Flexible Resource Adequacy Criteria and Must-Offer Obligation

MSC Meeting
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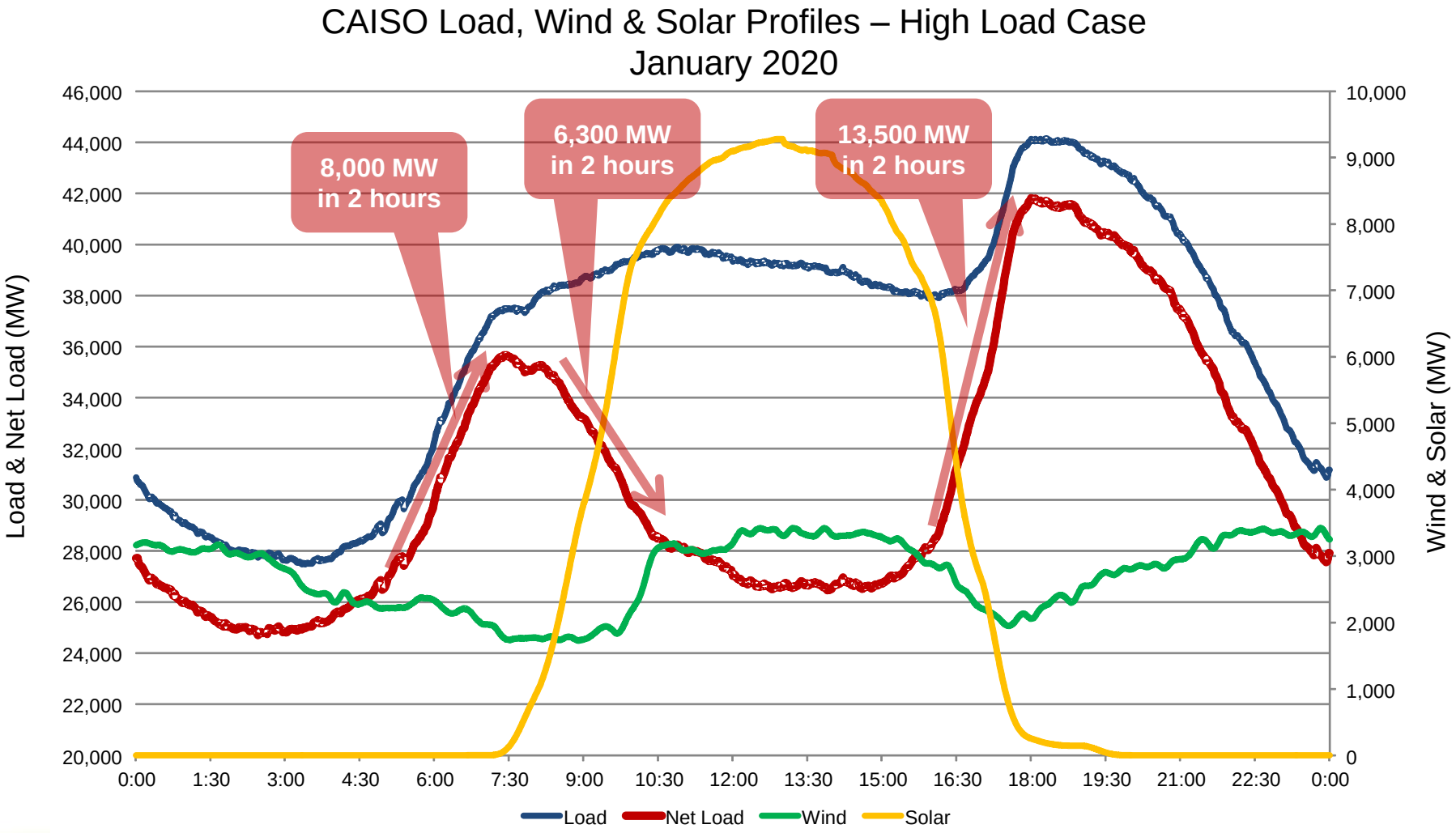
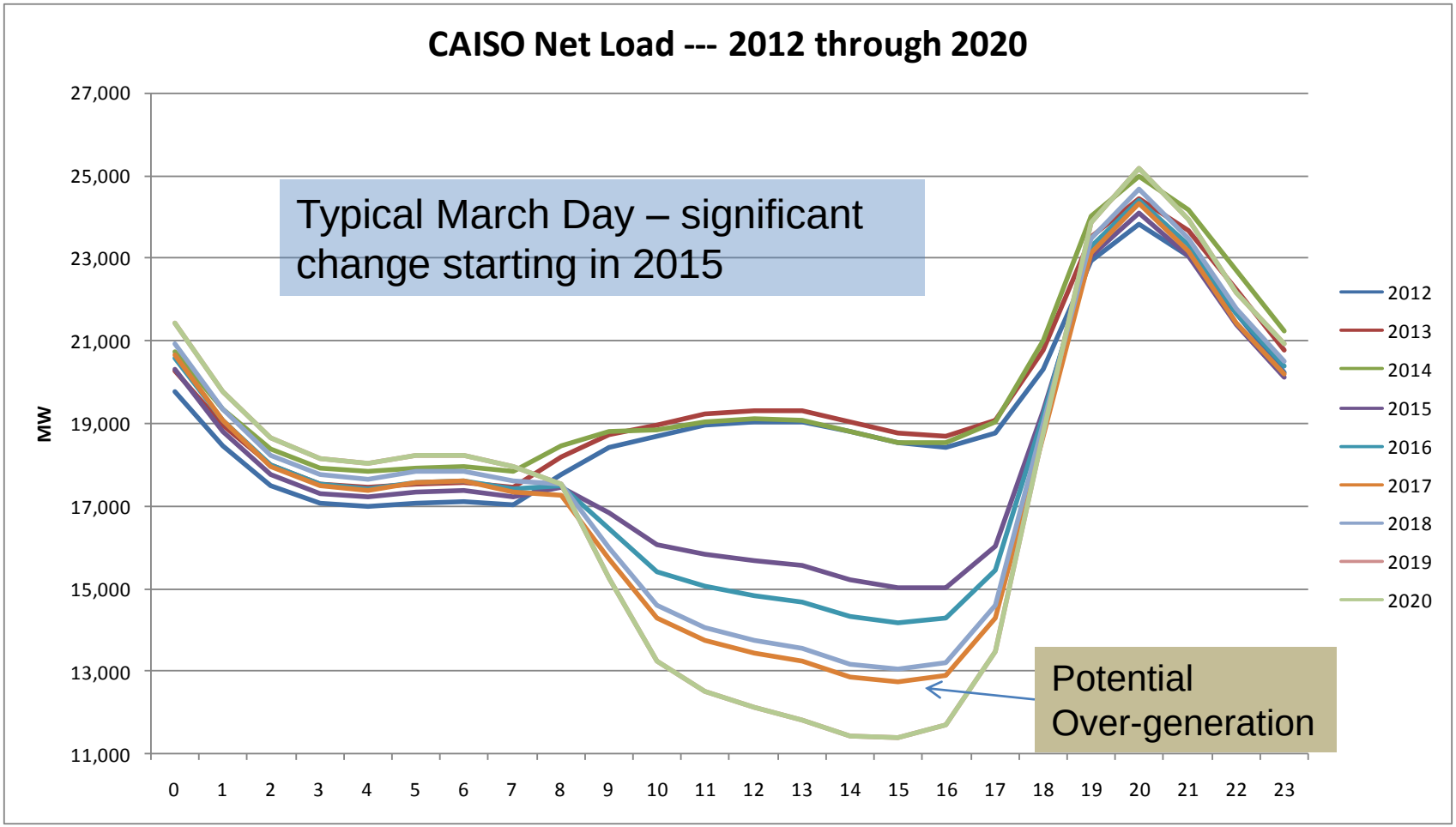
Conventional resources will be dispatched to the net load demand curve



