ORA

OFFICE OF RATEPAYER ADVOCATES

Joint Reliability Plan Workshop, May 2, 2014

Risk of Unplanned Retirement and Magnitude of Existing Forward Capacity Procurement

Presentation* Overview

- Drivers of Risk of Unplanned Early Retirement
- Assessing the Magnitude of the Risk of Unplanned Early Retirement
- Reliability Planning Assessment Should Inform Track 1 Decision
- Magnitude of Existing Forward Capacity Procurement

* Reflects non-substantive formatting and clarification edits, made post-May 2, 2014 Workshop.

Drivers of Risk of Early Retirement

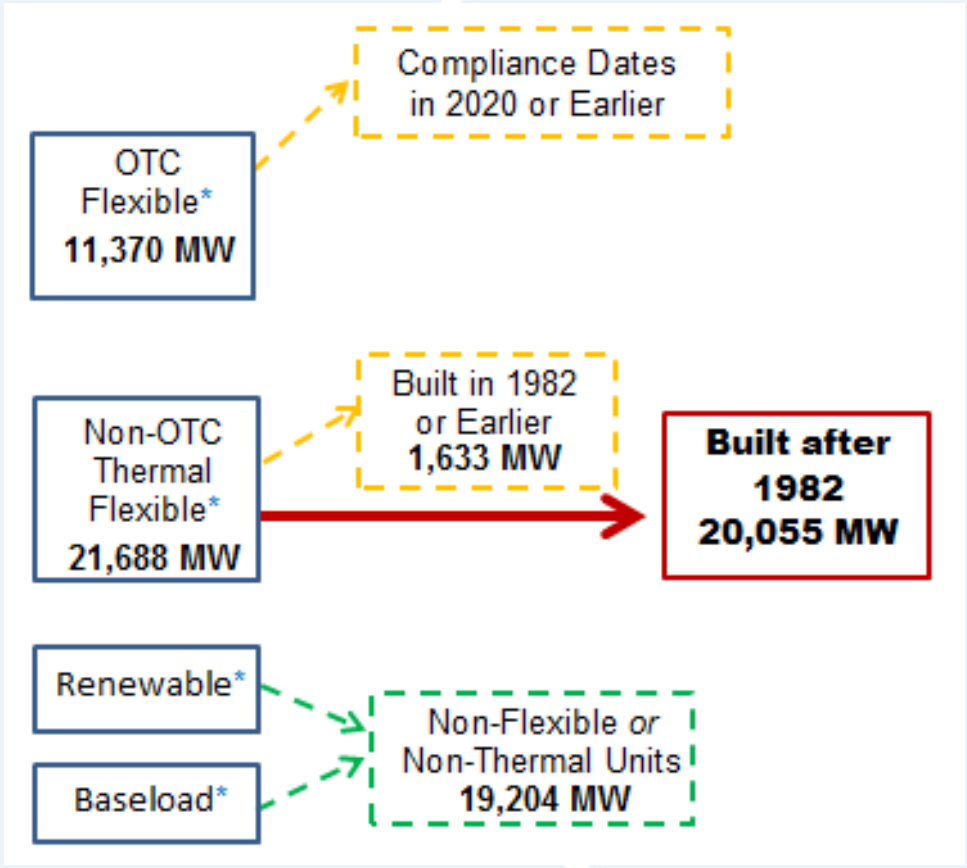
- **Today's Challenge:** The risk of early retirement of existing flexible fossil plants needed for integrating renewables and meeting Once-Through Cooling compliance mandates
- Once-Through Cooling (OTC) Compliance Mandates
  - OTC plants must undergo major retrofits by compliance date (2017-2020) or retire
  - Most OTC plants have local and flexible capacity needed for reliability and renewable integration
- Current oversupply of CAISO system capacity and energy
  - Creates revenue challenges for plants that rely solely on the CAISO energy market because they do not receive Resource Adequacy (RA) capacity contracts

Assessing the Risk of Early Retirement

Using 2014 Final NQC List, ORA divided CAISO's resource fleet into three categories:

1. **Flexible OTC Units:** Subject to compliance mandate
   - 2012 LTPP Scenario Tool v6 assumes all OTC units will retire in 2020 or earlier based on their mandatory compliance dates
2. **Non-OTC Thermal Flexible Units**
   - 2012 LTPP Scenario Tool v6 assumes units 40 years or older will retire
3. **Renewables and Baseload**: Non-flexible *or* non-thermal units
   - ORA assumes these units are not at risk of retirement because of RPS goals or, in the case of baseload, their place in the resource stack

