California Energy Commission

Senate Energy, Utilities & Communications Committee

Electrical System Stability and Reliability: Life after SONGS

California Public Utilities Commission

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Chair, California Energy Commission

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July 10, 2013

Roles and Responsibilities

	Public Utilities Commission State Agency	**California Energy Commission** State Agency	**California Independent System Operator** Private, not-for-profit public benefit corporation Federally regulated
Governance	Overseen by full-time, five member commission appointed by Governor and confirmed by Senate	Overseen by full-time, five member commission appointed by Governor and confirmed by Senate	Regulated by the Federal Energy Regulatory Commission and governed by a part-time five member board appointed by the Governor and confirmed by the Senate
Authority	Regulating investor-owned utilities, including setting retail rates and permitting transmission line additions	Licensing thermal power plants greater than or equal to 50 MW Setting appliance & building efficiency standards Managing state and federal energy grant monies Developing high level policy	Operating the wholesale electricity system Complying with mandatory federal reliability standards Providing open, non-discriminatory access to the wholesale transmission system Planning for transmission upgrades to ensure reliable operations, reduce system costs and interconnect generation Designing reliability and transmission market products
Reliability	Overseeing investor-owned utility procurement to meet reliability needs Setting planning reserve margin	Developing and adopting state demand forecast – key input to determination of reliability requirements	Establishing local and system reliability requirements Procuring backstop generation to meet reliability requirements
Renewables Portfolio Standard (RPS)	Regulating investor-owned utility procurement to meet RPS	Defining qualified renewable resources and reporting on municipal utility compliance	Interconnecting renewable resources and other generation to the transmission system Federal planning authority for identifying needed transmission system additions

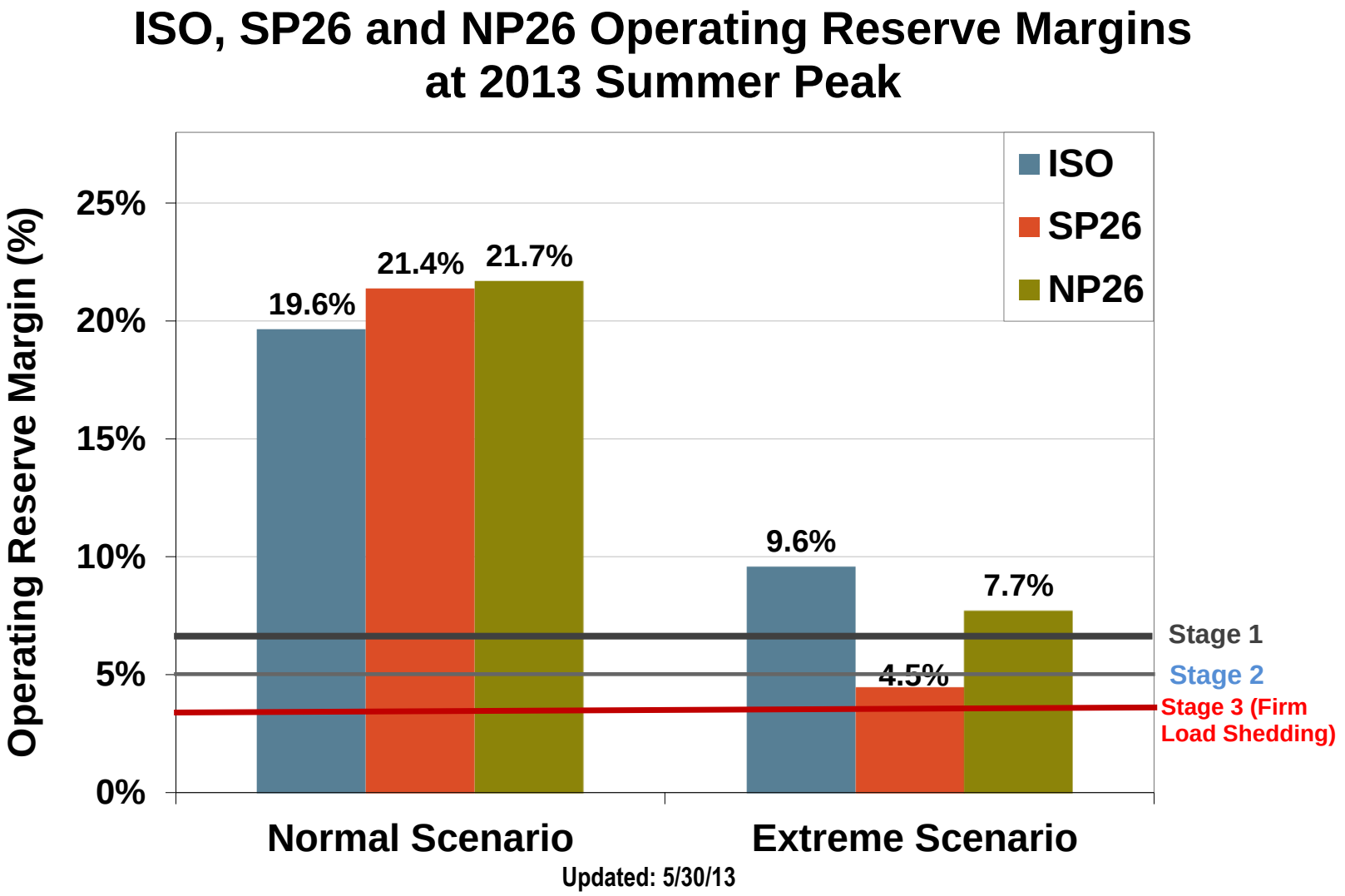
CEC statewide planning studies, ISO and utility operational studies essentially agree

