



Workshop on Flexible Resource Adequacy and Capacity Requirements



R.14-10-010

November 9, 2016

California Public Utilities Commission





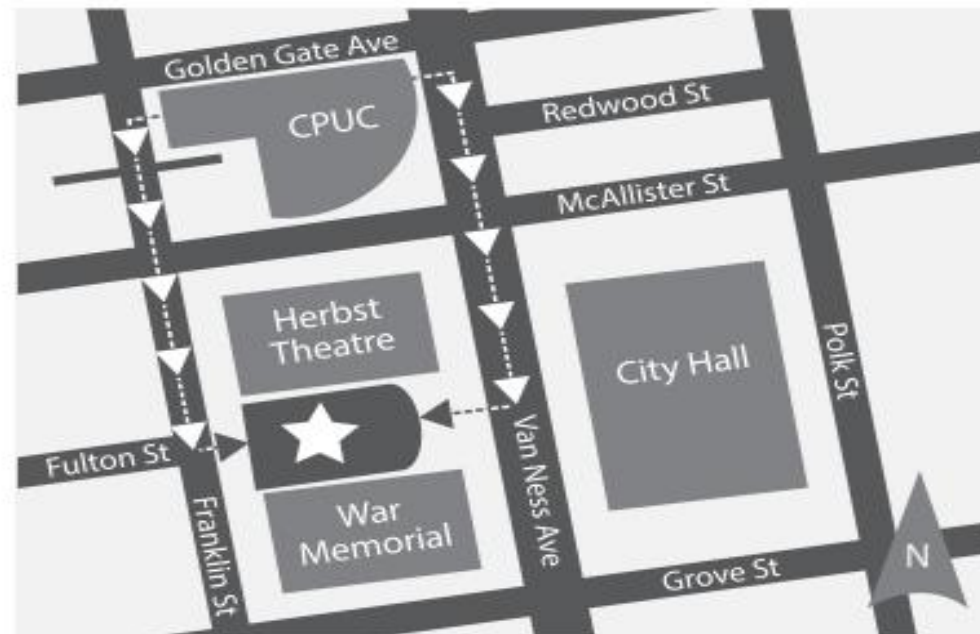
Evacuation Procedure

In the event of an emergency evacuation, please calmly proceed out the nearest exit.

Our assembly point is the park between Herbst Theater and War Memorial Theater

San Francisco Evacuation site:

The Garden Plaza Area Between Herbst Theater and the War Memorial Opera House Buildings





Remote Access

- Please place yourself on mute, and remain on mute
- **To make a comment or ask a question send a message to Chat Me**

To join by phone:

Teleconference number: **866-811-4174**

Participant code: **4390072#**

Join WebEx meeting

Meeting number: 747 624 993

Meeting password: !Energy1





Background

- D.13-06-024 and D.14-06-050 adopted an “interim” flexible capacity requirement from 2015-2017
 - Recognized the need for flexible resource adequacy resources to meet current operational needs and future challenges
 - Total need for economically dispatched resources necessary to meet the largest continuous 3-hour ramp of each month
- Phase 2 of R.14-10-010 began effort to define a “durable” flexible capacity requirement
 - Workshop held April 5, 2016
 - Original aim for late 2016 decision but record not complete





Scoping Memo Questions

- What reliability need(s) must FCRs be designed to meet?
- What definition of one or more flexible capacity products should be adopted to meet this need or needs?
- How should annual FCR requirements be set to meet this need or needs with the defined product(s)?
- What, if any, related changes to the RA program should be made to best meet the reliability needs?





Guiding Questions

- Have current FCRs changed the quality or quantity of resources procured to meet RA requirements?
- Have FCRs changed the overall quantity or quality of resources bidding into CAISO energy and ancillary services markets? Has bidding behavior changed?
- What are the characteristics of flexibility that are needed now and over the next 5 years?
- Are there flexibility needs that are not currently met?
- What barriers exist that hamper resources capable of providing flexibility from doing so?





