

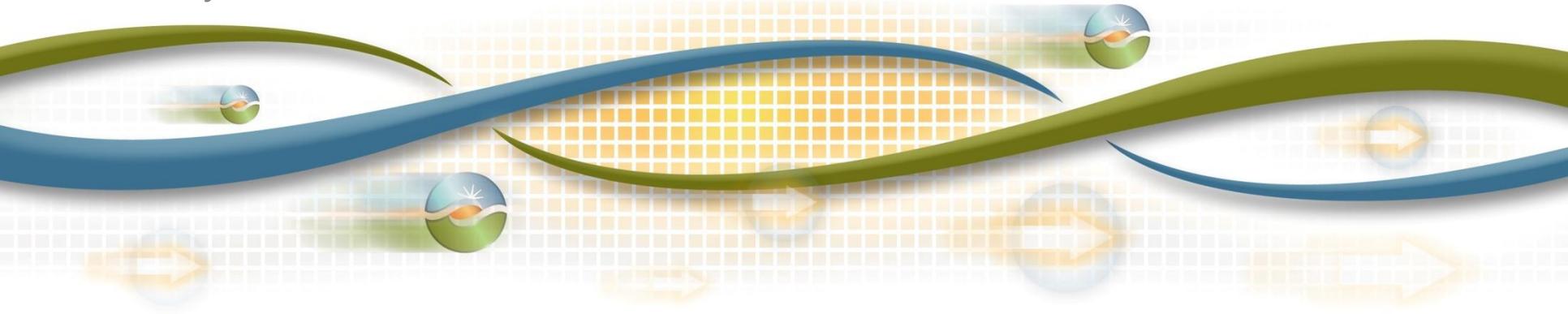
# CEC/CPUC Joint Workshop

## Electricity Infrastructure Issues Resulting from SONGS Closure

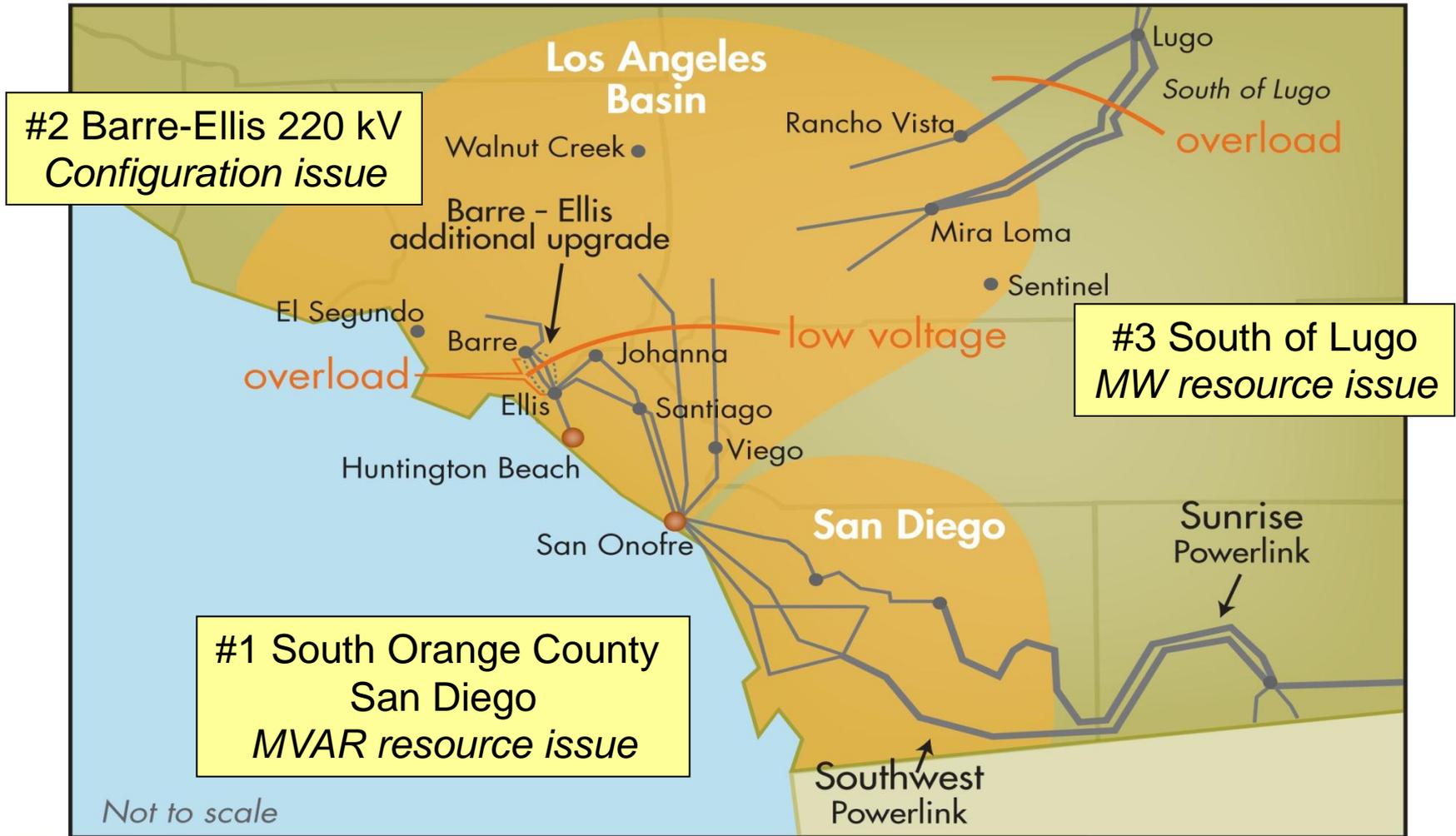
### ISO 2013 Transmission Plan Nuclear Generation Backup Plan Studies (SONGS)