Assessing the Risk of Early Retirement

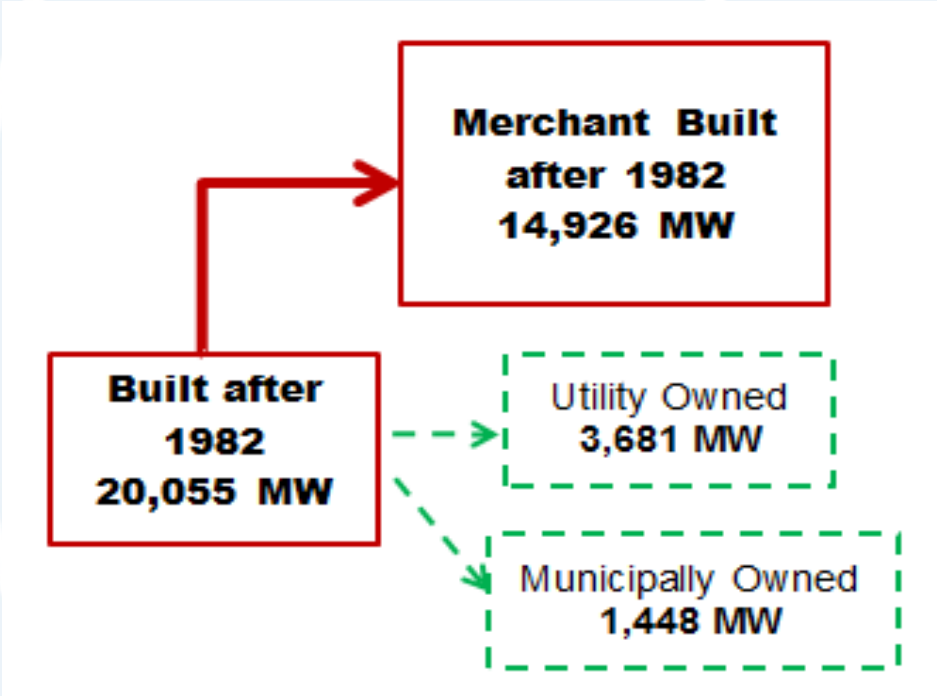


Index Key:

- Unlikely to Retire Early
- Planned Retirements
- More Likely to Retire Early

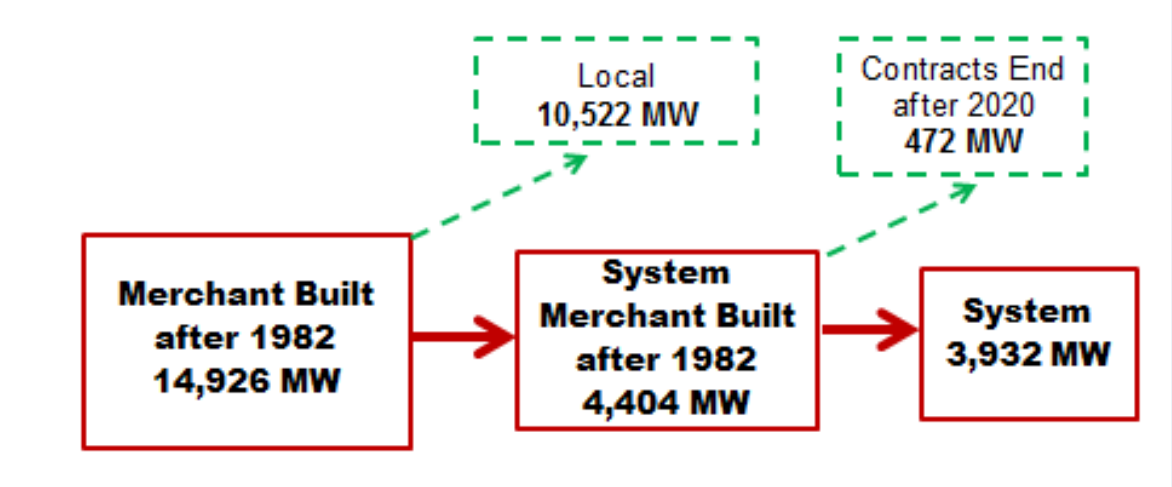
* Definition of flexible capacity based on D.13-06-024. MW Amounts are Net Qualifying Capacity (NQC) from 2014 NQC List for the month of August.

