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

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input solicited from PAs</td>
<td>Feb 19, 2019</td>
</tr>
<tr>
<td>Scoping Memo issued</td>
<td>April 29, 2019</td>
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<tr>
<td>Stakeholder comments due</td>
<td>May 13, 2019</td>
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<tr>
<td>Draft Resolution sent to service list R13-11-005</td>
<td>July 11, 2019</td>
</tr>
<tr>
<td><strong>Draft Resolution webinar</strong></td>
<td><strong>July 25, 2019</strong></td>
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<tr>
<td>Stakeholder comments* due</td>
<td>July 31, 2019</td>
</tr>
<tr>
<td>Final Resolution voted out</td>
<td>August 15, 2019</td>
</tr>
<tr>
<td>DEER Update changes implemented</td>
<td>Aug-Sept 2019</td>
</tr>
</tbody>
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*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>
<thead>
<tr>
<th>CA Climate Zone</th>
<th>Predominant PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ05</td>
<td>PGE</td>
</tr>
<tr>
<td>CZ06</td>
<td></td>
</tr>
<tr>
<td>CZ08</td>
<td>SCE, for electric measures</td>
</tr>
<tr>
<td>CZ09</td>
<td>SCG, for gas measures</td>
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<tr>
<td>CZ10</td>
<td></td>
</tr>
<tr>
<td>CZ13</td>
<td>PGE</td>
</tr>
<tr>
<td>CZ14</td>
<td>SCE, for electric measures</td>
</tr>
<tr>
<td>CZ15</td>
<td>SCG, for gas measures</td>
</tr>
<tr>
<td>CZ16</td>
<td></td>
</tr>
</tbody>
</table>

- 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>
<thead>
<tr>
<th>MeasureID</th>
<th>Measure Description (MeasDesc)</th>
<th>Standard Description (StdDesc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE-WtrHt-SmlStrg-HP-lte12kW-rep30G-3p24EF</td>
<td>Efficient water heater: 50 to 55 gallon HP Elec (UEF=3.09) replaces &lt;=50 gallon Electric water heater (UEF 0.92)</td>
<td>Small storage Elec water heater: 30 gallon, UEF = 0.92, RE = 0.98, Cap = 4.5, UA = 1.31 BTU/hr-F</td>
</tr>
</tbody>
</table>
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!

For further information related to *DEER 2021 Update*
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