# Potential Energy Division Staff Proposal: Adoption of Simplified ELCC Methodology

**November 8, 2015**

**Resource Adequacy and Procurement Oversight**

**California Public Utilities Commission**

# D.16-06-045 Did Not Adopt ELCC

- Noted concern that the "dramatic increase in the capacity value of wind and solar resources in the off-peak (winter) months relative to the current exceedance values may negatively affect reliability in those months."
- Decision also noted that "SCE's proposed NLP-ELCC, or similar approach may be a viable solution to this challenge and merits further consideration. Alternatively, some of the simplified ELCC methods suggested by CalWEA may be appropriate."

# Recap: ED Proposed Combining Tech Factors and ELCC Over Time

| | Wind | | Solar | |
|---|---|---|---|---|
| | 2016 Technology Factors | ELCC | 2016 Technology Factors | ELCC |
| January | 3.80% | 12.6% | 0.24% | 57.8% |
| February | 11.98% | 12.6% | 1.26% | 57.8% |
| March | 19.86% | 12.6% | 6.26% | 57.8% |
| April | 18.43% | 12.6% | 71.68% | 57.8% |
| May | 31.05% | 12.6% | 73.97% | 57.8% |
| June | 27.77% | 12.6% | 75.67% | 57.8% |
| July | 17.29% | 12.6% | 69.10% | 57.8% |
| August | 15.72% | 12.6% | 69.24% | 57.8% |
| September | 10.68% | 12.6% | 70.45% | 57.8% |
| October | 7.26% | 12.6% | 55.59% | 57.8% |
| November | 3.23% | 12.6% | 0.14% | 57.8% |
| December | 5.55% | 12.6% | 0.11% | 57.8% |

# Technology Factors Dependent on Assessment Hours

- Assessment Hours, April – October:
  - HE14—HE18
  - 1:00 pm – 6:00 pm
- Assessment Hours, January – March and November & December
  - HE17—21
  - 4:00 pm – 9:00 pm
- Assessment hours determined based peak load hours

# Overview of ED's Current Work

- One of the main obstacles to adoption of ELCC appears to be fitting it into the CA monthly RA framework (many jurisdictions have annual RA programs).
- ED staff are currently working on monthly ELCC values, but the approaches are novel.
- If modeling solution to monthly ELCC values lacks consensus, is it possible to adopt some hybrid approach? Would such an approach address potential reliability concerns that have been raised?