Assessing the Risk of Early Retirement



ORA assumes that Utility and Municipally Owned Flexible Thermal Units built after 1982 will not retire due to revenue certainty

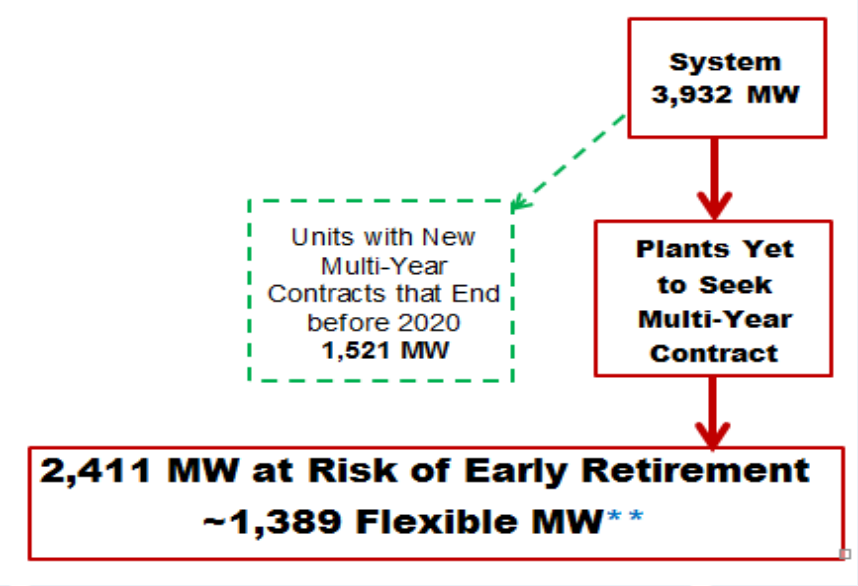
Assessing the Risk of Early Retirement



ORA further assumes that:

- Local resources will not retire due to local RA capacity premium
- Resources that are under long-term capacity contracts beyond 2020 are not at risk of early retirement because their contracts expire after OTC mandated compliance deadlines