On a statewide and ISO system basis, supply is adequate to cover a broad range of conditions

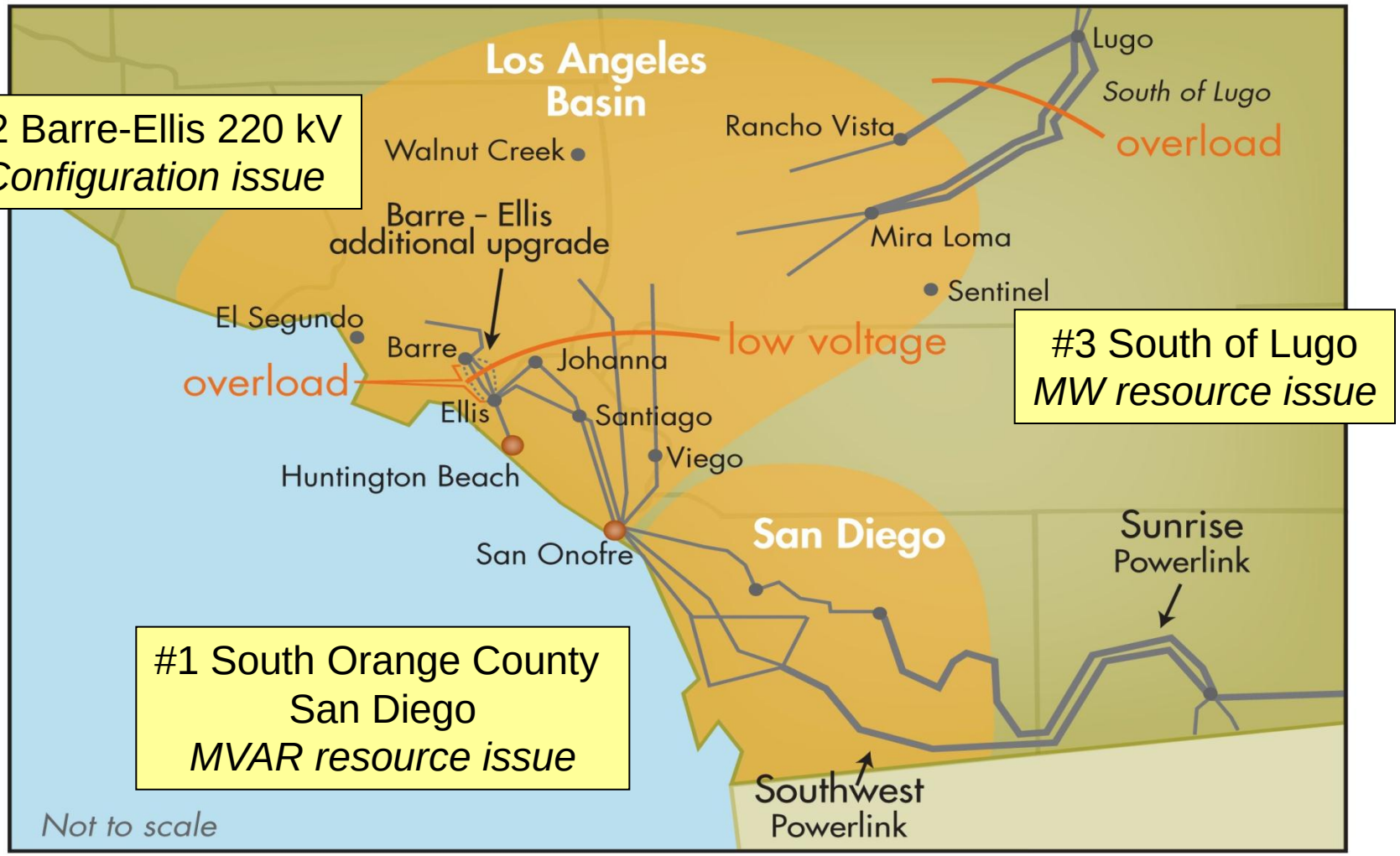
Local reliability concerns have been focused on South Orange and San Diego counties because of the ongoing shutdown of the San Onofre Nuclear Generating System (SONGS) nuclear plant, the largest supplier of electricity in Southern CA.