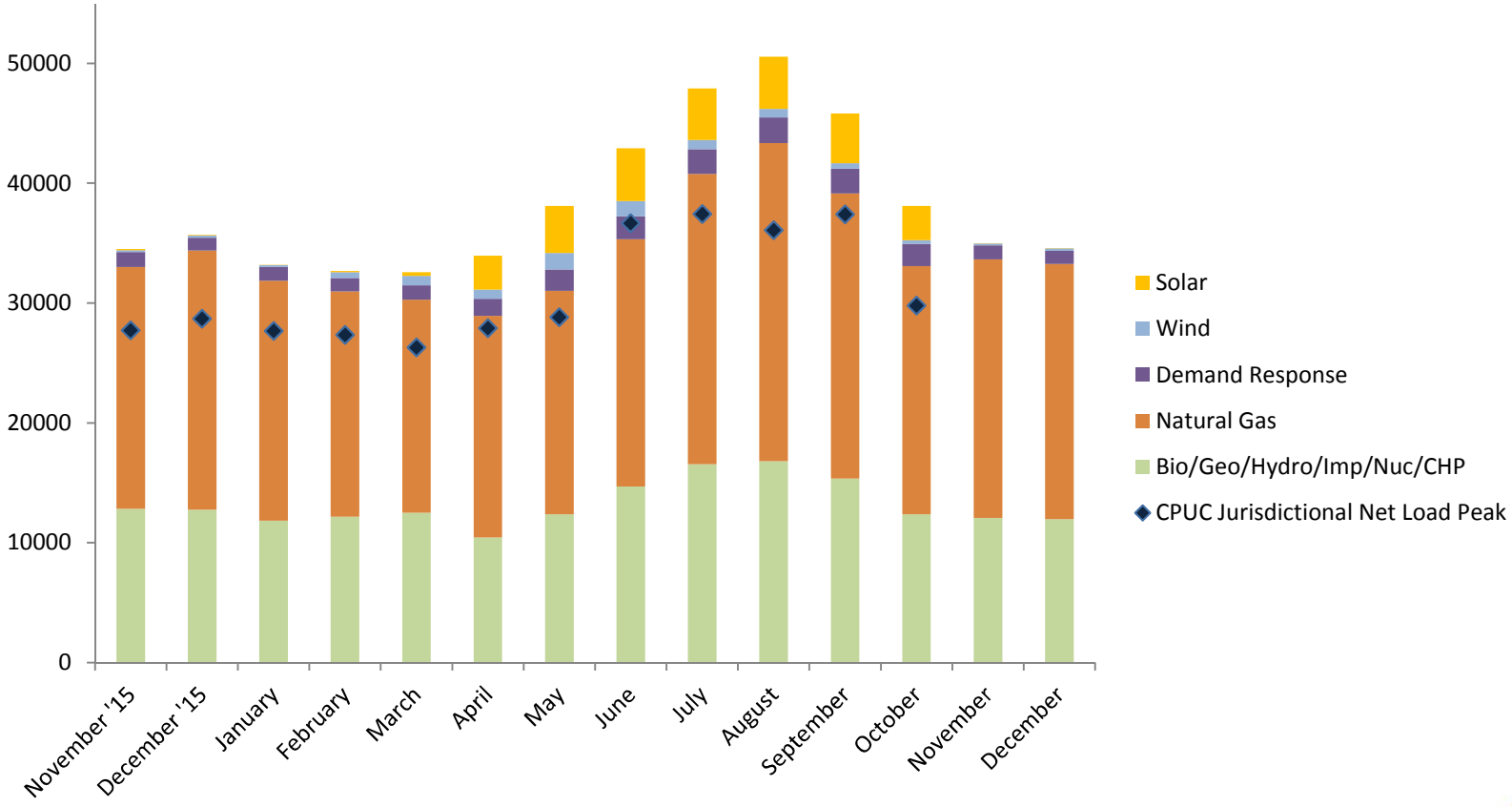
# One Possible Proposal, Cap ELCC at Exceedance

| | Wind | | Solar | |
|---|---|---|---|---|
| | 2016 Technology Factors | ELCC Capped at Exceedance | 2016 Technology Factors | ELCC Capped at Exceedance |
| January | 3.80% | 3.8% | 0.24% | 0.2% |
| February | 11.98% | 12.0% | 1.26% | 1.3% |
| March | 19.86% | 12.6% | 6.26% | 6.3% |
| April | 18.43% | 12.6% | 71.68% | 57.8% |
| May | 31.05% | 12.6% | 73.97% | 57.8% |
| June | 27.77% | 12.6% | 75.67% | 57.8% |
| July | 17.29% | 12.6% | 69.10% | 57.8% |
| August | 15.72% | 12.6% | 69.24% | 57.8% |
| September | 10.68% | 12.6% | 70.45% | 57.8% |
| October | 7.26% | 7.3% | 55.59% | 55.6% |
| November | 3.23% | 3.2% | 0.14% | 0.1% |
| December | 5.55% | 5.6% | 0.11% | 0.1% |

# Cap ELCC at Exceedance

- Allow for adoption of ELCC for a portion of the year (primarily the summer months).
- Address potential reliability concerns for the winter that were raised by parties.
- Ensures that there is not over-reliance on wind and solar in off-peak (winter) periods.