Assessing the Risk of Early Retirement

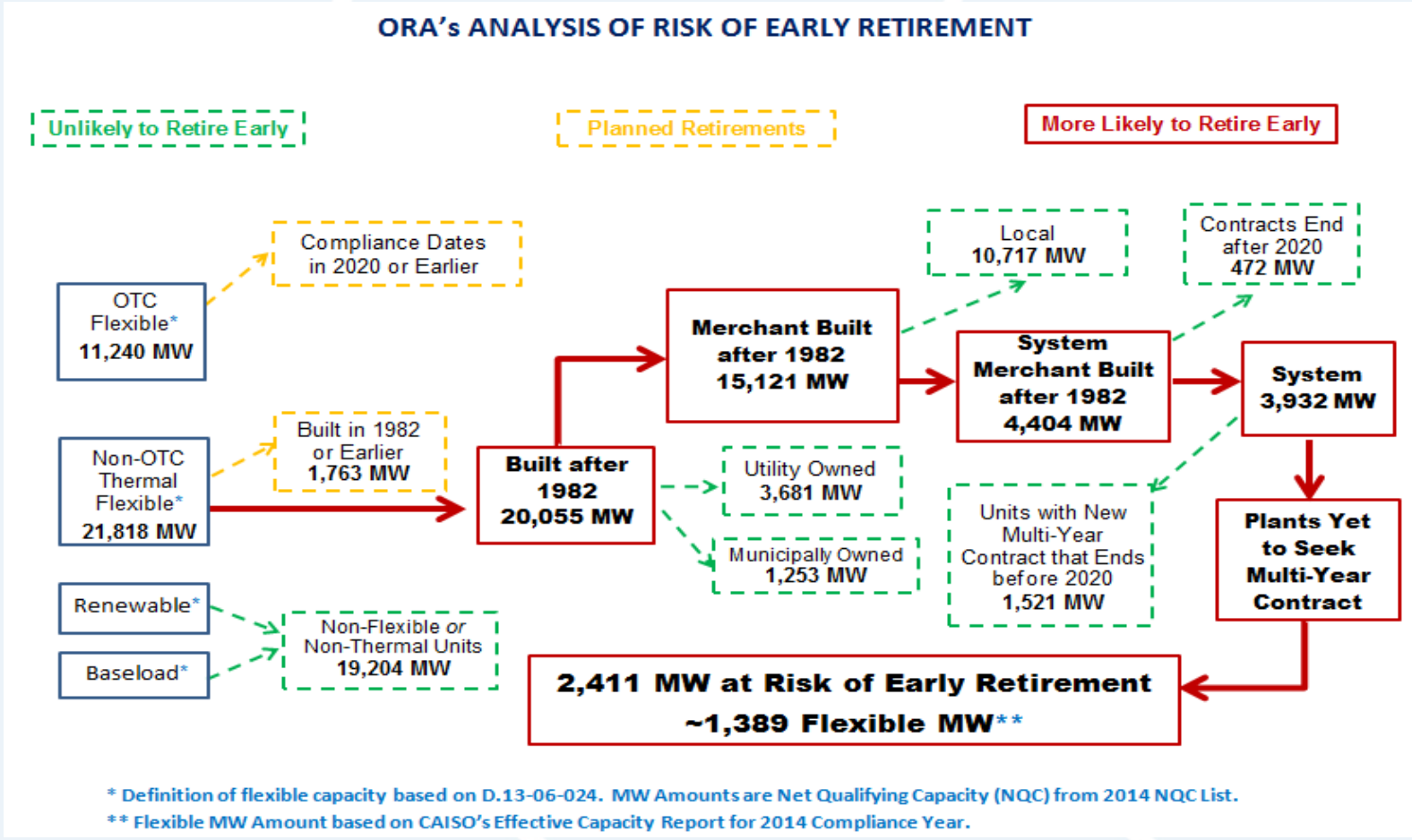


ORA's final assumption:

- Of the 3,932 MW, some of the units successfully bid into previous RFOs and were able to acquire multi-year contracts. Therefore, it is reasonable to assume that these units will continue to be successful in obtaining new contracts in the future

** Flexible MW amount based on CAISO's Effective Capacity Report for 2014 Compliance Year.

Bringing it All Together…



Ceiling, Not a Floor

The resources adding up to 2,411 MW at risk of early retirement represent a ceiling, not a floor

- It is very unlikely that all plants will retire
- As of now, only 400 MW of these resources are not contracted with any of the investor owned utilities (IOUs); it is unknown if these resources are contracted with other LSEs
- About 500 MW are under long-term PPAs until mid-2020
- The remaining resources representing 1,500 MW are contracted on a year-by-year basis

