



California ISO

# Washington State - Annual Resource Adequacy Meeting

Phil Pettingill  
Director, Regional Integration

May 11, 2021

# Introduction with a few definitions

## **Integrated Resource Planning (IRP) is:**

- A long term procurement process to plan for safe, reliable, and cost-effective electricity supply
- 10 year forward process

## **Resource Adequacy (RA) is:**

- A procurement process to ensure that sufficient capacity is provided in the operational timeframe to ensure the safe and reliable operation of the electric grid
- Annual and monthly process (in California)

# What are drivers for the regional conversation on RA?

- The region's bulk electricity system is in transition to lower GHG emitting resources
  - Increased need for flexibility while decline in responsive, dispatchable resources
  - Retirement of some thermal generators, difficulty in adding new thermal resources
- Increase in Variable Energy Resources
- Increasing use of Demand as a resource
- The region may begin to experience capacity shortages in the near future
  - The shut down of resources can cause short-run shortages due to the “lumpiness” of generating capacity

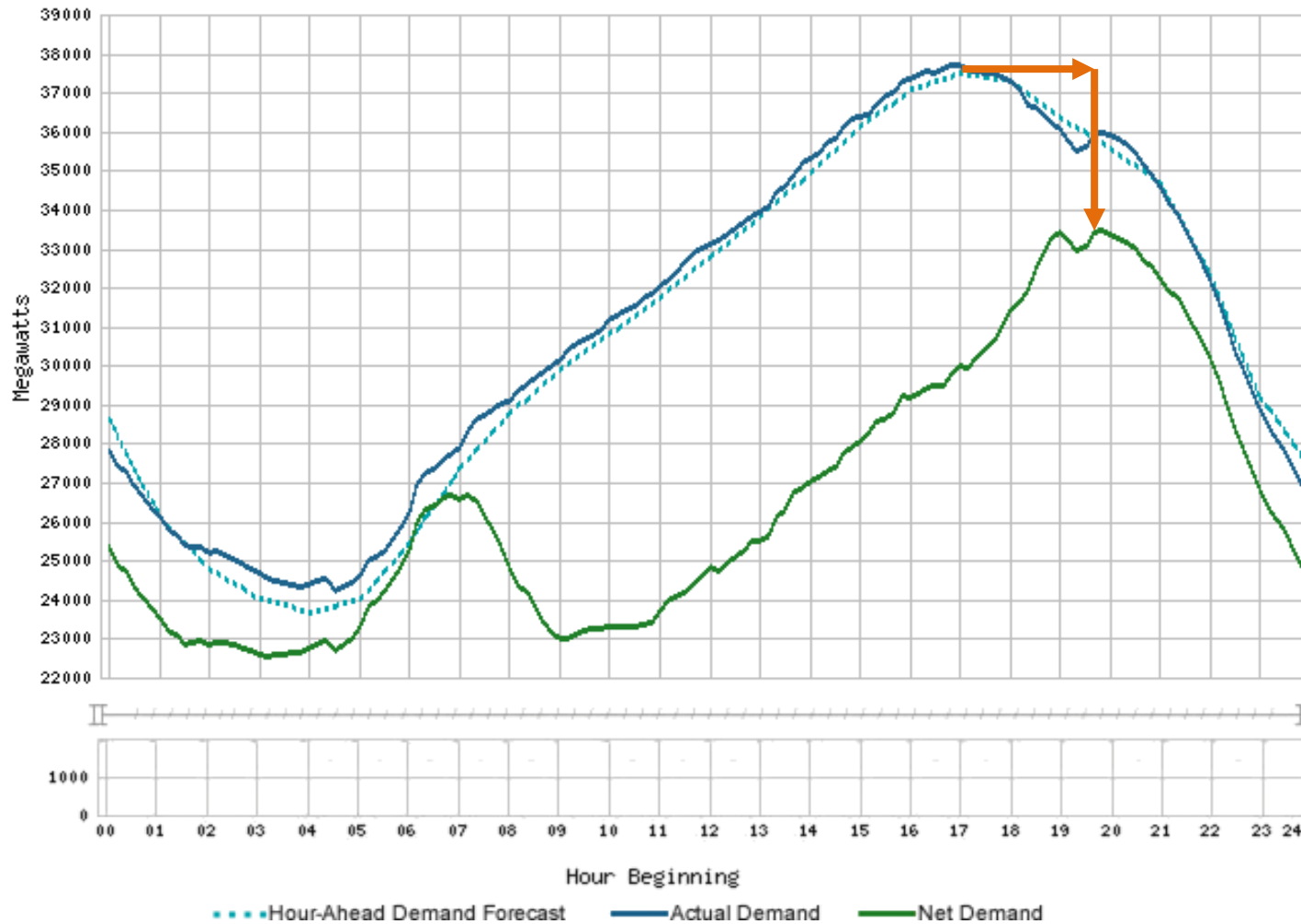
# There are generally accepted elements of an effective resource adequacy program

