Keep Calm and Rebate on

ENERGY STAR Partners Meeting
October 12, 2015

Together, Building a Better California
PG&E’s Lighting Rebate Trends
California’s Investor-Owned Utilities (IOUs)

Quick Facts:

- PG&E serves nearly **16 million** people in **70,000 square miles** across **9 climate zones**
- 700,000 non-residential electric customers
- 200,000 non-residential gas customers
PG&E’s Lighting Rebate Eligibility

CEC Spec
- LED Bulbs
  - Residential Upstream Lighting (Primary Lighting Program)

ENERGY STAR
- Screw-in LEDs and CFL Reflectors + Downlight Retrofit Kits
  - Commercial Midstream Distributor Program
  - Downstream Programs

DLC
- Non-Residential LED Fixtures & Kits
  - Downstream Programs

CEE
- Non-Residential Linear Fluorescent Lamps and Fixtures
  - Downstream Programs
CA Quality Specification: Where are we today?

Primary Lighting Program since the full transition of the IOUs to the CEC Spec in Dec 2013:

- More than 60 lamp models are eligible for rebates
- PG&E’s residential savings from LEDs have grown from 17% to 70% of the product mix

<table>
<thead>
<tr>
<th># eligible models</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
<td>37</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>50,000</td>
<td>320,000</td>
<td>1,050,000</td>
</tr>
<tr>
<td></td>
<td>1,000,000</td>
<td>1,270,000</td>
<td>1,700,000</td>
</tr>
</tbody>
</table>

Savings (kWh) and Incentives ($) for LED and CFL:

- 2013
- 2014
- 2015
Residential Lighting: Strategies and Future Plans
## Codes and Standards Proposals in Progress

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Lamps Styles</th>
<th>LPW</th>
<th>CRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Title 20: Small Diameter Directional Lamps*</td>
<td>small directional lamps with ≤2.25” diameter (i.e. MR16)</td>
<td>~70-80</td>
<td>Tradeoff between CRI &amp; Efficacy</td>
</tr>
<tr>
<td>CA Title 20: LED Lamps (Tier 1)*</td>
<td>general service and decorative LEDs (may include directional)</td>
<td>~65</td>
<td>~82-85 (Tradeoff between CRI &amp; Efficacy)</td>
</tr>
<tr>
<td>CA Title 20: LED Lamps (Tier 2)*</td>
<td></td>
<td>~85</td>
<td></td>
</tr>
<tr>
<td>Energy Independence and Security Act (EISA)</td>
<td>general service lamps (A-lamp at minimum, may include other lamp types)</td>
<td>≥45</td>
<td>Not specifically addressed</td>
</tr>
</tbody>
</table>

*Scheduled to be considered for adoption October 2015
Codes and Standards Timeline & Impacts

EISA adopted nationally ≥45 LPW

EISA adopted in CA ≥45 LPW

2016 2017 2020

Cost effective rebate programs?

2018

Title 20: LED Lamps Tier I: ~65 LPW CRI ≥ 82

Title 20: Small Diameter Directional Lamps ~70-80 LPW

Title 20: LED Lamps Tier II: ~85 LPW CRI ≥ 84

CEC Spec remains

2019

2018 2019 2020
IOU Rebates Opportunities

Now - 2018

• Currently, CA IOUs only incentivize LED bulbs in the Primary Lighting Program that meet the CEC Spec.
• IOUs encourage manufacturers to develop products and submit them for consideration for incentive programs.

Beyond 2018

• Possibly challenging for CA IOUs to cost-effectively offer rebate programs for general service lamps.
• We encourage manufacturers to continue to develop highly efficacious and cost-effective products that can exceed the new baseline.
Program Strategies Moving Forward

- The CA IOUs will continue incentives for the CEC Spec lamps in Primary Lighting
- Conduct EM&V studies to better understand consumer preferences
- Continue to:
  - engage with manufacturers on product plans in order to assess right intervention strategies
  - Work with our regulators to review savings calculation methodologies
  - explore connected lighting as the next potential LED lighting product in residential segment
Thank you!

Shareghe Mehraeen
Senior Product Manager, EE Core Products
Pacific Gas and Electric Company
S0MC@pge.com