Overview of Findings from Baseline Studies

Gil Wong
Pacific Gas & Electric Company

CAISO PDR Working Group Meeting
May 26, 2009

Pacific Gas and Electric Company®

We will talk about…

- Two prior California-sponsored baseline studies
    - *Protocol Development for Demand Response Calculation—Findings and Recommendations*, KEMA (2003)
    - *Evaluation of 2005 Statewide Large Nonresidential Day-Ahead and Reliability Demand Response Programs*, Quantum (2006)
- Christensen Associates will also cover the two baseline studies they completed in 2006 and 2008.

KEMA (2003)

- Offer guidelines on good estimation practice and the pros and cons of different baseline methods
- Set up criteria in developing baselines
    1. Simplicity – easy to use and understand
    2. Accuracy – including lack of bias
    3. Minimization of customers' ability to game
    4. Predictability – customers can know the baseline before committing to a particular curtailment amount
    5. Consistency with other peak savings methods used by utilities

KEMA (2003) - Recommendations

- A practical default: 10-day average with morning adjustment

- “This method can be recommended for both weather-sensitive and non-weather-sensitive accounts, with both low and high variability, for summer and non-summer curtailments.”

- 5-in-10 adjusted may be a good alternative in some cases, depending on the customer type.

Quantum (2006)

- The main scope was a load impact evaluation of CPP, DBP, BIP and other DR programs, with a baseline study as a section in the report.

- The analysis included:
  - 3-in-10 individual (unadjusted)
  - 3-in-10 aggregated (unadjusted)
  - 10-day individual adjusted
  - 8-in-10 individual adjusted

Quantum (2006) - Findings

- 3-in-10 is biased upward for program settlement.
- 10-day individual adjusted is believed to be the most accurate, which comes closest to (but still higher than) the regression estimates. Regression analysis resulted in lower impact estimates than all of the representative day methods.

Common ground between the studies?

- 3-in-10 is not very accurate.
- Morning adjustment helps improve the performance of the baseline, regardless of the number of days included in the calculation.
- 5-in-10 or 10-day average may be a better choice than 3-in-10.

➢ How about individual vs. aggregated? Gaming? See Christensen (2008).