Net load pattern changes significantly starting in 2015



Objective of the Joint Parties' Interim Flexible Capacity Proposal

- The result of extensive negotiations with IOUs.
- Craft an interim flexible capacity proposal that could:
  - Be implemented by the 2014 RA compliance year
  - Minimize added complexity and modifications to the current RA program and
  - Start the process of adding flexibility requirements to the forward procurement process, allowing a more comprehensive solution to be developed and implemented by 2017 RA compliance

Outline of Joint Parties Proposal

- Main points of agreement
  - Determination of need
  - Obligations allocated based on LRA contribution to system peak
  - The flexible attribute “bundled” with underlying generic capacity
  - Counting of thermal resources towards LSE’s obligation
  - A resource may not sell more flexible capacity than NQC
  - Non-unit specific intertie resource cannot provide flexible capacity
  - No changes to standard capacity product for at least the first year
  - Flexible capacity MOO established in ISO stakeholder process
- Main points without consensus (includes PG&E concerns)
  - Counting convention and MOO for hydro resources
  - MOO for use-limited resources

Defining the Flexible Capacity Need

- ISO responsible for identifying flexible capacity needs
  - Allocates need to LRA based on contribution to system peak
  - Recommend same method for LRA allocation to jurisdictional LSE
- Need is defined by the largest three hour ramp in a month plus the larger of 3.5% expected peak load or most severe single contingency
  - Ensures the ISO gets at least 100 percent of the spinning reserve capacity that's needed to cover the MSSC
- LSEs required to demonstrate
  - 90 percent monthly flexibility procurement obligations year-ahead
  - 100 percent of flexibility procurement obligation in monthly showing

The ISO is proposing default flexible capacity procurement requirements

- Flexible capacity procurement requirements for Local Regulatory Authorities that do not set their own requirements will be the flexible capacity obligation identified by the ISO in the annual flexible capacity need study

New backstop procurement authority to address deficiencies in an LSE's flexible capacity RA plan

- ISO proposes backstop procurement authority that allows the ISO to make backstop designations when:
  - An LSE has insufficient flexible capacity in either its annual or monthly Resource Adequacy Plan and
  - There is an overall net deficiency in meeting the total annual or monthly flexibility need requirements
- Compensation will be at the exiting CPM rate until a Flexible Capacity Procurement Mechanism rate is established
- Costs of backstop procurement will be allocated to deficient LSEs

Procuring and Counting Thermal Resources

- Differentiated Capacity:
  - Flexible or Inflexible MW of Capacity
  - Capacity and flexible attribute must remain “bundled”
  - Cannot sell more flexible capacity than NQC
- Resource counting:
  - If start-up time greater than 90 minutes
    - minimum of (NQC-Pmin) or (180 min * RRavg)
  - If start-up time less than 90 minutes
    - minimum of (NQC) or (Pmin + (180 min – SUT) * RRavg)
- MSG resources measured based on 1x1 configuration
- If a use-limited resource reaches its run-time limits
  - Treated as a forced outage and,
  - subject to standard capacity product non-availability charges

Joint parties evaluated three options for counting how a resource's flexible capacity quantity would satisfy a flexible capacity procurement obligation

1. Pro-rata Option: Flexible capacity is based on the ratio of a resource's effective flexible capacity to NQC.
2. Differentiated Capacity Option: Requires a resource keep its generic and flexible capacity bundled, but capacity that is inflexible, such as megawatts associated with Pmin, must be sold as generic capacity, not flexible capacity.
3. Count-all Option: Identifies a resource as either dispatchable or not. In other words, if a resource is dispatchable in the ISO's masterfile, then it counts toward meeting an LSE's flexible capacity procurement obligation, regardless of the resource's Pmin.