- Forward planning study to determine a planning reserve margin based on an expected level of risk
- Periodic “showing” to assess whether sufficient capacity has been committed to be delivered across the expected transmission system to the forecast demand when needed
- Mechanism to encourage or enforce full coverage to avoid shortages or leaning on one participating entity by another
- Process to make all RA capacity available to the system operator(s) to meet demand needs under real time conditions

# California resource adequacy paradigm

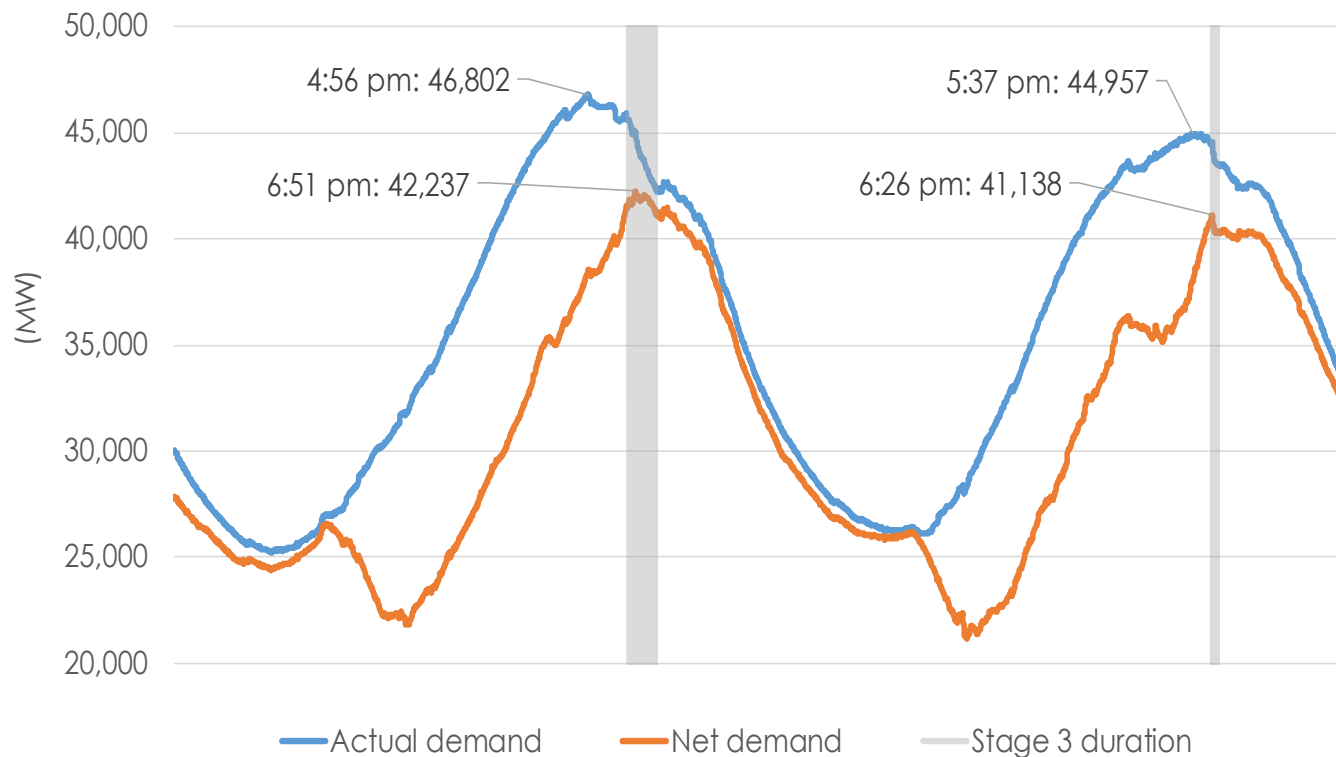
- The California RA program is built on a shared authority between the CAISO, CPUC, CEC and other local regulatory authorities (LRA)
- CPUC oversight covers about 90 percent of CAISO load; publically owned utilities, water and other government entities cover the rest
- Annual procurement requirements based on planning reserve margins established by the LRAs – approx. 15 percent applied to the gross monthly peak load
- California Energy Commission develops and adopts aggregate demand forecast every two years, updates annually
- Procured resources must be reported to CAISO and must-offer into the CAISO markets
- CAISO tariff contains back stop procurement authority if a load serving entity does not meet the requirements set by its LRA