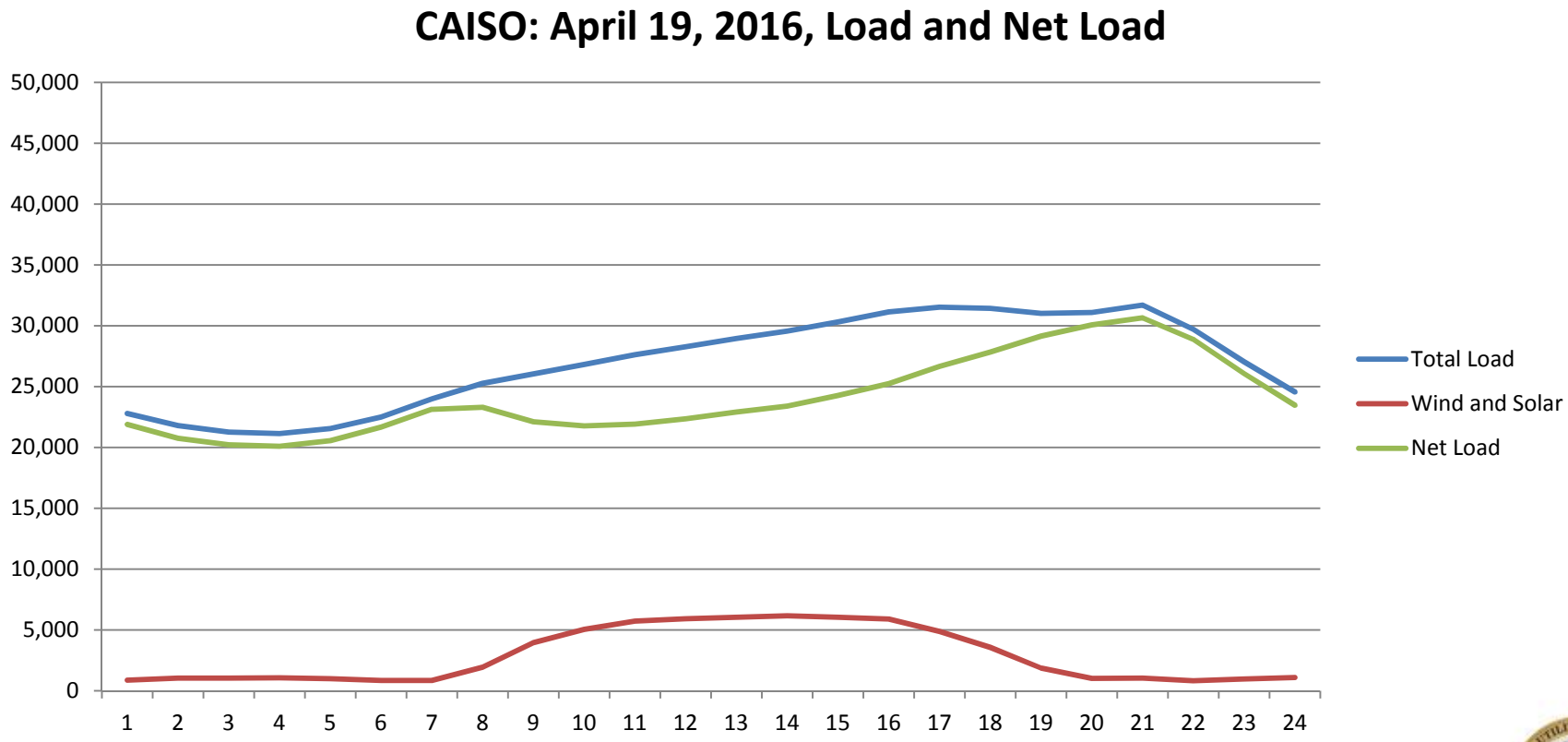
# How Much Do We Rely on Wind and Solar for RA?