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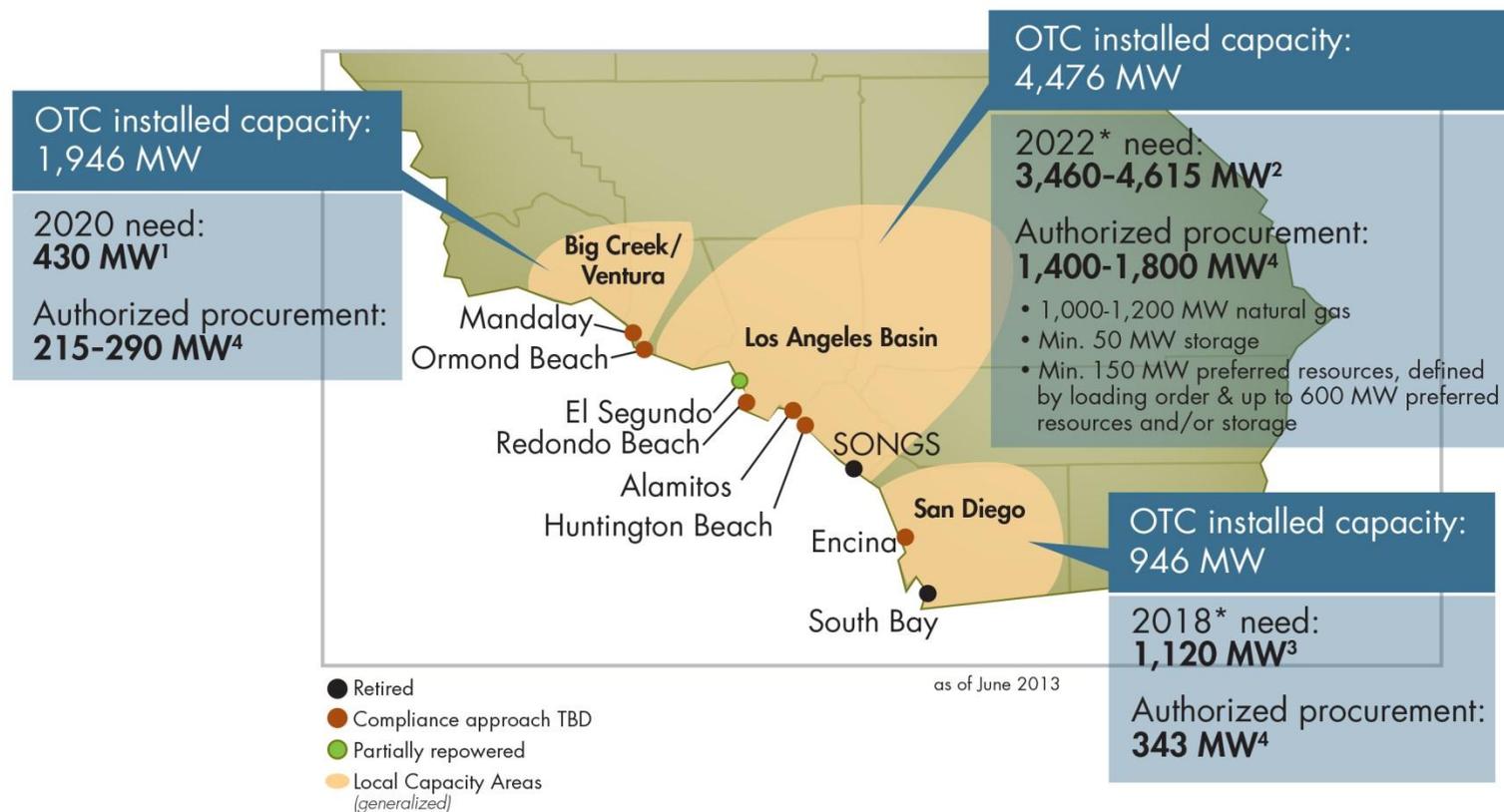
July 15, 2013



