Workpaper Plan

Commercial Refrigerant Charge Adjustment and Coil Cleaning

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Dated: November 9, 2018

1. Approach

Following narrative describes methodology adopted by PG&E for revisions to existing HVAC Commercial Quality Maintenance (CQM) work papers, which include:

* PGE3PHVC156 – Condenser Coil Cleaning
* PGE3PHVC158 – Evaporator Coil Cleaning
* PGE3PHVC160 – Refrigerant Charge Adjustment

Each workpaper will be evaluated for content revisions related to DEER2019 and Resolution E-4867. Currently each workpaper utilizes DEER prototype eQUEST models to serve as the measure scenario, with certain existing conditions faults modeled to represent the existing conditions baseline. Methodologies will be updated to utilize DEER2019 RCA UES as described herein.

Measure cost analysis and as-needed updates will also be performed for each workpaper, as the current cost reference (2010-2012 WO17 Ex Ante Measure Cost Study) may be outdated.

1. Methodology for Evaluating Measure

The existing approach for evaluating energy and demand savings will no longer be used. The current workpapers utilize DEER prototype eQUEST models to serve as the measure scenario, with adjustments to account for damper leakage findings from HVAC impact evaluation report WO32. Faults are modeled to simulate the existing conditions baseline for each measure.

The existing measure codes will be retired. Measure descriptions and savings will instead come directly from DEER2019. These measures will be included directly in PGE3PHVC160:

* Small Pkg AC system with No TXV, decrease refrigerant charge from Typical over-charge (4 - 50%) to factory specified level
* Small Pkg AC system with TXV, decrease refrigerant charge from Typical over-charge (4 - 50%) to factory specified level
* Small Pkg AC system with No TXV, increase refrigerant charge from Typical under-charge (4 - 50%) to factory specified level
* Small Pkg AC system with TXV, increase refrigerant charge from Typical under-charge (4 - 50%) to factory specified level

For PGE3PHVC156, a UES multiplier of 0.125 will be applied to the DEER2019 “increase refrigerant charge” measures. The multiplier is consistent with ED staff advice from CPUC Workpaper Disposition for Non-Residential HVAC Rooftop Quality Maintenance, 5-2-2013 (Attachment A, item 2.).

For PGE3PHVC158, a UES multiplier of 0,0625 will be applied to the DEER2019 “increase refrigerant charge” measures. The multiplier is consistent with ED staff advice from CPUC Workpaper Disposition for Non-Residential HVAC Rooftop Quality Maintenance, 5-2-2013 (Attachment A, item 2.).

1. Measure Cost Analysis

Measure costs will be developed from technician survey responses for at least three separate contractors per workpaper, but with a target of 10 contractors. Survey data may be supplemented with information from additional data sources that may include, but are not limited to:

* RSMeans
* 2010-2012 WO017 Ex Ante Measure Cost Study and/or latest CPUC supported cost study

1. Timeline and Budget

Workpaper updates are expected to be completed within five weeks from notice to proceed. Budget estimate is attached.

1. Attachments

N/A