



DEER2021 and Revised DEER2020



Energy Division California Public Utilities Commission

July 25, 2019





Welcome & Agenda

Goal: To provide an opportunity for interactive Q&A of the DEER Update Resolution prior to finalizing Aug 15, 2019

- Introduction
- Implementation Schedule
- Methodology Changes
 - Lighting measures, statewide workpapers, savings by climate zone, smart controllable thermostat
- DEER Revisions and Corrections
 - AR below-code NTG adjustment factor, water heaters, duct sealing, missing refrigerant charge adjustment measures, and HVAC anomalies
- Review of EM&V Studies
 - On-bill-finance NTG
- Review of Codes and Standards
 - General service lighting standards





Introduction

- DEER and Workpaper Team leads
 - **CPUC:** Peter Biermayer and Manisha Lakhanpal
 - **DNV GL:** Bob Ramirez, Rachel Murray, Jennifer McWilliams
 - **ERS:** Sue Haselhorst and Kerri-Ann Richard
- This cycle primarily completes-continues the DEER2020 work
 - Significant changes implemented by DEER2020 including 2019 Title 24 updates, peak demand period, and reconfiguration of the commercial building simulation models
 - Statewide workpapers will replace individual PA workpapers for PY2020
 - Many changes needed to fully operationalize DEER2020
- Presentation of update topics is the same as in the draft Resolution E-5009 on <http://www.deeresources.com>





DEER2021 Update Implementation Schedule

Milestone	Date
Input solicited from PAs	Feb 19, 2019
Scoping Memo issued	April 29, 2019
Stakeholder comments due	May 13, 2019
Draft Resolution sent to service list R13-11-005	July 11, 2019
Draft Resolution webinar	July 25, 2019
Stakeholder comments* due	July 31, 2019
Final Resolution voted out	August 15, 2019
DEER Update changes implemented	Aug-Sept 2019

*Refer to the tariff comment letter sent out to the service list





Methodology: Review and Assessment of Lighting Measures

- Tubular Light-Emitting Diode (TLED) lamps included in standard practice baseline.
 - Baseline was revised to include a mix of technologies per direction in Resolution E-4952, adopted October 11, 2018 which requires 100% LED in the baseline
 - The technology mix now includes LED fixtures (67%) and tubular LEDs (33%)
 - Equivalent Lumens Approach - measures are grouped by equivalent lumens provided rather than by wattage
- Standard practice baseline for screw-in reflector, globe, and candelabra lamps will be all LED
 - These measures can no longer be offered using energy efficiency incentive dollars as a normal replacement.
 - As a result, affected PY2020 measures will be expired/sunset in the DEER database on 12/31/2019.





Methodology: Statewide Workpapers

- Since mid-2017, the PAs and California Technical Forum (Cal TF) have been consolidating measures into statewide workpapers. These are ready for adoption for PY2020 with an effective date of 1/1/2020. Refer to: <http://www.deeresources.net/workpapers>
- DEER will expire all PY2019 and earlier measures as of 12/31/2019. As of 1/1/2020, program administrators and third-party implementers will use consolidated measures for their program offering.
- CPUC Staff and contractors plan to approve 101 workpapers by September 1, 2019 that can be used in the PAs' program year 2020 forecasts. Any remaining workpapers (~25) that do not get approval by 1/1/2020 will be dealt with on a case-by-case basis.

Note: counts have been updated since the DEER 2021 draft release.





Methodology: Smart Controllable Thermostats (SCT)

- DEER-based cooling loads used to estimate SCT cooling loads were called into question, particularly the temperature schedules.
 - A new statewide SCT workpaper is expected to be submitted August 1, 2019 using:
 - weighted-temperature schedules
 - revised natural gas savings based on an updated billing analysis
- DEER resolution will **not** modify heating- and cooling-load data in this update for PY2020 and PY2021. They may be updated subsequent to the release of the new Residential Appliance Saturation Survey (RASS) data in 2020.
 - Temperature setpoints and schedules are only one element of the model and calibration process
 - DEER residential models are calibrated to the Residential Appliance Saturation Survey (RASS)
 - Other revisions, such as incorporation of new typical meteorological weather files, may also be included in the update





Methodology: Consolidate Savings by Climate Zone

- Short-term: the database will rely on consolidated workpaper values that specify which PA-specific value will be used in each climate zone.

Table A-5 - Predominant PA to use for Statewide CZ savings values

CA Climate Zone	Predominant PA
CZ05	PGE
CZ06	SCE, for electric measures SCG, for gas measures
CZ08	
CZ09	
CZ10	
CZ13	PGE
CZ14	SCE, for electric measures SCG, for gas measures
CZ15	
CZ16	

- Long-term: modifications will be made to the post-processing scripts used to process the building simulation results produced by MASControl3.





DEER Revisions and Corrections

- Suspend AR below-code NTG adjustment factor
 - DEER2020 specified that AR measures should have two NTG ratios: one for the first baseline period and another for the second baseline period
 - Due to difficulties implementing this in the CET, this has been suspended

- Update and correct water heater calculators
 - Calculator is currently missing savings for electric heat pump water heaters
 - Calculator has some anomalies in savings for gas water heaters
 - Revised water heater calculator will be ready by mid-2020

- DEER residential heat pump water heater measures
 - Modify the measure description to shift the lower size limit

Table A-6 - Suggested revision to DEER measure definition

MeasureID	Measure Description (MeasDesc)	Standard Description (StdDesc)
RE-WtrHt-SmlStrg-HP-lte12kW-rep30G-3p24EF	Efficient water heater: 50 46 to 55 gallon HP Elec (UEF=3.09) replaces 30 gallon Electric water heater (UEF 0.92)	Small storage Elec water heater: 30 gallon, UEF = 0.92, RE = 0.98, Cap = 4.5, UA = 1.31 BTU/hr-F





DEER Revisions and Corrections (cont.)

- Will revisit duct sealing Effective Useful Life (EUL)
 - Became a behavioral retrocommissioning measure meant its EUL became 3 yrs.
- Refrigerant charge adjustment (RCA) measures missing from DEER2020
 - The missing RCA measures will be added per DEER2020 except:
Savings for system circuits that are overcharged are minimal, so system circuits that are found to be overcharged during field work shall not be eligible for savings claims.
 - Hence commercial RCA measures no longer available:
 - **NE-HVAC-RefChg-Dec-Typ-ntxv**
 - **NE-HVAC-RefChg-Dec-Typ-txv**
- Measures expired by DEER2020 Update, but still offered
 - Utilities will collaborate with Staff and contractors to identify missing DEER values for current offerings and provide those values.





Review of EM&V Studies

- 2017 EM&V results not used due to timing, but will use next cycle
- Reviewed on-bill financing NTG issue from DEER2020
 - There is limited information available to change net-to-gross (NTG) ratio for on-bill financing programs; current NTG shall remain effective.
 - Reviewed the 2015 Opinion Dynamics evaluation of on-bill financing NTG values as suggested by utilities.
 - Study results indicate that the NTG values should be changed for some programs and end uses
 - Due to changes in markets and program offerings since 2015, we will not apply the values from this report.
 - Instead, we recommend a more comprehensive study be planned so that the study results coincide with the next EM&V and DEER update cycle.





Review of Codes and Standards

- The baseline for screw-in lamps will need to be updated due to code changes.
 - In anticipation of this code change being implemented at either the state or federal level, DEER will be updated to reflect the new code.
 - These lighting measures will move to 100% LED baseline for 2020 and will be retired from DEER.





Thank You!

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