On June 7, 2013, Southern California Edison announced that it has decided to permanently retire units 2 and 3.

Normal scenario operating reserve margins are adequate, extreme scenario margins (1–10) are greater than 3% threshold



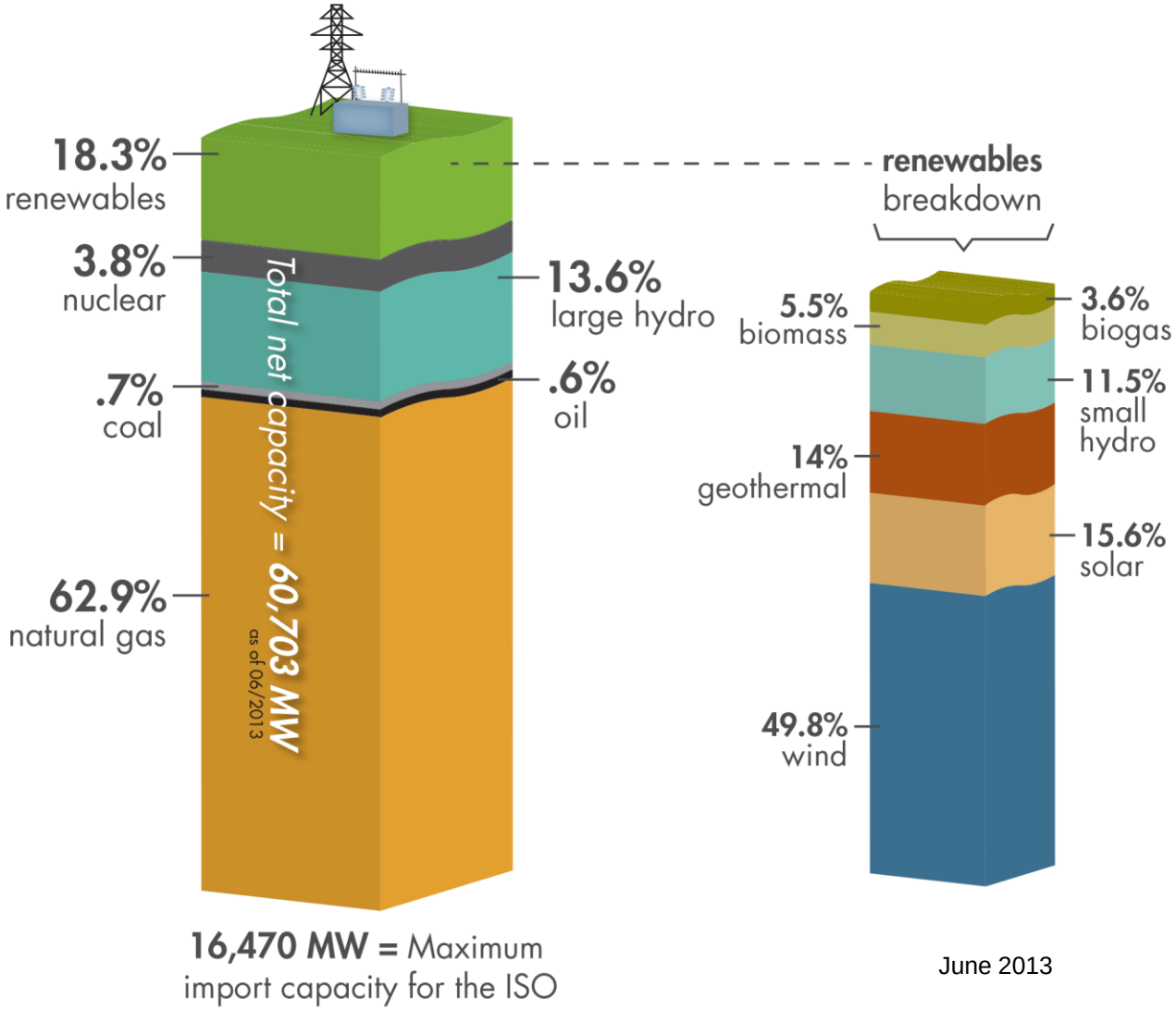
Summer 2013 – Absence of SONGS creates reliability issues in South Orange County and San Diego.