# Summer 2013 – Absence of SONGS creates reliability issues in South Orange County and San Diego.



# OTC retirements and SONGS closure create local capacity shortfalls.



<sup>1</sup> ISO 2011-2012 Transmission Plan – Table 3.3-1

<sup>2,3</sup> ISO 2012-2013 Transmission Plan – Section 3.5, Nuclear Generation Backup Plan Studies; for LA Basin, low need is preliminary result of sensitivity studies requested by CARB for AB1318 report – includes incremental uncommitted EE, DR and CHP.

<sup>4</sup> Authorized procurement was based upon analyses that included SONGS online through 2022. The ISO and the CPUC are currently developing new scenarios that exclude SONGS.

\*Represents one scenario; others are possible, including a different mix between the LA Basin and San Diego

# ISO Nuclear Replacement Study – 2012 - 2013 TPP

## Key load forecast and resource assumptions

- 2012 CEC mid forecast
  - Consistent with the 2012/2013 Ten Year Transmission Plan
  - Local area studies used 1-in-10 year weather-related peak load
  - System wide studies used 1-in-5 year weather-related peak load
  - Energy efficiency included continued funding of utility programs as in CEC mid forecast
  - Behind the meter distributed generation as in the CEC mid forecast
- CPUC/CEC renewables portfolios
  - Included both transmission connected resources and system-connected distributed generation

# Study Conclusions for Mid and Long Term Studies

- Preliminary conclusions:
  - Loss of SONGS creates transmission impacts (thermal overloading, voltage instability) in LA Basin and San Diego LCR areas
- Possible mitigations for SONGS have been explored, including preferred resources, transmission, conventional generation
- Consider contingency plans to ensure overall success

