Achieving Ambitious Energy Efficiency Targets: Emerging Opportunities for Existing Buildings

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Governor’s Goals

“Double the efficiency of existing buildings and make heating fuels cleaner.”

Source: Governor Brown’s Inaugural address, January 5, 2015
How Can We Double EE?

Impact and Implications of SB350 – Electric

SB350 includes:
• IOU and POU programs
• Meter-Based Savings
• O&M savings
• Additional Future C&S
• PACE programs
• Fuel switching
• Conservation Voltage Reduction
• AB758 Existing Buildings
• Proposition 39
• Cap and Trade Unallocated Revenues
• Uncalibrated EE Potential

Notes and assumptions:
• SB350 requires a doubling of the CEC’s Additional Achievable Energy Efficiency (AAEE) mid-case forecast by 2030, subject to what is cost-effective and feasible. SB350 also expands AAEE accounting for a number of efforts, as listed above, meaning IOUs goals may increase, but may not double.
• The above graph is statewide across all IOUs and is shown on a cumulative basis through 2030, which aligns with the requirements of AB350.
• The bill requires a doubling of the 2015 AAEE, which is forthcoming; the analysis above is based on the 2013 AAEE.
• AAEE is not identical to, but is based on the CPUC Potential Study.
• The AAEE forecast extends through 2024. The bill requires an average annual growth rate be applied to this period, but does not identify the rate or how to calculate it. This graph uses an average of the last available four years of savings 2021-2024.
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Can We Double EE When Program Potential is Declining?

Gross Program Portfolio Goals

Notes and assumptions:
• Data from CPUC decision goals
Can We Double EE When Program Potential is Declining?

Programs v. Codes and Standards
Share of Portfolio Goals

Notes and assumptions:
• Data from CPUC decision goals
• C&S goals for 2016+ are still under discussion
• C&S goals in 2010-12 were not specifically broken out in CPUC decisions. C&S savings is split out in the graph above for comparison purposes.
Changing Dispatch Curve

CAISO Net Load --- 2012 through 2020

MW

2012
2013
2014
2015
2016
2017
2018
2019
2020
But What about Gas?

Impact and Implications of SB350 – Gas

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But What about Gas?

Source: PG&E Tariff Book: http://www.pge.com/nots/rates/tariffs/rateinfo.shtml. Weighted Average Cost Of Gas includes the weighted average cost of gas and interstate pipeline volumetric commodity charges. It does not include franchise fees, uncollectables, or any other procurement related charges.

PG&E Gas Commodity Price

10-yr Avg: $0.49
Sept 2015: $0.22
Preparing for A High Pressure System
Large Areas of Potential Savings

Aggregated Potential Energy Savings

- **5.1 GWh** Above-code savings
- **10.3 GWh** To-code savings
- **5.5 GWh** Operational savings

- **24.4%** of potential savings were above current code
- **49.2%** of potential savings were in bringing buildings up to current code levels
- **26.4%** of potential savings were in operational improvements

More than 75% of potential savings

• Study examined 22 building energy end-uses making up the majority of consumption in 164 office, retail, grocery, and school buildings in the Central Valley

Source: Preliminary results from FirstFuel study, May 2015
Focusing on Inefficient Buildings

The 100 buildings with largest energy savings potential (out of the 164 examined)

Source: Preliminary results from FirstFuel study, May 2015
None of the 20 buildings with the largest energy savings potential remain in this set.

The 10 buildings that are best targets under current incentive rules (i.e., more than 50% of potential savings are above-code)

Source: Preliminary results from FirstFuel study, May 2015
Multi Channel Approach

Partnerships

Behavioral And Operational

Grid: Transmission and Distribution Pilot

Commercial Whole Building

Retail Products Platform
Commercial Whole Building

A comprehensive, performance-based approach designed to deliver 15+% post-installation energy savings in existing commercial buildings.

Efficiency Measure Types

Two Installment Payments

1. Up-front incentive payable after implementation
2. Performance incentive 1 year later based on achieved savings

Segments: office, retail, grocery, government, educational
Using EE as a Distributed Energy Resource

- **Bogue (Yuba City)**
  - Customers: 14,000 Res, 1,000 SMB, 400 LCI
  - Goal: 2,000 kW peak load reduction by end of 2015

- **Martell (Jackson)**
  - Customers: 3,500 Res, 700 SMB, 150 LCI
  - Goal: 800 kW peak load reduction by end of 2015

- **Lammers (Tracy)**
  - Customers: 7,000 Res, 250 SMB, 250 LCI
  - Goal: 2,500 kW peak load reduction by end of 2015

- **Barton (Fresno)**
  - Customers: 23,000 Res, 2,000 SMB, 500 LCI
  - Goal: 2,500 kW peak load reduction by end of 2015
Step Up & Power Down

A community initiative inspiring local businesses to adopt behaviors that reduce energy waste.

Overall Participant Goals

- 2016 Goal
  - Large: 170
  - SMB: 33

Sectors

- Food & Beverage: 57
- Hotel: 70
- Office: 51
- Other: 18
- Retail: 0

Activities

- Energy Check
- Energy Manager
- Energy Practices
- Technical Audit: LIA
- Technical Audit:...
- Orientation
- Sustainability Circles
- O&M Training
- Quick Tips
- Campaigns

Participants
Leverage Upstream: Retail Products Platform (RPP)

Leveraging Upstream Opportunities

- Co-branded signs
- Height of promotion
- End caps sales
- Staff Training
- Price reduction
Retail Products Platform: 2015 Partnerships

Home-Theaters-in-a-Box/Sound Bars
Air Cleaners
Dryers
Room Air Conditioning
Freezers

BGE
PG&E
Efficiency Vermont
EDISON INTERNATIONAL
pepco
SMUD
Leveraging Partnerships

List of vendors is not exhaustive and is meant for illustrative purposes only.
Thank You

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