Concluding Remarks: Risk of Unplanned Retirement

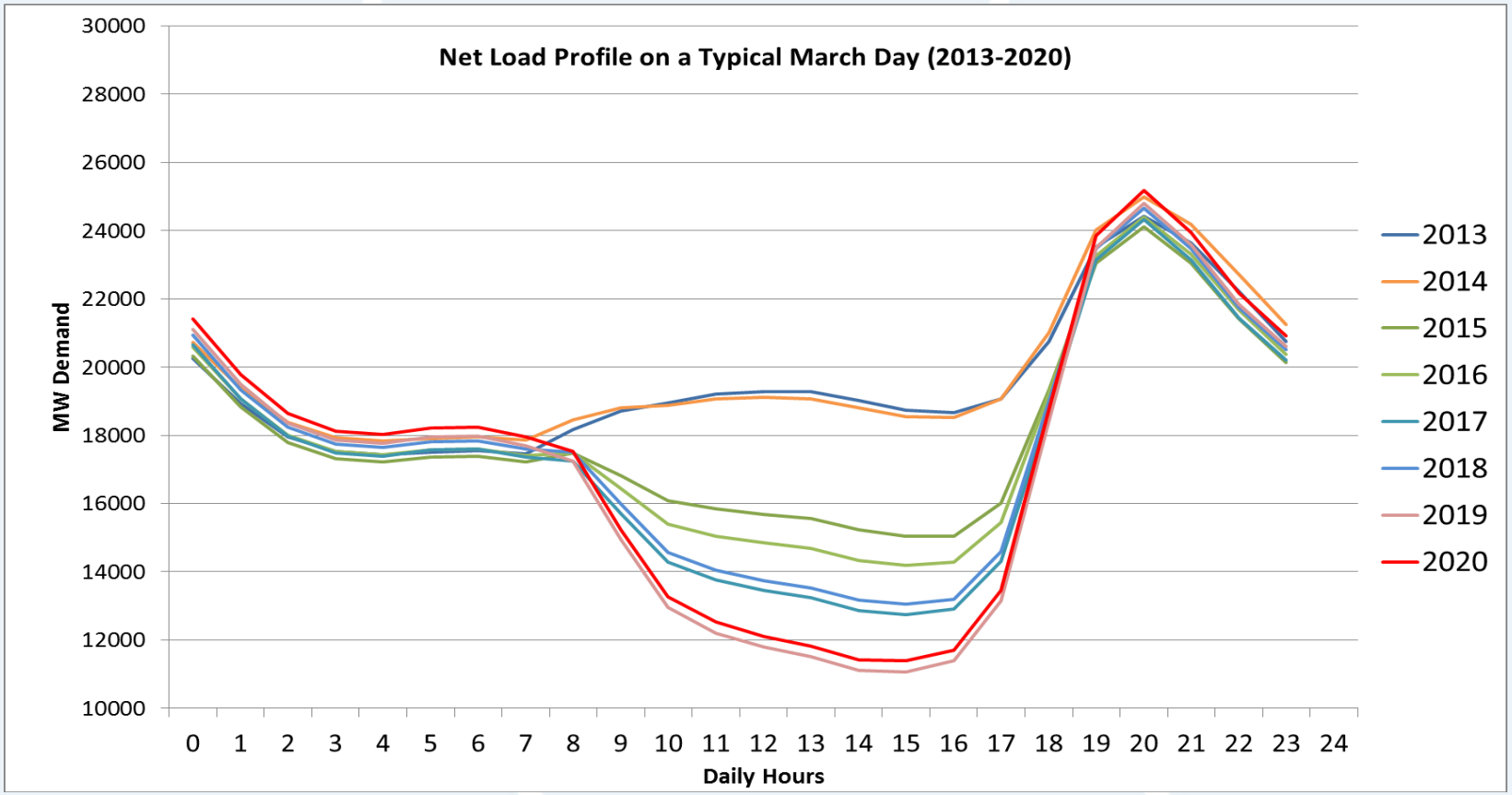
- The resources adding up to 2,411 MW at risk of early retirement represent a ceiling, not a floor
- The earlier OTC plants retire before their mandatory compliance deadlines, the lower the risk of early retirements (*e.g., Morro Bay*)
- The closer we get to OTC mandatory compliance deadlines, the lower the risk of early retirements *(ORA used 2020 year as a cutoff year, however 45% of 11,370 OTC MWs will need to comply by the end of 2017)*

Reliability Planning Assessment Should Inform Multi-Year Resource Adequacy Decision

ORA Recommendation #1: Joint Reliability Plan (JRP) Rulemaking Track 2 reliability planning assessment should inform CPUC Track 1 Decision