# Mid term (2018) mitigation alternatives – potential for preferred resources to meet some of these needs

Continue use of synchronous condensers

Construct an 11-mile 230 kV line from Sycamore to Penasquitos

820 MW new or replaced

+

300 MW new resources

+

650 MVAR SVC support

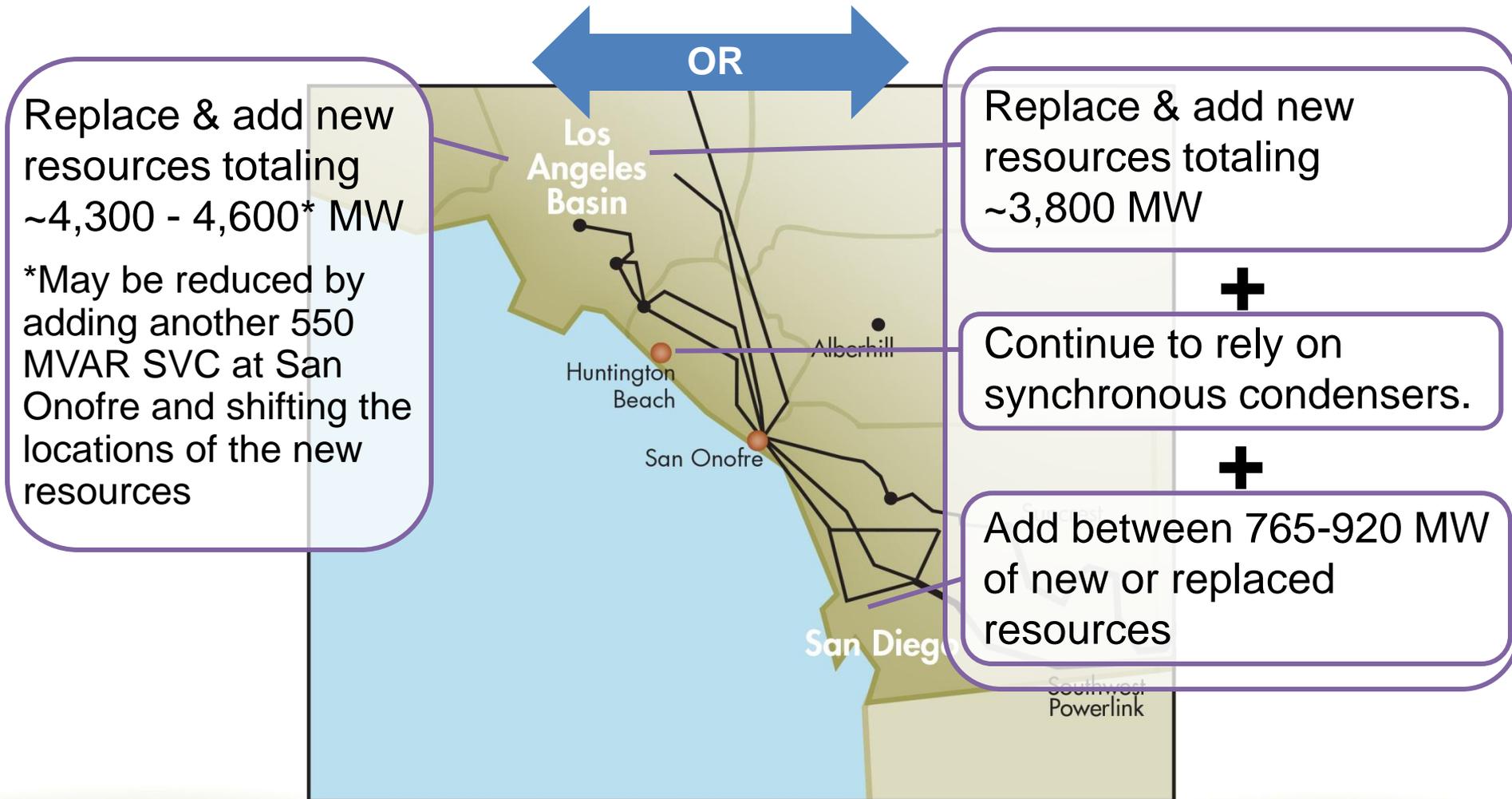
• SONGS and San Luis Rey/Talega

965 MW new or replaced in northwest San Diego, and 1460 MVAR SVC support

- SONGS, Talega, Penasquitos, San Luis Rey, Mission

OR

# Long term (2022) mitigation alternatives in addition to mid term plan – (no added transmission lines)



# Summer 2014 – Summer 2017

- Gradual increase in need in San Diego due to load growth and loss of Cabrillo 2 peakers and Huntington Beach synchronous condensers
- Mitigations:

2014	<ul style="list-style-type: none"><li>- Optimize current resources</li><li>- Rely on flex alerts and existing demand response and, worst case, first block of SDG&amp;E load shedding for N-1-1 outages.</li><li>- Extend Cabrillo II (approximately 200 MW) land leases (?)</li><li>- Possible relaxation of SONGS-area voltage criteria</li></ul>
2015	<ul style="list-style-type: none"><li>- SONGS static VAR compensator and Talega area synchronous condensers</li><li>- Possible conversion of one or both SONGS generators to synchronous condensers (?)</li></ul>
2016	<ul style="list-style-type: none"><li>- Pio Pico generation (fall 2015 ? – note 343 MW has been approved in 2018 time frame)</li></ul>
2017	<ul style="list-style-type: none"><li>- Sycamore – Penasquitos transmission line</li></ul>

# Summer 2018

- Status:
  - San Diego area needs significantly increase beyond the impact of load growth - potential retirement of Encina (946 MW) in December 2017
- Mitigations:
  - Acquire additional resources in San Diego sub-area:
    - Opportunities for preferred resources
    - Possible extension of Encina OTC Compliance date
    - 1120 MW resources if distributed within San Diego
    - If all in northwest, 965 MW plus additional 810 MVARs
    - Emphasis on flex alerts, demand response, and emerging incremental energy efficiency