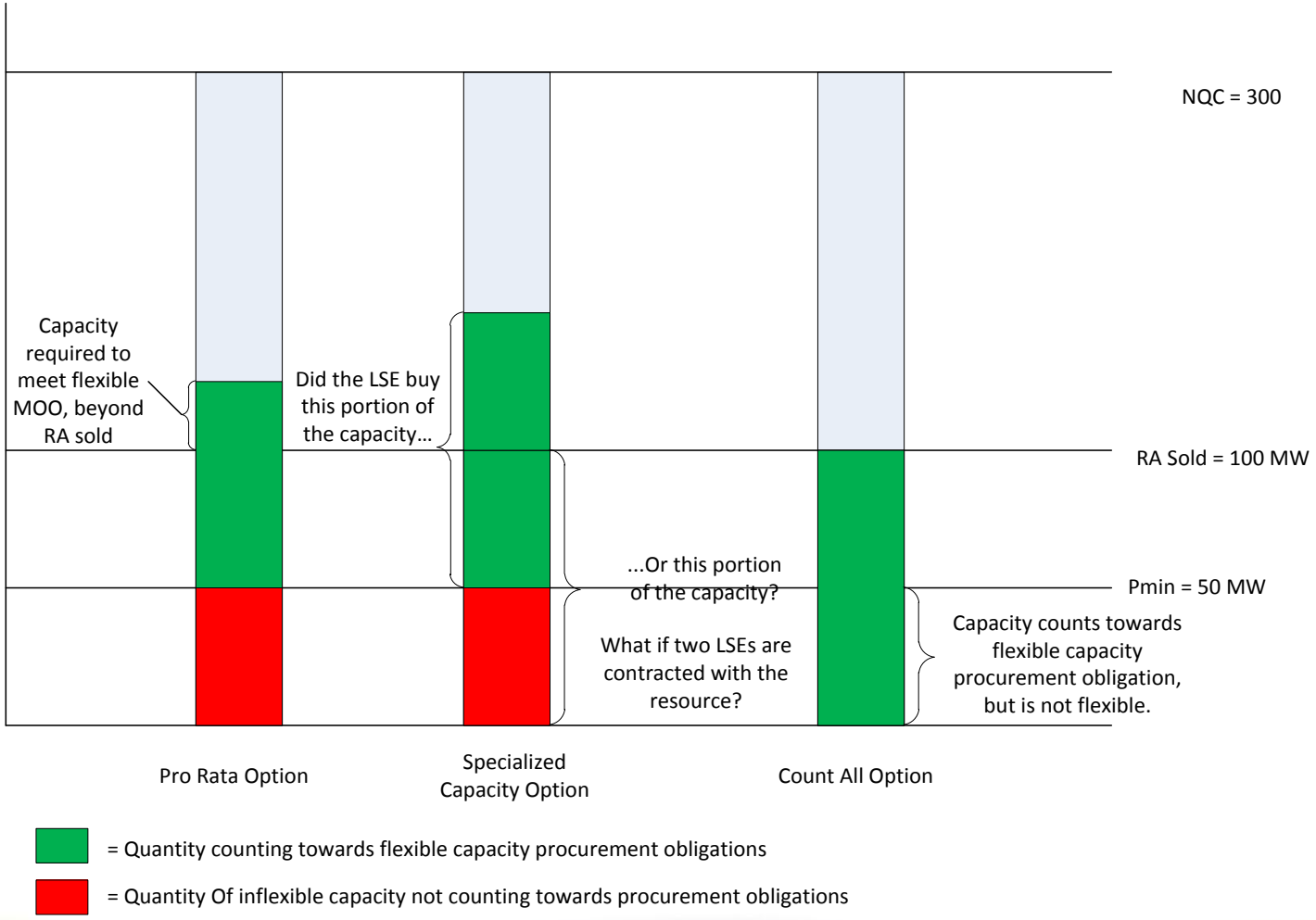
For Partial RA resources, each methodology would count the same resource differently

- Example

NQC	300 MW
Pmin	50 MW
EFC (NQC -Pmin)	250 MW
RA capacity sold	100 MW

- Flexible RA counting for RA sold
  - Pro Rata: 83 MW
  - Differentiated: 50 MW
  - Count-all: 100 MW
- Pro rata and Differentiated converge for full RA resources
- All three options converge for resources that are full RA resources and are flexible from zero to NQC

Each option has challenges that must be addressed



Procuring and Counting Hydro Resources

- ISO and SDG&E Proposal (SCE and PG&E declined to sign on to this part of the proposal)
  - ISO establishes baseline output for hydro resources using the average hydro output over the previous five years
  - Based on energy bids and available capacity from the reference period (i.e. 5 years) to establish a Pmin equivalent for each hydro resource
    - Based on range of lowest to highest output of a resource in a given month from the reference year.
    - Hydro resource would be required to submit economic bids for the flexibility range specified in the LSE's flexible capacity procurement obligation showing.
      - Can self schedule balance of the capacity
  - ISO examining the possibility of ambient derates without substitution or availability charges for hydro resources
    - LSE utilizing a hydro resources that exceeds derate range would have to offer substitute capacity or be subject to availability charges

PG&E Alternative Proposal to Address Hydro Resources Proposes “Daily Energy Limit” Provisions

- Flex RA obligation / counting (qualification) –
  - must bid energy and A/S for HE 6 –22, in IFM and RTM
  - resource must be available for dispatch for HE 6 –22 hours each day for full month, subject to non-performance penalties, or resource substitution
- Market awards subject to maximum daily energy use-limits (mwhrs per day),
  - minimum available energy to support 6 or more hours
    - based on the need to support two, 3 hour ramps per day
  - Once reached there would be no further Flex RA obligations
- Flex RA qualification requirement –of full Flex RA capacity dispatch
- Counting (based on annual and monthly prospective “Flex RA Availability Demonstrations” by resource owner

There are three major items the ISO must resolve in stage two of this stakeholder initiative

- Flexible Capacity Bidding Obligations
- Compensation for Flexible Capacity Procurement Mechanism Designation
- Standard Flexible Capacity Product