Key Actions to Mitigate Local Reliability Concerns in Southern Orange County and San Diego for Summer 2013:

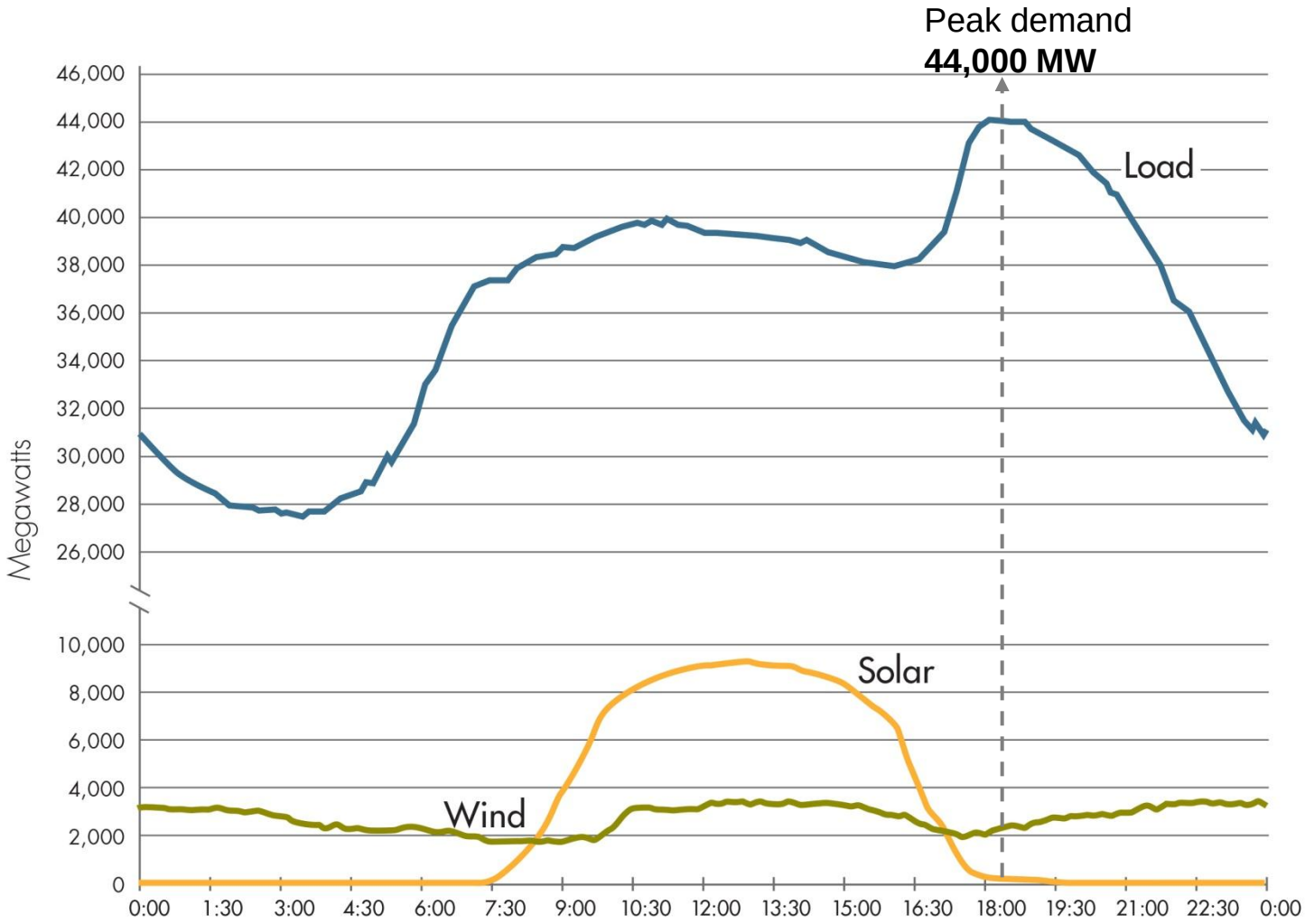
- Reconfigured Barre – Ellis 220 kV lines from existing two circuits to four circuits – completed and in service June 12, 2013
- Converted Huntington Beach units 3 & 4 into synchronous condensers – commercial operation June 28, 2013
- Installed 80 MVAR capacitors at Santiago and Johanna substation and 2x80 MVAR capacitors at Viejo – in service May 2013
- New resources South of Lugo: 1) El Segundo repower (564 MW) commercial operation 50% June 29, 2013 and 50% July 10, 2013; 2) Sentinel (800 MW) fully available for use and 3) Walnut Creek (500 MW) fully available for use.
- Fully funded Flex Alerts
- Fully utilize available demand response
- Ensure that existing generation is well-maintained and available