# Solar & wind production drive a shift in use pattern for conventional resources on peak demand days



# Primary drivers motivating reforms in California RA

- August events shows critical disconnects between procurement paradigm and resource and load variability



# Primary drivers motivating market reforms

- **Increased resource and load variability** - Enhance the day-ahead market and extend to EIM entities to leverage regional diversity to provide benefits across the West
- **New and emerging technologies** - Refine market products, rules, modeling, and system tools to integrate new technologies to replace operational attributes provided by the gas-fired fleet
- **Resource sufficiency** - comprehensively reform resource adequacy requirements to align with the changing nature of resources and tightening supply conditions across the west



# California is preparing for summer 2021 to ensure reliable grid operations in the short term

- CAISO board approved policies that will:
  - Require substitute capacity to cover for resources on maintenance outages
  - Ensure limited-energy battery storage counted for RA purposes is available to serve CAISO reliability needs
  - Enhance market rules, including export and load scheduling priorities, demand response dispatch, and energy storage resource requirements
- CPUC authorized increased procurement to effectively meet a 17.5% planning reserve margin with resources available at gross and net peak hours

RA program must deliver a dependable and reliable fleet of resources to meet operational needs all hours

**Future RA frameworks must:**

- Better assess and account for “uncertainty” given the increasing variability of loads and resources and extreme weather events
- Understand impacts on reliability as system grows more dependent on use- and availability-limited resources
- Accurately and transparently evaluate and value resources based on their contribution to reliability across all hours of the year
- Improve load forecasts, which drive resource adequacy needs, with the expansion of behind-the-meter distributed energy resources

## CAISO's proposed RA reforms will drive greater RA fleet operability and dependability all hours of the year (Phase 1)

- **Planned outage process-** ensure sufficient capacity is procured in advance to cover expected planned outages; no last minute capacity substitution
- **Min Charge Requirement-** ensure a minimum level of stored energy is available during the net load evening peak to meet operational needs
- **Backstop Capacity Procurement-** CPM authority for energy sufficiency using new analysis in local capacity technical study

# CAISO's proposed RA reforms will drive greater RA fleet operability and dependability all hours of the year (Phase 2)

- **Portfolio assessment** - ensure fleet satisfies operational needs in all hours- both capacity and energy, including new CPM authority
- **UCAP-** capacity values properly reflect their availability and resource owners maintain resources to ensure a high availability; aligns CAISO's outages with RC outage process
- **RA import reform-** rules eliminate possibility of double counting and speculative supply; lock in supply and transmission service in advance
- **Must offer obligation-** minimize exemptions and ensure resources are offered into the market to meet their RA obligations
- **Flexible RA-** ensure sufficient resources are secured with the right attributes to meet ramping and uncertainty needs given supply and demand variability
- **Backstop Capacity Procurement-** CPM authority for deficiencies identified in the portfolio assessment

# More information on Summer Readiness

- 2021 Summer Readiness
- <http://www.caiso.com/about/Pages/News/SummerReadiness.aspx>
- Fact Sheet – Summer Reliability Actions
- <http://www.caiso.com/Documents/Fact-Sheet-CPUC-CEC-CAISO-Summer-Reliability-Actions.pdf>
- August 2020 Outages – Root Cause Final Report
- <http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>