Short Form Work Paper WPSDGENRCC0019

**Revision 2**

**San Diego Gas & Electric**

**Energy Efficiency Engineering**

**Commercial Kitchen Demand Ventilation Controls**

**December 24, 2016**

# SDG&E Commercial Kitchen Demand Ventilation Controls

## Introduction

This short form workpaper documents (WP) the values adopted from SCE’s WP entitled “Commercial Kitchen Exhaust Hood Demand Controlled Ventilation” (SCE13CC008.2 - Exhaust Hoods Demand Controlled Ventilation\_Final.docx). SDG&E adopts all of the values in SCE13CC008 Rev 2 - Exhaust Hoods Demand Controlled Ventilation, with no exceptions.

## Document Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 12/21/2007 | David Zabrowski (Fisher-Nickel, inc.) | Original work paper |
| 0.1 | 06/15/2012 | Kelvin Valenzuela (SDG&E) | Adopted from F150 DemandVentilationConstrols DAZ 071221.doc, updated December 21, 2007. Updated NTG values to DEER 2011 |
| 1.0 | 08/26/2014 | Kyle Dunn (MWE2) | - Adopted SCE Workpaper SCE13CC008.1 Exhaust Hoods Demand Controlled Ventilation, updated June 11, 2014  - Updated EUL\_ID  - Updated NTG  - Added GSIA  - Updated load shapes  - Updated building types |
| 2 | 12/24/2016 | Eduardo Reynoso  (SDG&E) | Adoption from SCE’s “SCE13CC008.2 - Exhaust Hoods Demand Controlled Ventilation\_Final.docx” dated 1/21/2016, the IOU lead workpaper as stated in [www.deeresources.net](http://www.deeresources.net) |

## Measure Summary

Table : Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts for SCE’s “Commercial Kitchen Exhaust Hood Demand Controlled Ventilation”. The base energy consumption and measure energy consumption values are from SCE’s workpaper, SCE13CC008, Revision 2. |
| **1.1 Measure & Baseline Data** | Measure:  402032 - Ventilation Control – Retrofit (SCE product code: FS-17337)  402033 - Ventilation Control- New (SCE product code: FS-17337) |
| **1.2 Technical Description** |  |
| Measures | See Requirements |
| Code for All Measures | As cited per SCE workpaper  Current relevant requirements for commercial kitchen ventilation are contained in Title 24 2013 [355], Section 140.9(b)2B. Section 140.9(b)2B gives requirements for kitchens that have greater than 5,000 cfm total Type I and Type II kitchen hood exhaust and lists four compliance options, one of which is installing demand controlled ventilation on 75% of exhaust air. The exact code language is shown in SCE13CC008, Revision 2. For new kitchens that have less than 5,000 cfm of total hood exhaust, the code requirements do not apply and DCKV is an applicable measure.  Title 24 2008 [208] and 2014 Title 20 [422] do not contain any relevant language and existing hoods are exempt from the Title 24 2013 [355] requirements, thus this is an applicable REA measure for existing commercial kitchen exhaust hood systems installed under previous code requirements.  These measures do not fall under Federal DOE or EPA Energy Regulations. |
| Requirements | ***Terms and Conditions***   1. This incentive applies towards the purchase and installation of a new commercial kitchen exhaust hood control system installed in an existing or new dedicated commercial kitchen exhaust hood and make-up air system. 2. The control system must be used in conjunction with variable speed fan motor controls. 3. In order to comply with SB 454, must use a licensed contractor, as appropriate, and follow applicable permitting requirements for this installation. Ensure you have completed the customer certification and the contractor certification in section 10 of the Energy Efficiency Business application for this HVAC related product 4. New hood installations must have a total kitchen hood airflow less than 5,000 cfm.   ***Market Applicability***  This measure is applicable to any commercial cooking application, including (but not limited to) casual dining and quick service restaurants, hotels, motels, schools, colleges and recreational facilities. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| Installation Type | Retrofit Add-on (REA) |
| 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 | HVAC-EMS |
| **Section 2. Calculation Methodology** | DEER 2016 |
| Energy Savings/Peak Demand Reduction – All Measures | **As cited in SCE’s workpaper the Savings are:**  Electric   |  |  | | --- | --- | | **Average Rated Exhaust Fan Power (HP)** | **9.65** | | Normalized Base Case Fan Energy Consumption (kWh/yr/Exh HP) | 7,391 | | Normalized Measure Case Fan Energy Consumption (kWh/yr/Exh HP) | 2,968 | | Normalized Fan Energy Savings (kWh/yr/Exh HP) | **4,423** | | Coincident Demand Reduction (kW/Exh HP) | **0.551** |   NG Savings   |  |  | | --- | --- | | **Climate Zone** | **Natural Gas Savings (therms/yr/Exh HP)** | | 6 | 65 | | 7 | 53 | | 8 | 63 | | 10 | 68 | | 14 | 110 | | 15 | 36 | |
| **Section 3. Load Shapes** | SDGE:DEER:Com:HVAC\_Split-Package\_AC |
| **Section 4. Costs** | The Gross Measure Cost is obtained from costs documented by PG&E FSTC, SCE FTC and Honeywell/Melink and is calculated as a cost per exhaust fan horsepower ($/HP). The GMC includes both materials and labor. |
| **Section 4.1 Base and Measure Costs** |  |
| Base Cost |  |
| 402032 | $0.00 (PG&E: F150; SCE: FS-17337) |
| 402033 | $0.00 |
| Measure Cost |  |
| 402032 | $1991.00 (PG&E: F150; SCE: FS-17337) |
| 402033 | $ 944.00 |