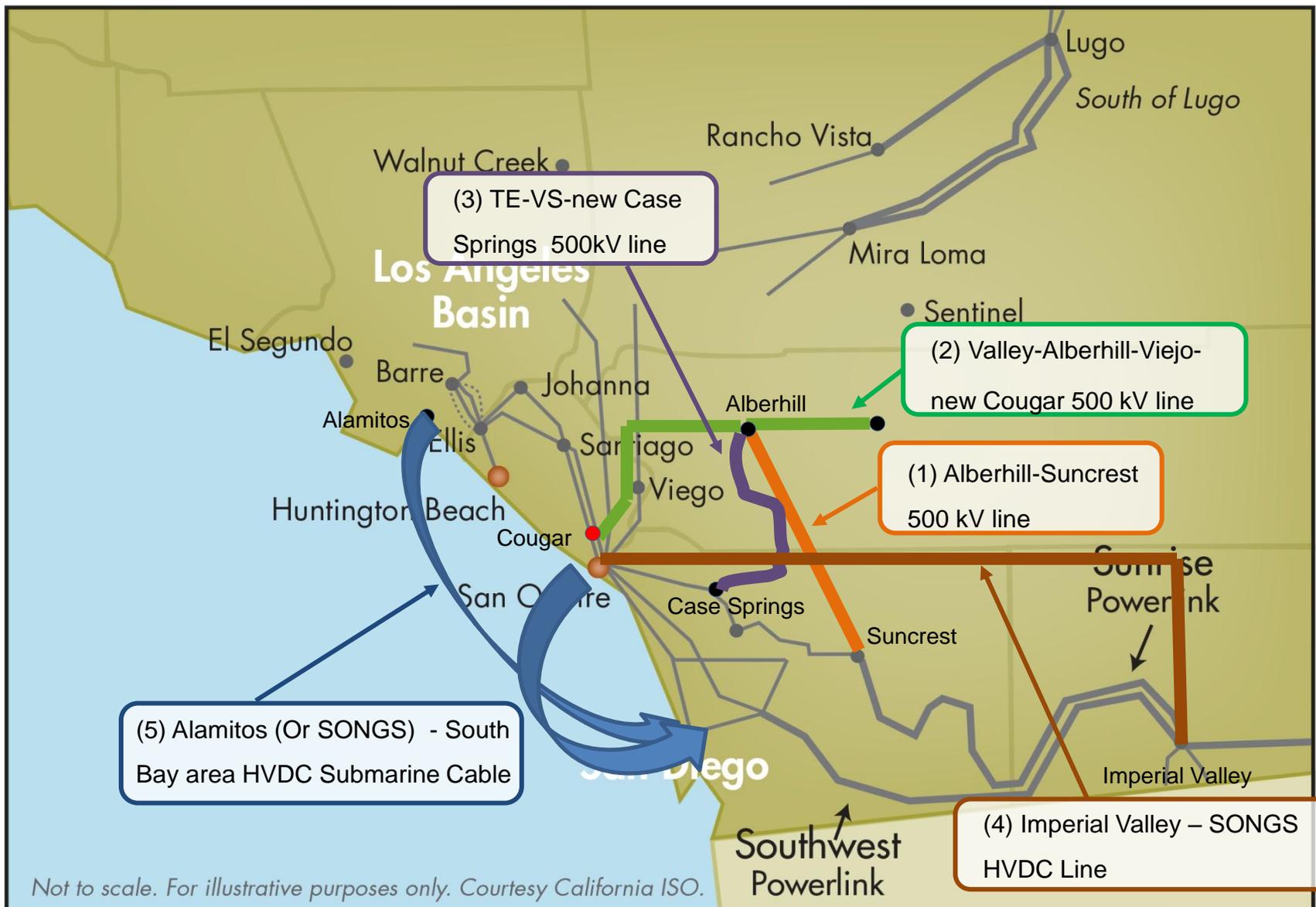
# Summer 2019 - 2020

- Status:
  - Continued gradual increase in risk in San Diego due to continued load growth
  - Mitigations:
    - Reliance on existing resources
    - Continued emphasis on flex alerts, demand response, and emerging incremental energy efficiency
    - Opportunities for new preferred resources
    - Contingency suggests we accelerate some of the generation identified in 2021

# Summer 2021-2022

- Status:
  - LA Basin area needs significantly increase beyond load growth impacts - potential retirement of 3800 MW in December 2020
- Mitigations:
  - Acquire additional resources in LA Basin and San Diego:
    - 4315 – 4615 MW in LA Basin
  - OR
    - 3800 MW in LA and 800-900 MW in San Diego
  - OR
    - 3000 MW in LA and 600 MW in San Diego with major transmission reinforcement (about 1000 MW local resource capacity reduction)
  - 2013 IEPR load forecast and additional uncommitted EE will help to reduce requirements

# Transmission alternatives under consideration:



## Uncertainty drives least-regrets conclusions:

- Prior to SONGS shut-down ISO Board approved least-regret considerations for the Mid-Term needs:
  - The Sycamore – Penasquitos 230kV line provides mitigation for the absence of SONGS, as well as mitigation of policy driven needs as identified in the ISO 2012/2013 Transmission Plan; and
  - A total of approximately 650 MVAR of dynamic reactive support in both LA Basin and San Diego areas in a wide range of conditions
- Significant uncertainty is inherent in the studies, conclusions, solutions:
  - Status of pending and future SCE and SDG&E procurement
  - Completion of ISO approved transmission projects
  - Additional levels of energy efficiency that can be achieved in the future
  - Successful deployment of improved and responsive demand response, and other preferred resources

# Processes for Approving New Resources

- **Transmission Planning Process (ISO)**
  - Annual overlapping 15 month process; 10 year horizon
  - Initial reliability results in mid-August
  - Draft plan by January 31; present for ISO board approval in March
- **Long-Term Procurement Plan (LTPP) (CPUC)**
  - Proceeding evaluates the need for new resources to meet local area and system reliability needs
  - Updates and reviews IOU bundled procurement plans
    - What to procure, for how long, and with what counterparties
- **Application for Certification Process (CEC)**
  - Lead CEQA agency for certification of thermal generation greater than or equal to 50 MW; one-stop permitting with project coordination local, state, and federal agencies
  - 12-month permitting process begins after project is data adequate, but process may take more or less time depending on site, project complexity, and public concerns
- **Certificate of Public Convenience and Necessity (CPUC)**
  - Lead CEQA agency for IOU owned transmission projects