ID - 1 | D03-018 - East glass SHGC 20% less than required by 2005 T-24 |
| DEER Measure ID - 2 | D03-019 - South glass SHGC 20% less than required by 2005 T-24 |
| DEER Measure ID - 3 | D03-020 - West glass SHGC 20% less than required by 2005 T-24 |
|  | Savings and load impacts are a simple average of the three DEER measures |
| Net-to-Gross Ratio | Com-Default>2yrs |
| Effective and Remaining Useful Life | GlazDaylt-WinFilm |
| **Section 2. Calculation Methodology** | Measures will be processed by building type and Building Location. All will be processed and claimed using “Existing” vintage. Savings and load impacts are a simple average of the three measures with the savings units converted from “per Area-100Win” to “perArea-1Win” (per square foot of glazing area). |
| Energy Savings/Peak Demand Reduction – All Measures | All Energy Impacts per DEER Measure IDs noted above |
| **Section 3. Load Shapes** | DEER:Com:HVAC\_Split-Package\_AC |
| **Section 4. Costs** | See below supporting invoice documentation |
| **Section 4.1 Modeled Costs** | There are no CostIDs for these measures in READI. |
| Base Cost – Measure 1 | $0 Per invoice data herein |
| Measure Cost – Measure 1 | $4.23 Per invoice data herein |

## Cost Calculation Documentation

SDG&E computed a weighted average cost based on all of the 2016 claims through September 2016.