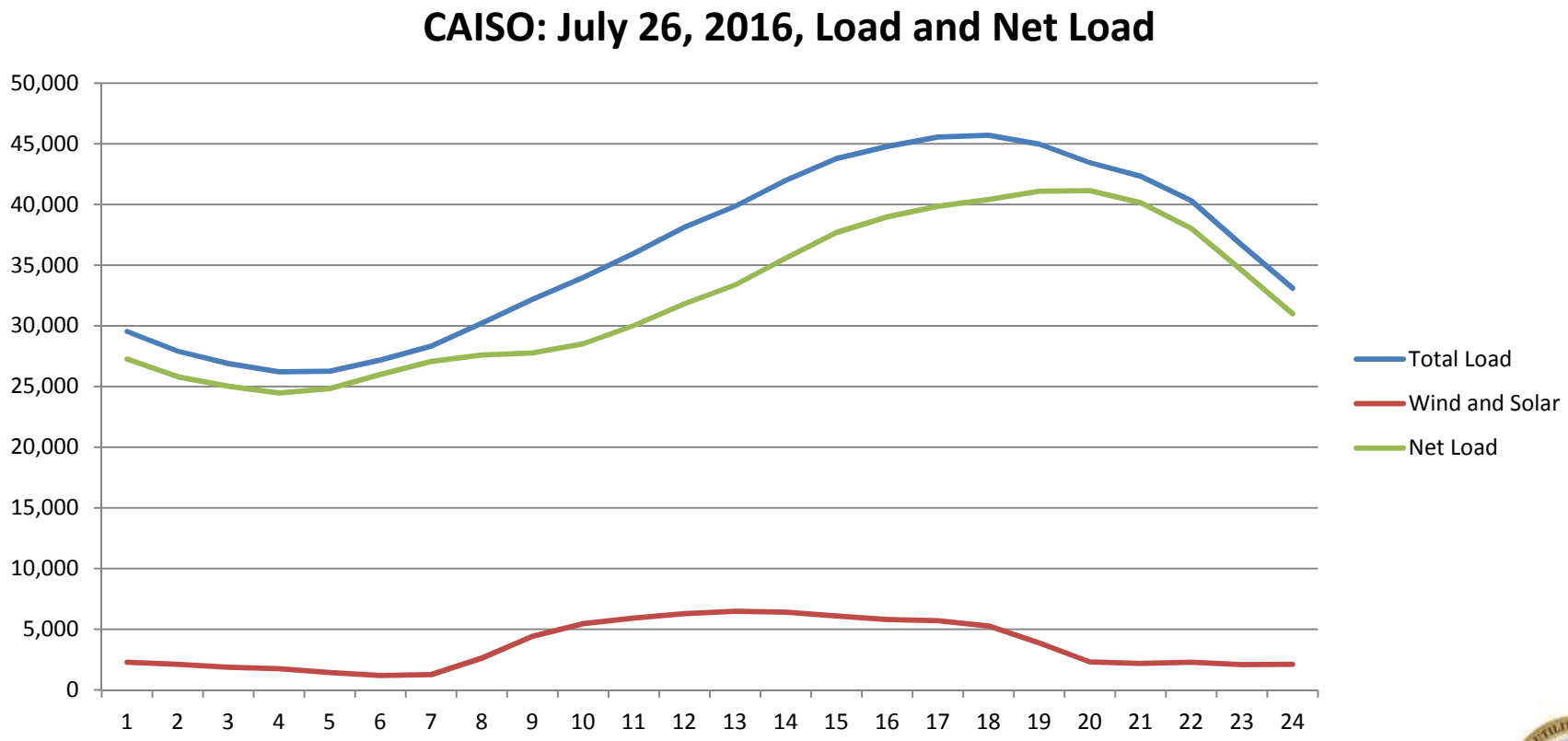
# Calculating the Maximum Net Load Curve

- Used OASIS data -- this is hourly and not nearly as accurate as EMS data, but accessible and easy to use.
- Used ISO hourly actual load less hourly actual wind and solar to determine net load.
- Using this data, located the maximum net load for each month for CAISO and applied August load ratio share – could use monthly load ratio share.
- Possible that you can meet maximum net load due to weather; further analysis might require forward looking planning assumptions (if SCE's methodology were to be used)

# Illustrative Example of Max. Net Load Curve (April)



# Illustrative Example of Max. Net Load Curve (July)



# Follow-Up Discussion

- Potential Alternatives:
  - ELCC, annual value
  - ELCC, monthly value
  - ELCC, capped at exceedance (possibly ED)
  - ELCC, capped at NLP-ELCC (SCE)
- Questions:
  - Is it worthwhile to develop a hybrid approaches (capped at exceedance, capped at contribution to moving peak, other method?)
  - Should one be using historical data or forecast data, hourly or minute-by minute, what level of granularity is needed?
  - Do parties see the need for a working group on potential hybrid approaches?