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IEPR Update Joint Agency Workshop on Energy Reliability in Southern California: Panel 1

May 23, 2019

OTC Replacement

Status of Procurement for OTC Replacement*

- **9,498 MW** of Capacity in Southern California (within CAISO BAA) will have retired by December 31, 2020
  - 4,200 MW** have already retired as of May 2019
  - 5,298 additional MW set to retire by December 31, 2020 (includes 1,556 MW in late 2019)

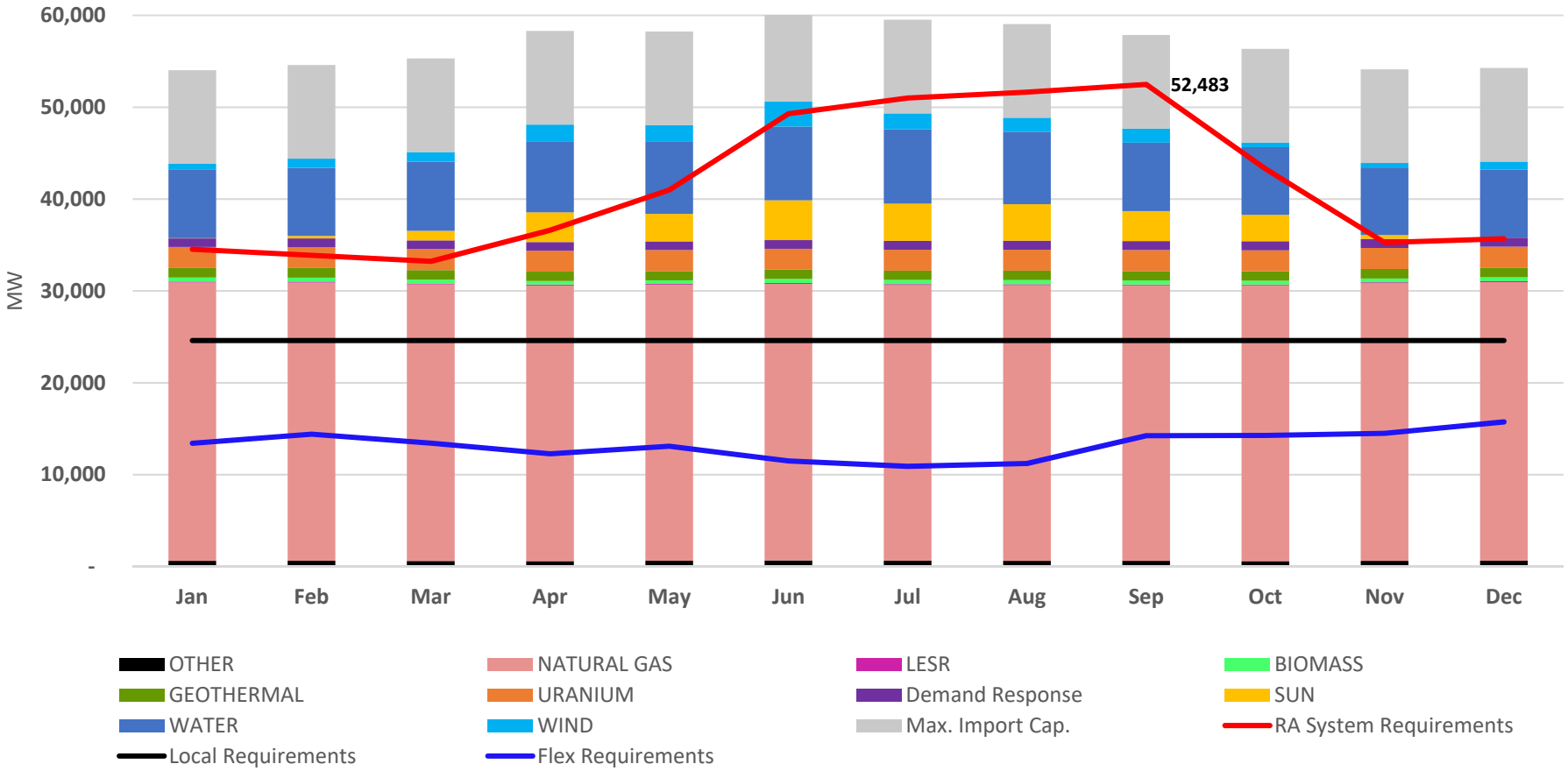
- **3,000 MW** of procurement has been approved or is under review, pursuant to authorizations in Track 1 and Track 4 of the most recent LTPP proceeding (R.12-03-014)
  - 2,200 MW new or existing gas power plants (less than 1,400 MW new)
  - 800 MW preferred resources

