

DOCKETED	
Docket Number:	21-IEPR-04
Project Title:	Energy Reliability
TN #:	238729
Document Title:	Presentation - Gas fired Generation Requirements in the LA Basin
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Organization:	California ISO
Submitter Role:	Commission Staff
Submission Date:	7/7/2021 5:38:16 PM
Docketed Date:	7/7/2021



Gas-fired Generation Requirements in the LA Basin

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Session 4 of 4: Alison Canyon Reliability Impacts

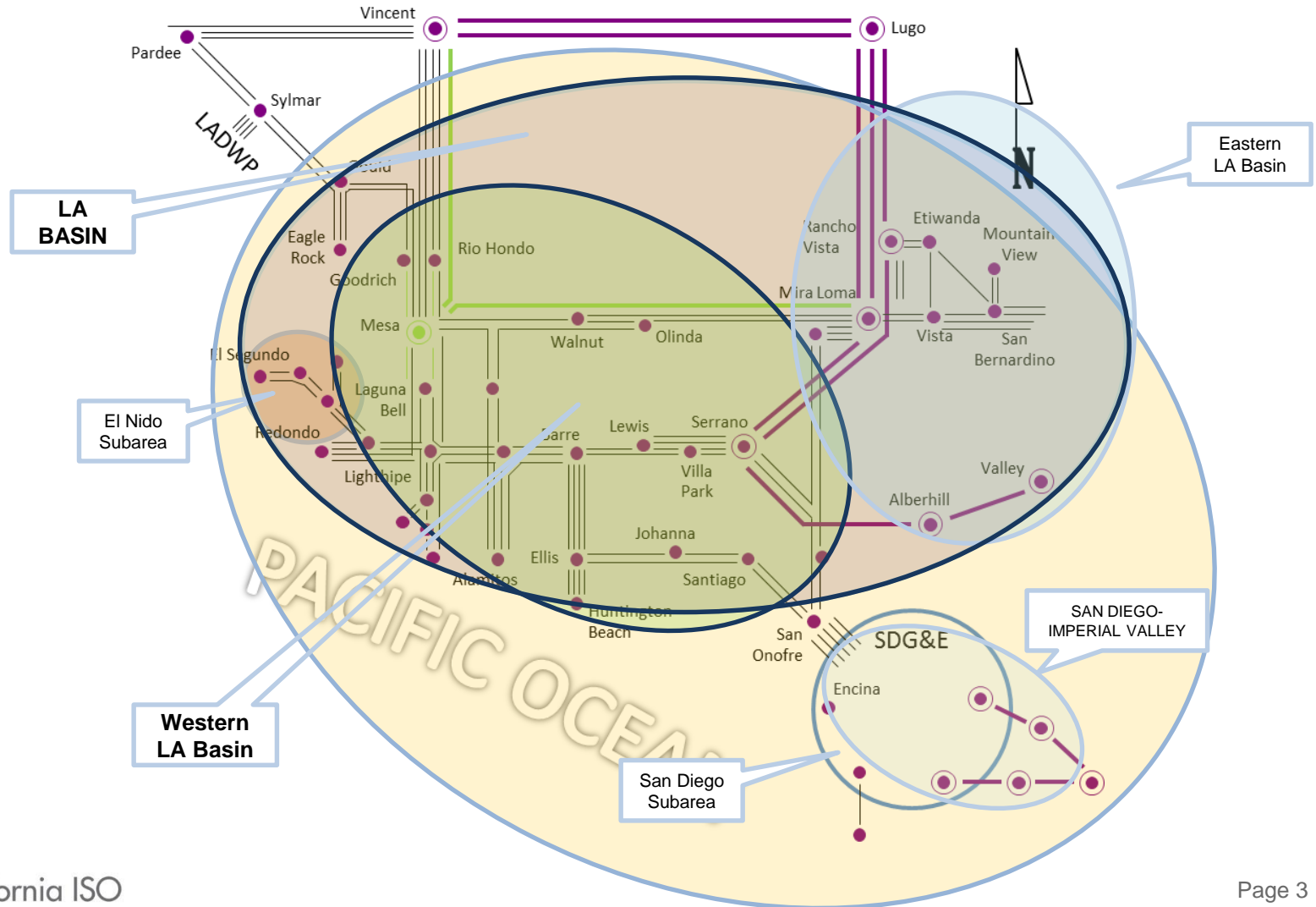
IEPR Joint Agency Workshop on Summer 2021 Electric and Natural Gas Reliability