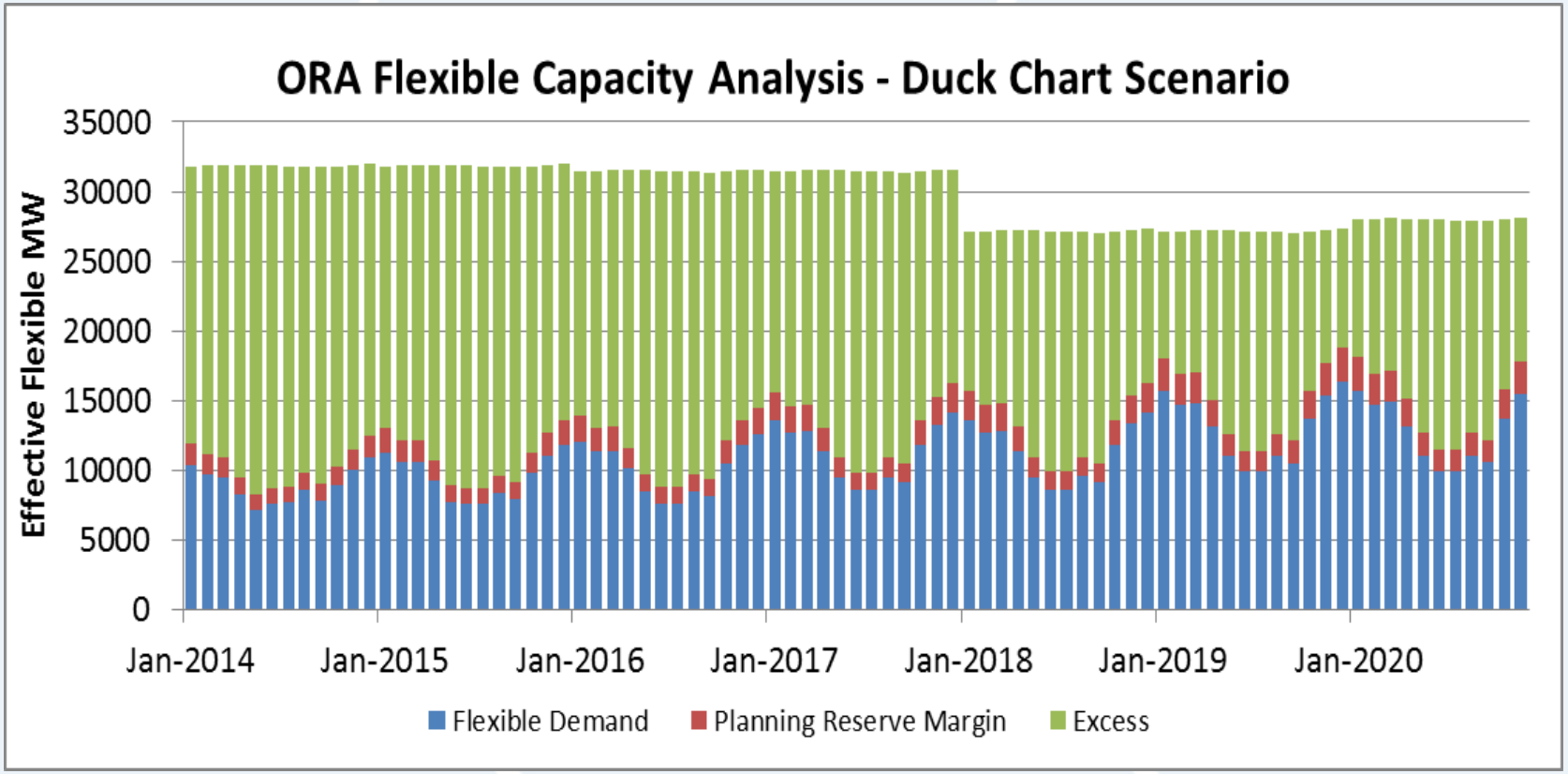
- Compare expected resource needs against two views of supply: the installed fleet (including expected additions minus expected retirements) and the already procured fleet (resources that are owned by the utilities or are under long-term contracts)
- To the extent possible, leverage 2014 LTPP Operating Flexibility studies to look at needs for earlier years (2015 through 2017) over which a potential multi-year RA procurement mechanism could apply

CAISO "Duck Chart" Only Shows Demand for Flexibility – Not Supply



Source: Reproduced from Figure 1, Joint Parties Proposal, p. 5, available at http://www.caiso.com/Documents/JointPartiesProposalResourceAdequacyFlexibleCapacityProcurementOct29_2012.pdf

Supply of Flexible Capacity Exceeds Demand Plus Planning Reserve Margin



Source: Flexible demand based on CAISO "Duck Chart," Effective Flexible MW supply based on CAISO's Final Effective Flexible Capacity Report for Compliance Year 2014

CAISO Should Be Informed of Magnitude of Forward Capacity Procurement

ORA Recommendation #2: CPUC and other Local Resource Areas (LRAs) should provide CAISO with information access to RA contracts

This would provide CAISO with information on the magnitude of forward capacity procurement and the available capacity in the forward capacity market

Forward Capacity Procurement Occurs Under the Current Resource Adequacy Framework

- While the current RA Framework requires a year-ahead demonstration that each Load Serving Entity (LSE) has procured adequate capacity for the coming year, the reality is that IOUs – and other LSEs - procure multi-year RA capacity contracts to hedge against higher future prices
- LSE compliance with RA capacity obligations has helped to maintain grid reliability

Magnitude of Forward Capacity Procurement

1. **RA Program**
   - Significant forward procurement for years 2-5
2. **Short-Term Procurement Planning**
   - IOU bundled procurement plans result in forward procurement for years 2-5
3. **Long-Term Procurement Planning**
   - New conventional generation resources operational as early as year 5 (e.g., Pio Pico)
   - Preferred resources authorized in Tracks 1 and 4 of the 2012 LTPP can be developed over a 1-3 year timeframe

(continued)

Magnitude of Forward Capacity Procurement

(continued)

4. **Existing long-term procurement mechanisms**
   - Renewables
   - Qualifying Facilities / Combined Heat and Power
   - Other Preferred Resources
   - Utility-Owned Generation
   - Existing Long-Term Conventional Contracts

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