High-level Resource Mix



Sample winter day in 2020:

Flexible resources are essential to meeting the net load curve



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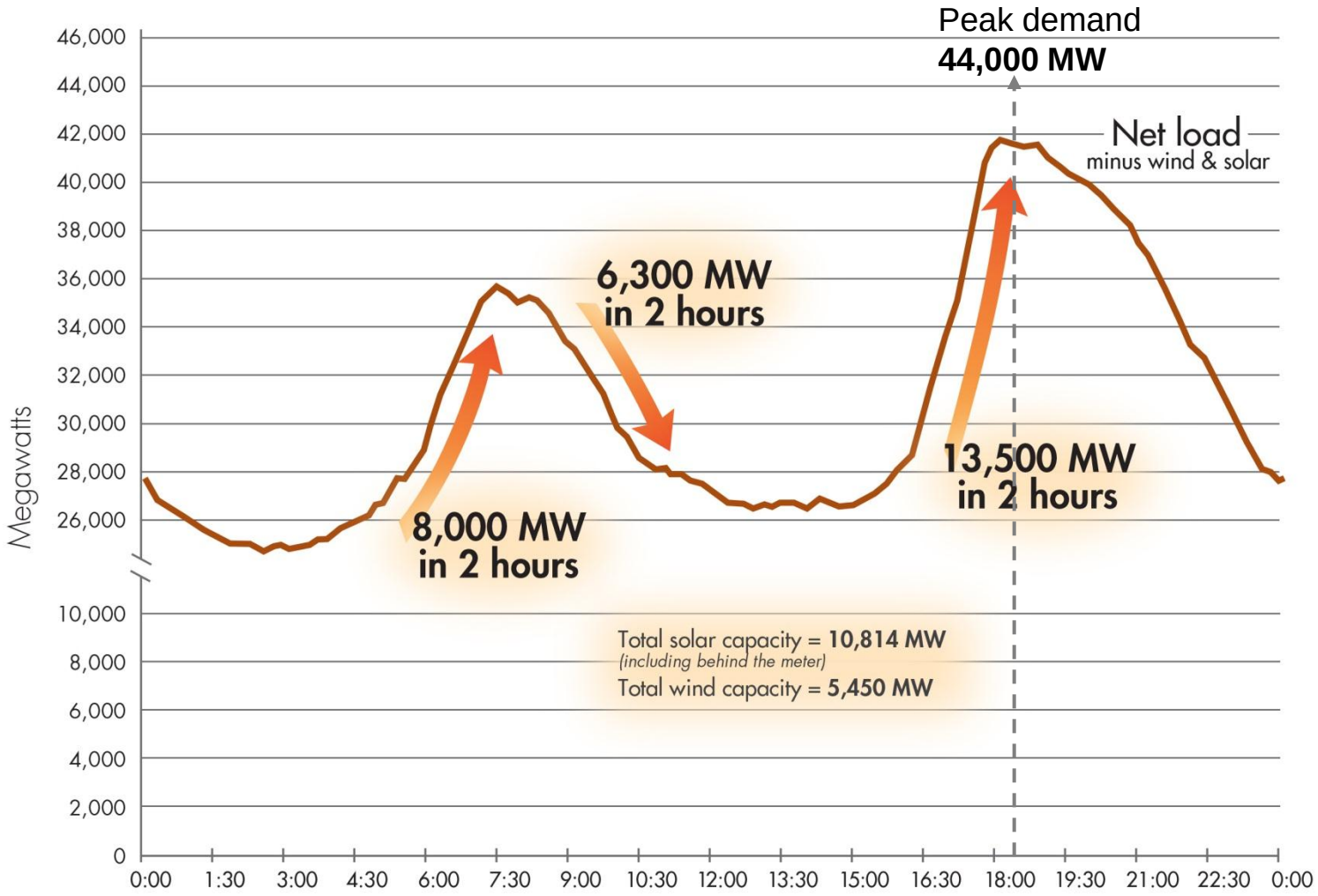
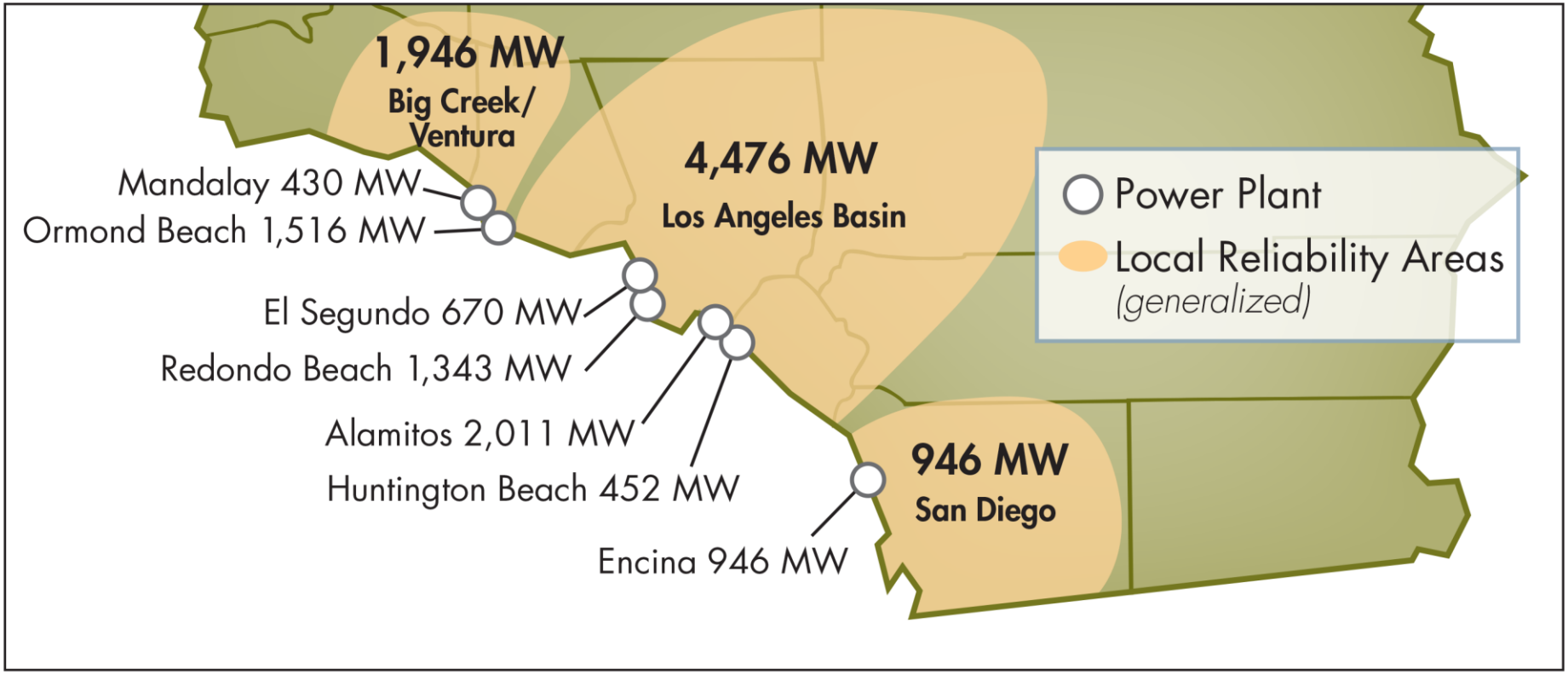
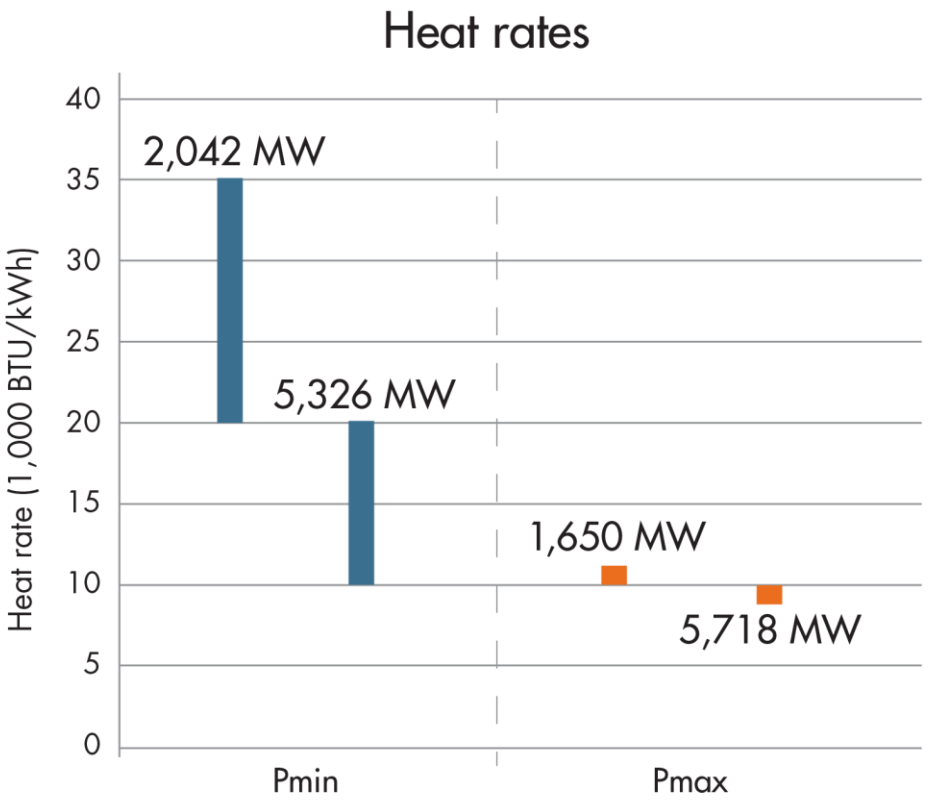