*Also see 2019 SACCWIS Report

**Includes specific generators at El Segundo, Encina, Huntington Beach, Mandalay, San Onofre, and South Bay

Emerging Electric Reliability Concerns in California

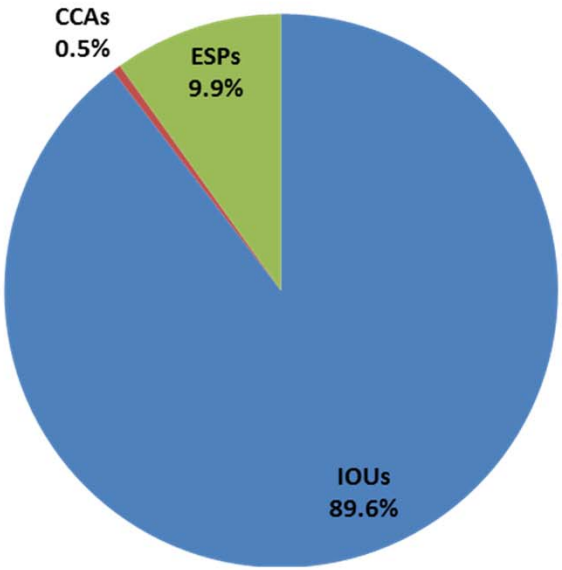
2019 Total RA Resource Mix and RA Requirements



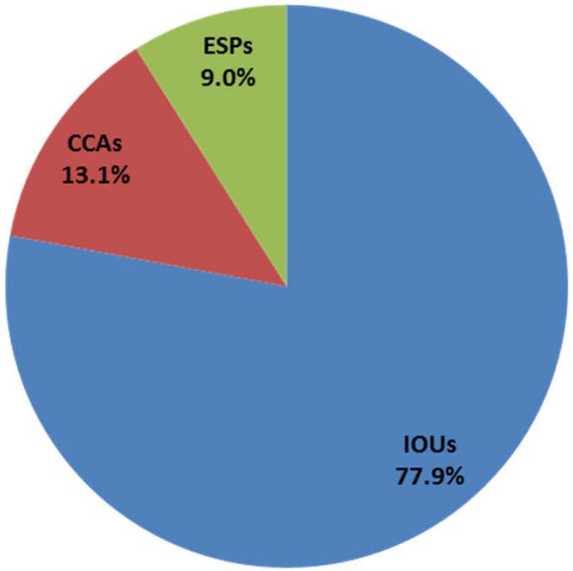
Source of data: CAISO 2019 NQC list – http://www.caiso.com/Documents/NetQualifyingCapacityList-2019.xlsx
CAISO Master Generator Capability List, CAISOs 2019 total local and flexible RA requirements
CAISO maximum import capability step 6 - http://www.caiso.com/Documents/Step6-2019AssignedandUnassignedRAImportCapabilityonBranchGroups.pdf

CPUC Jurisdictional Load

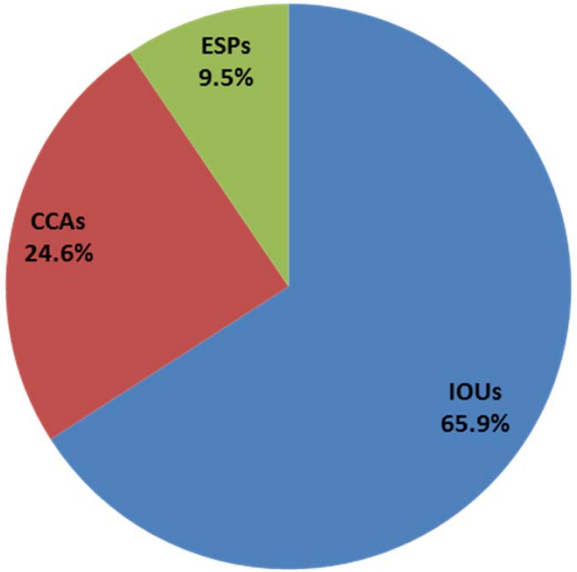
- In 2014 - 18 LSEs serving load (3 IOUs, 14 ESPs and 1 CCA)
- As of May 2019, 36 active LSEs are regulated by the CPUC for Resource Adequacy (3 IOUs, 14 ESPs, 19 CCAs)
- The Commission has received another 9 implementation plans, and 3 expansion plans for 2020 launches (one launch has been delayed to 2021)
- SB 237 increases Direct Access cap



Based on 2014 year ahead load forecasts (MWs) from the CEC



2018 CEC Peak MA load forecast



2019 CEC. Peak YA load forecast

Reliability Challenges

- Tightening in-state supply
  - Growing reliance on out-of-state resources in peak months
    - Consider effects on import capability of drier conditions in Pacific Northwest and generator retirement in other areas of WECC
  - Unexpected mothballs and retirements reduce in-state capacity further
  - ELCC proposal in RA proceeding (R.17-09-020) is based on revised calculations that would reduce qualifying solar and wind capacity by roughly 50%

- Bilateral procurement challenges
  - Mitigating market power, especially within transmission-constrained areas and subareas, with a “right-sized” generation supply
  - Proliferation of load serving entities
  - Eleven requests for RA waivers in both 2018 and 2019

Suite of Possible Solutions

- Additional in-state procurement of new and/or “mothballed” resources
  - D.19-04-040 in the IRP Proceeding (R.16-02-007) opened a short-term procurement track

- Multiyear RA requirements to discourage exit of existing resources
  - D.19-02-022 approved three-year local capacity requirements. Parties are also considering a mechanism for centralized local capacity procurement.

- Procurement of OTC capacity through compliance deadlines
  - Pursuant to D.18-06-030, SCE procured capacity from Ormond Beach and Ellwood through December 2020

- Modifications to mothball and retirement rules