
# Calpine PRM proposal

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# Overview

- Planning reserve margins are used to set system RA requirements
- Current PRM is 15% in all months
- 15% PRM outside of peak summer months has been insufficient to meet objective reliability targets
  - Anecdotal evidence
  - Modeling
- PRMs should be based on objective reliability standard
  - Choose a standard and an interpretation of the standard
  - Model appropriate PRMs
- If appropriate PRMs cannot be derived in time for 2019 compliance, use PRMs that Energy Division derived in its ELCC modeling last year

# Anecdotal evidence

- Actual load significantly exceeded RA capacity on several days last year
- CAISO was able to meet load through reliance on non-RA resources
- This should not happen routinely if RA requirements are set correctly

Figure 1.8 June daily peak load, resource adequacy capacity, and planning forecast

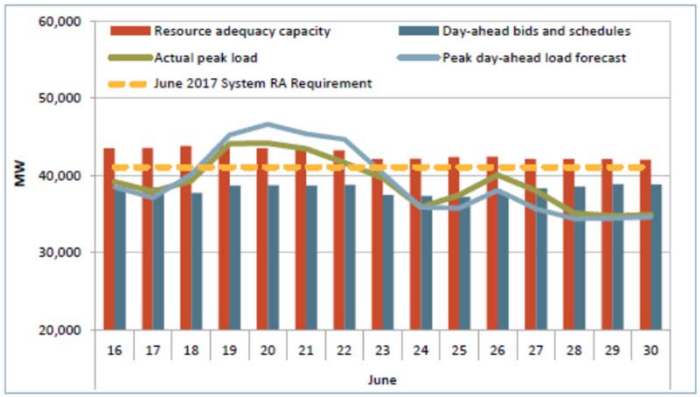
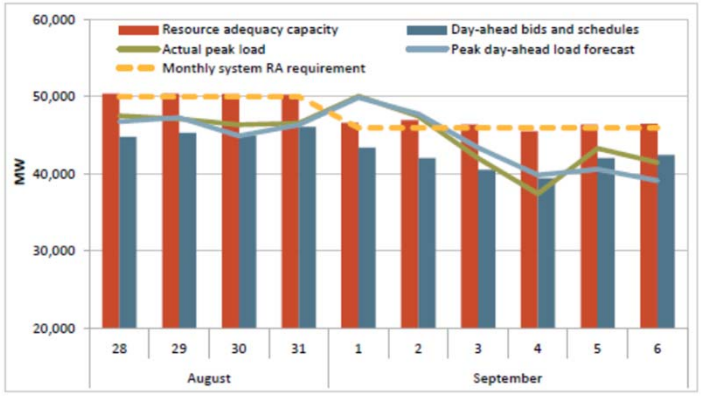


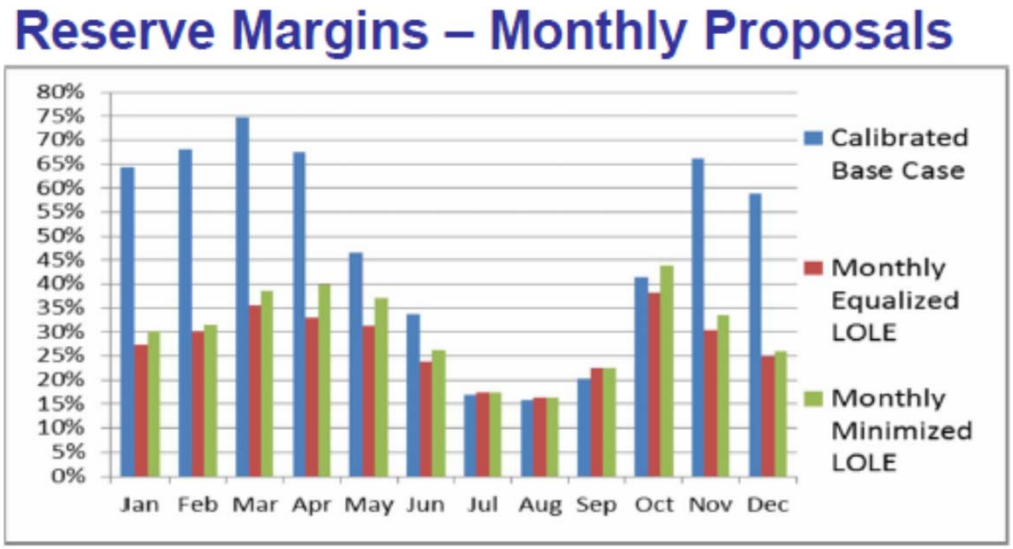

Figure 1.11 Daily peak load, resource adequacy capacity, and planning forecast




http://www.caiso.com/Documents/2017SecondQuarterReport-MarketIssuesandPerformance-September2017.pdf
https://www.caiso.com/Documents/2017ThirdQuarterReport-MarketIssuesandPerformance-December2017.pdf

# Modeling

- One step in ELCC modeling involves calibrating the system being modeled to a reliability standard, e.g., 1 event in 10 years (1-in-10)
- ED performed this calibration in its ELCC modeling last year based on at least two different interpretations of 1-in-10)
  - 1-in-10 achieved in 5 summer months, with equal monthly levels of loss of load in the rest of the year (yielding 2.4 events per year)
  - 1-in-10 achieved on an annual basis but concentrated in the 5 summer months
- Both interpretations of 1-in-10 suggest that significantly higher PRMs are required outside of peak summer months
- Caveat: these PRMs were calculated relative to consumption not sales. Required PRMs relative to sales may be higher.
  - BTM PV afforded an avoided PRM benefit when included in sales




http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442451593

# Proposal

- Choose a reliability standard and an implementation of the standard
- Derive PRMs based on the implementation of the standard using ELCC/LOLE modeling and treatment of BTM PV that is consistent with its RA counting treatment
- If PRMs cannot be derived in time for 2019 implementation, use ED estimates from last year, i.e., the red or green bars from the previous slide
- CAISO proposal to use higher load forecasts in non-summer months would have directionally similar impact to increasing PRMs