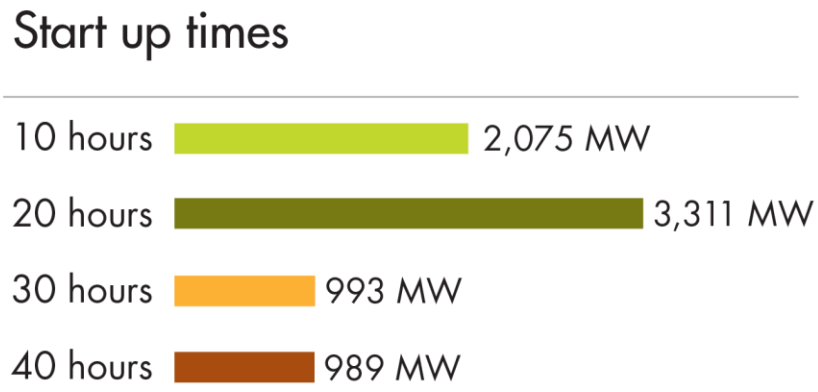
Southern California OTC generation facing compliance deadlines

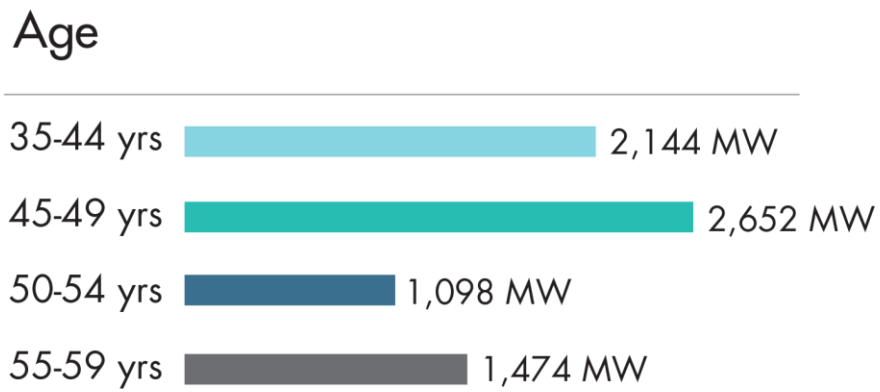


Caveat
Map does not reflect 2,200 MW of OTC capacity in LADWP's balancing authority area.

Southern CA OTC Gas-Fired Generator Characteristics