July 9, 2021

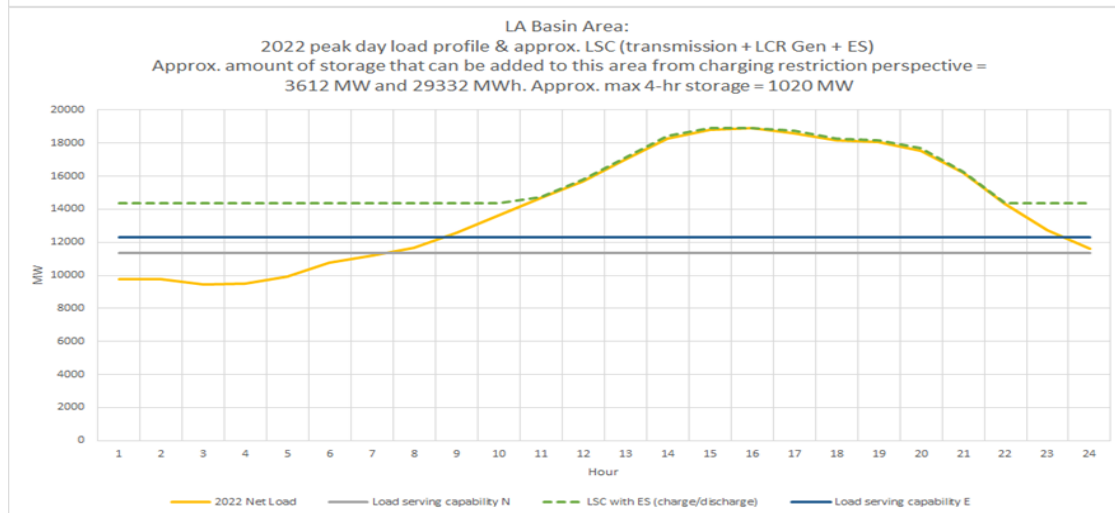
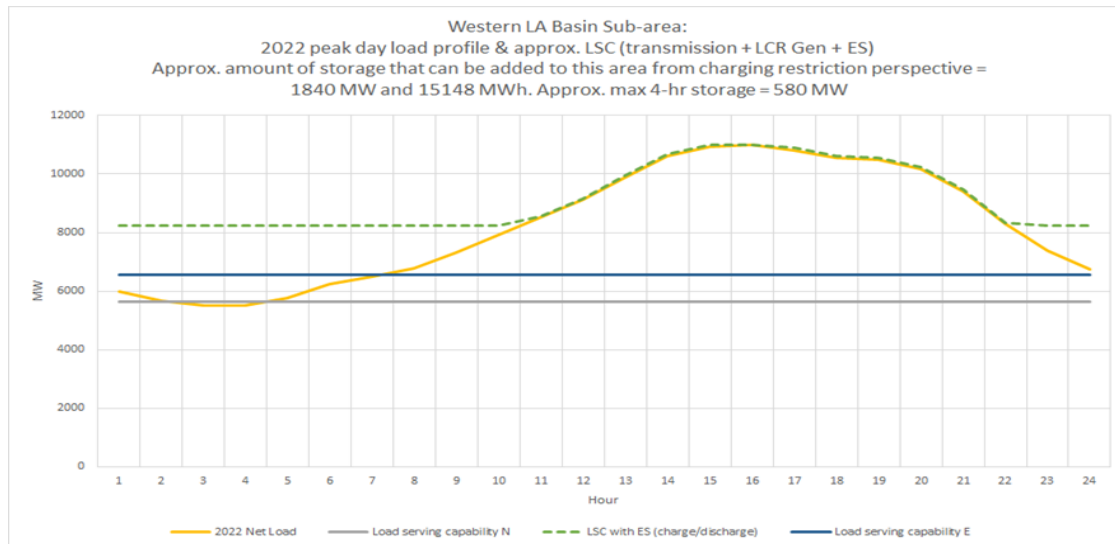
The ISO considers the local requirements through a number of venues including supporting CPUC proceedings

- Annual local capacity requirements technical studies assess the needs for the next year as well as a 5 year projection, and a 10 year projection is performed every second year
 - The potential for batteries to replace generating resources is assessed in each study – recognizing charging requirements
- Transmission alternatives to reduce local requirements are explored through the annual transmission planning process
 - Needs are considered from reliability, policy (if applicable) and economic perspectives
 - System and local needs must be considered holistically
- Additional studies have been performed to support other efforts such as the Aliso Canyon proceeding.