Purpose of Workshop

- Begin to address questions raised in scoping memo and party comments on study plans needed to develop a “durable” flexible product
 - Current and future system needs
 - Effect on procurement and bidding behavior
- Consider and discuss potential Phase 3 proposals for immediate fixes





Calculation of Flexible Requirements

- Total requirement based on largest 3-hr ramp of the month plus 3.5% of peak load
- Category 1 (Base): based on largest secondary net load ramp
 - In flex study based on maximum am and pm ramp
- Category 2 (Peak): Difference between 95% of the max 3-hr net load ramp and largest 3-hr secondary ramp
- Category 3 (Super Peak): 5% of max 3-hr net load ramp





Current Flexible Requirements

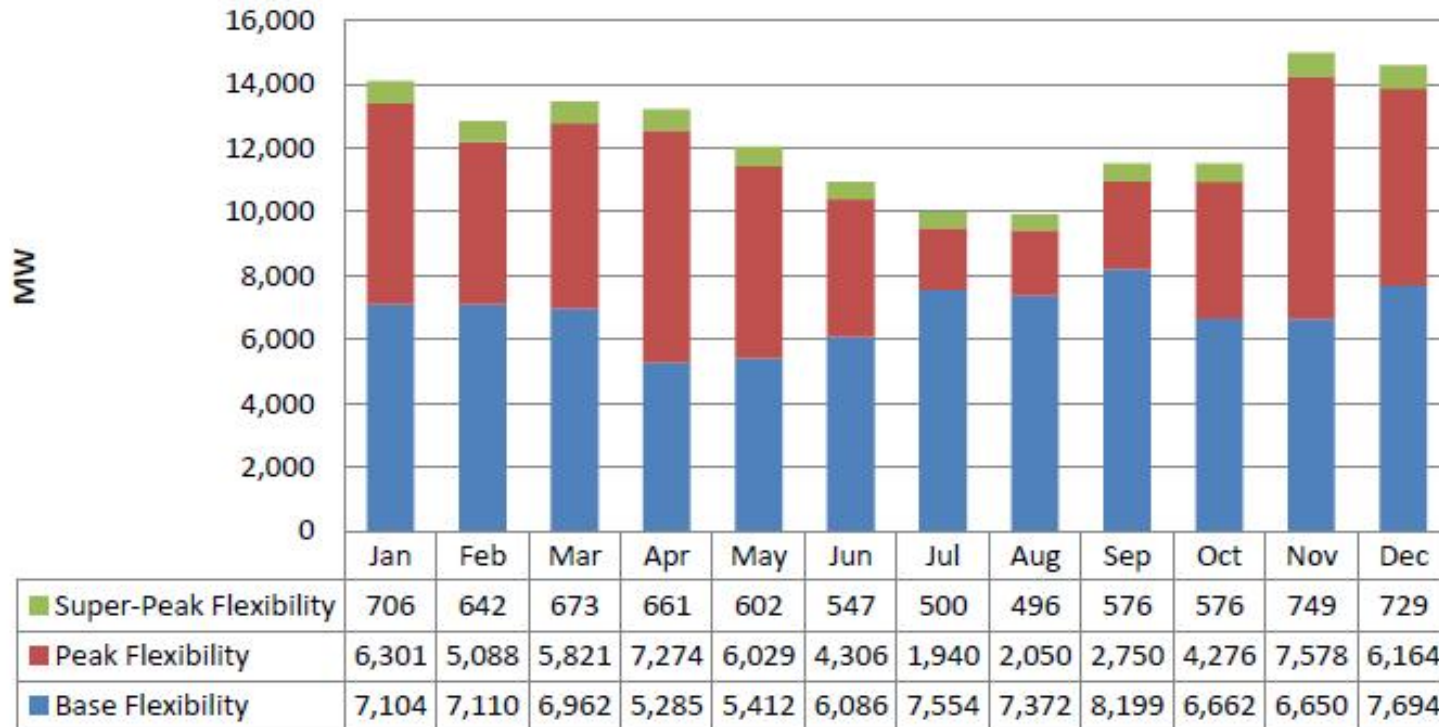
	Category 1	Category 2	Category 3
Must-offer obligation	17 Hours	5 Hours	5 Hours
	5 AM- 10 PM Daily For the whole year	12 PM to 5 PM for May – September	12 PM to 5 PM for May – September
	5 AM- 10 PM Daily For the whole year	3 PM- 8 PM for January- April and October-December	3 PM- 8 PM for January- April and October- December
	Daily	Daily	Non-holiday weekdays
Energy limitation	At least 6 Hours	At least 3 Hours	At least 3 Hours
Starts	The minimum of two starts per day or the number of starts feasible with minimum up and down time	At least one start per day	Minimum 5 starts a month
Percentage of LSE portfolio of flexible resources	At least 64 % for May – September	Up to 36% for categories 2 and 3 combined	Up to 5%
	At least 50 % for January- April and October-December	Up to 50% for categories 2 and 3 combined	Up to 5%





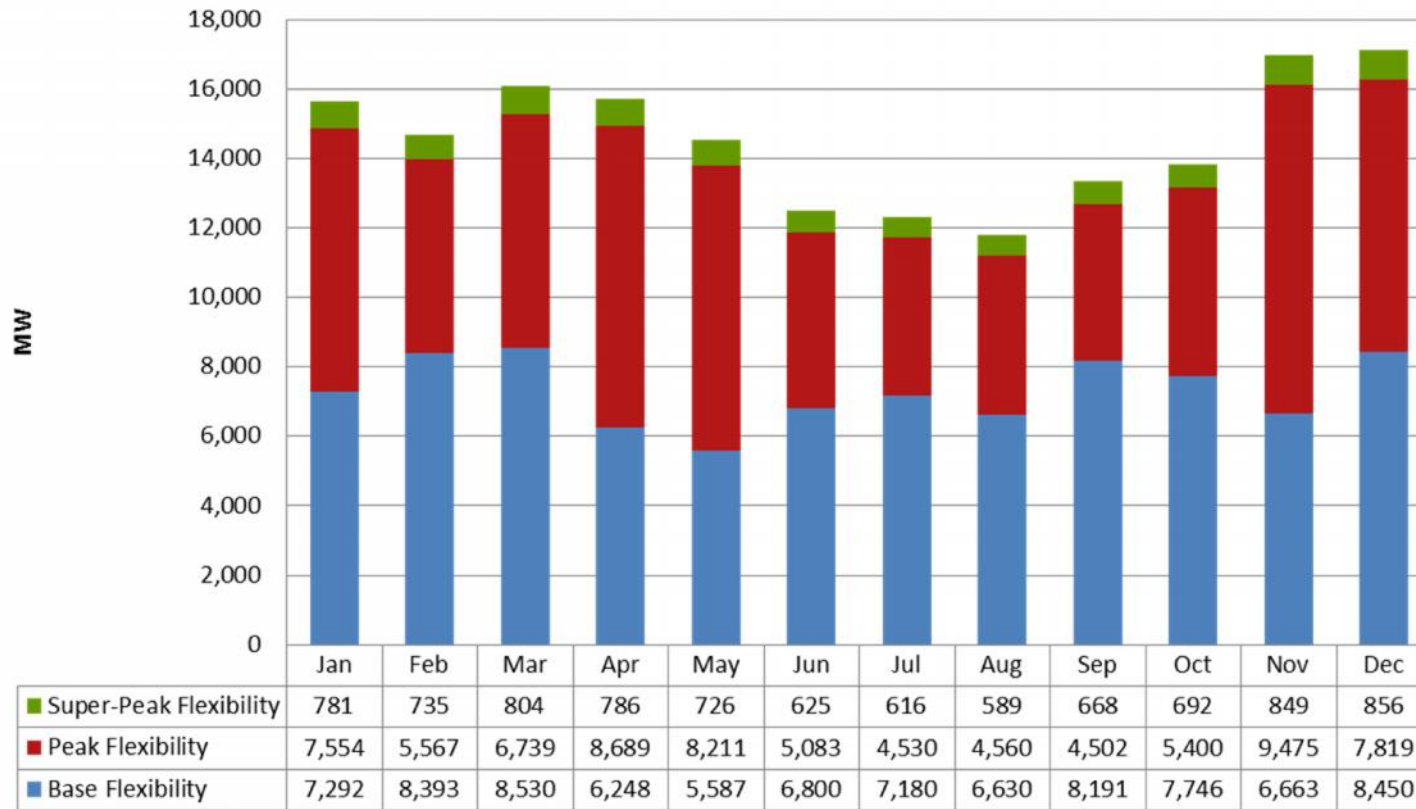
2017 Flexible Needs Calculation

Total Flexible Capacity MW Need by Category





2019 Flexible Need Calculation

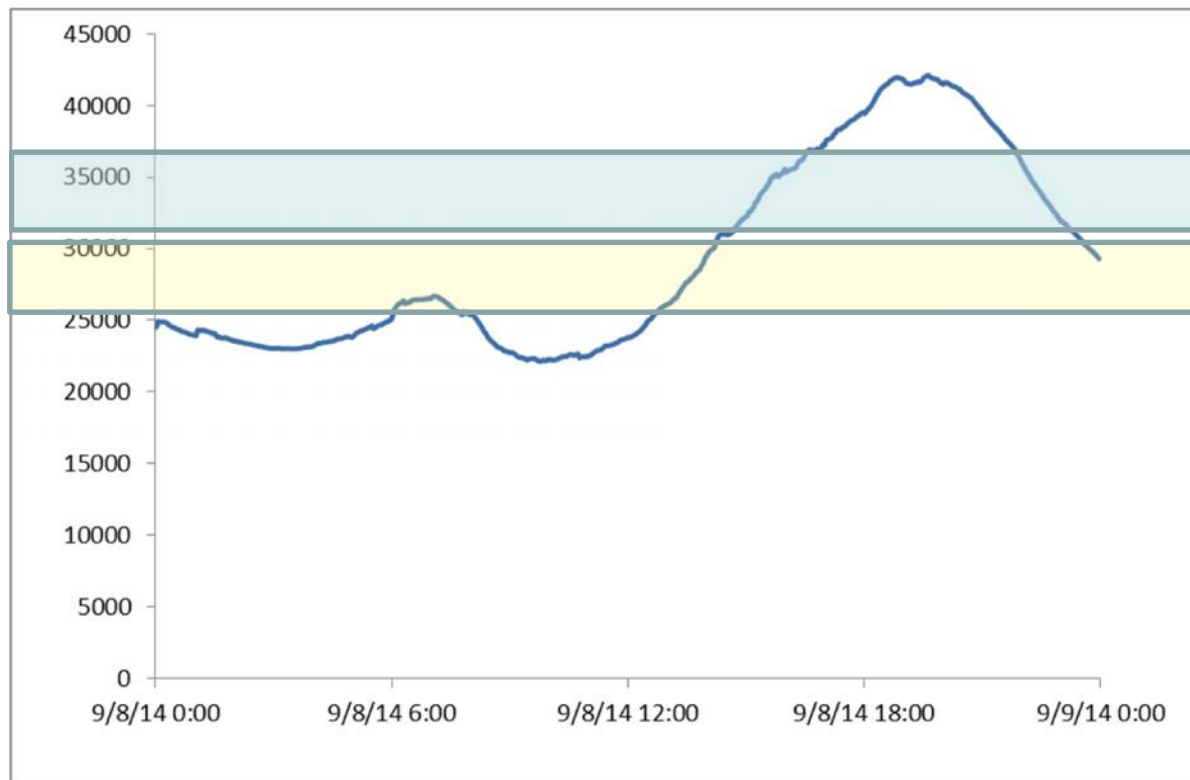


- Extended 2017 analysis to 2019 with updated renewables procurement but same load assumptions
- Overstatement of need for base flexibility remains





Flexible Requirement Studies



- Corrected problem of overlapping ramps, but still includes consecutive 3 hour periods in the same ramp