Local Capacity requirements are complex and overlapping in the LA Basin and San Diego-Imperial Valley Areas



Potential for storage to meet Western LA Basin Subarea and Overall LA Basin area needs:



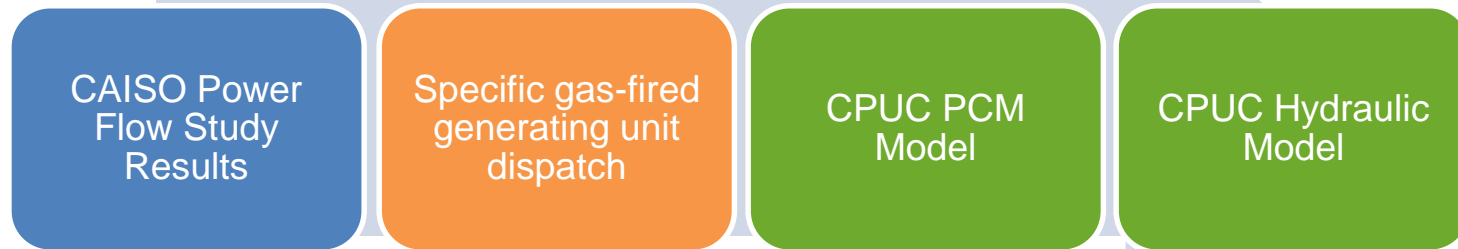
- From the most recent 2022 annual LCR study
- Includes consideration of charging requirements (under critical contingency conditions) met by transmission and other in-basin gas-fired generation
- The estimates include
 - the maximum potential capacity and energy for energy storage, and
 - the 4-hour energy storage estimate (i.e., for 1-to-1 generation replacement in an LCR area).
- Note the Western LA Basin has gas-fired generation resources that are located in the Aliso Canyon Delivery Area. The overall LA Basin includes gas-fired generation outside of the Aliso Canyon Delivery Area.

The ISO has also studied transmission alternatives in the western LA Basin coupled with energy storage

- Options studied over the last two years have included:
 - Storage in the Western Basin sub-area and Nido sub-area (~\$1.2 billion)
 - Upgrade Mesa – Laguna Bell 230 kV line and storage in Nido sub-area (~\$0.6 billion)
 - Series Reactor on the Mesa-Laguna Bell 230 kV line and storage in the Nido sub-area (~ \$0.6 billion)
 - Upgrade La Fresa – La Cienega 230 kV line and Series Reactor on the Mesa – Laguna Bell 230 kV line (~ \$0.1 billion)
 - Pacific Transmission Expansion HVDC Project (~ \$2 billion)
 - Devers - Lighthipe HVDC (~ \$1 billion)
 - Lugo Area - LA Basin HVDC line with underground connections (~ \$1 billion)
- Because the local resources are also needed for system purposes, there was little economic advantage to building transmission to reduce local requirements for the gas-fired generation

Note: Environmental impact assessments and construction feasibilities were not included in the ISO studies.

The ISO has conducted power flow studies as inputs into modeling for the I.17-02-002 Order instituting investigation regarding Aliso Canyon



- The ISO performed local capacity requirement (LCR) studies in 2019 to determine minimum local capacity requirements for summer and winter of 2020, 2025 and 2030 under contingency conditions
 - Specific gas-fired generating unit dispatches were then provided to the CPUC staff for use in the Production Cost Model
 - The CPUC performed production cost modeling that provided inputs to the gas hydraulic model.
- The ISO's analysis is part of the picture, but comprehensive analysis of gas supply needs reaches beyond ISO gas-fired generation needs.