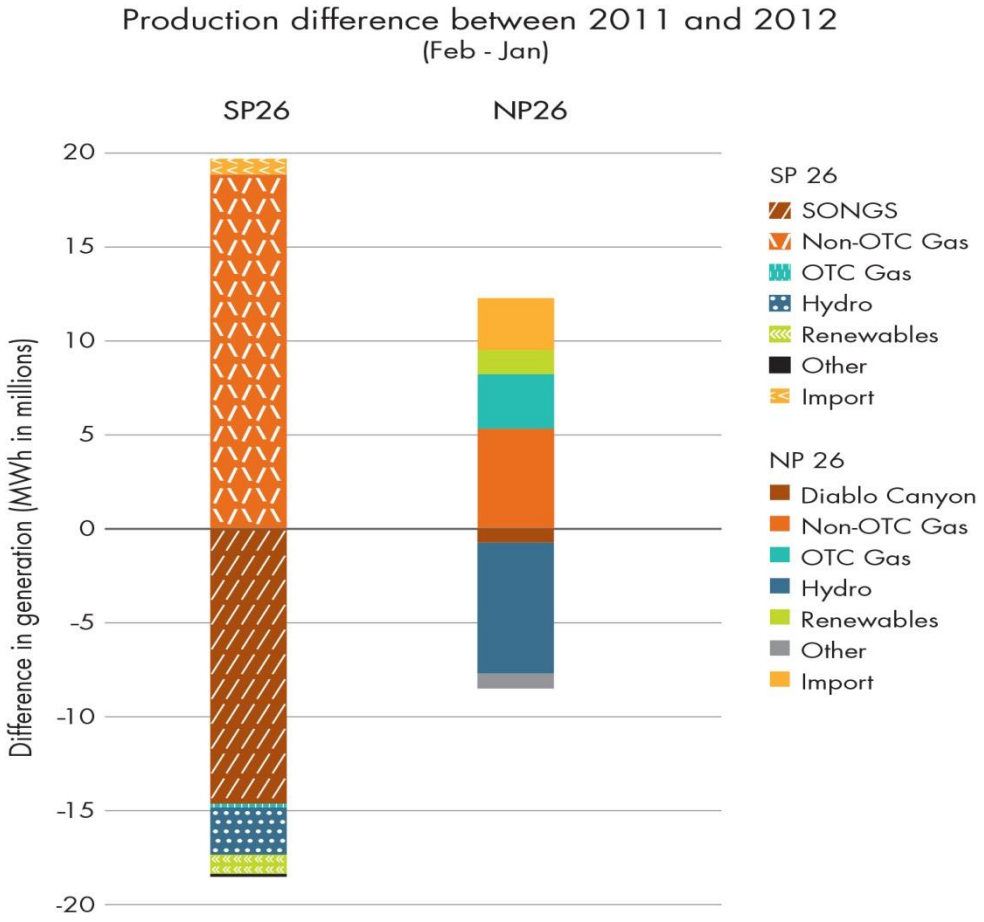




2012 Annual Capacity Factors: 1-27% (Average 9%)
2012 Summer (June – September) Capacity Factors: 1-40% (Average 12%)

Annual Energy Source Difference w/o SONGS

CAISO Balancing Authority Area



February 2011 - January 2012 vs. February 2012 - January 2013

Source: CEC QFER Data

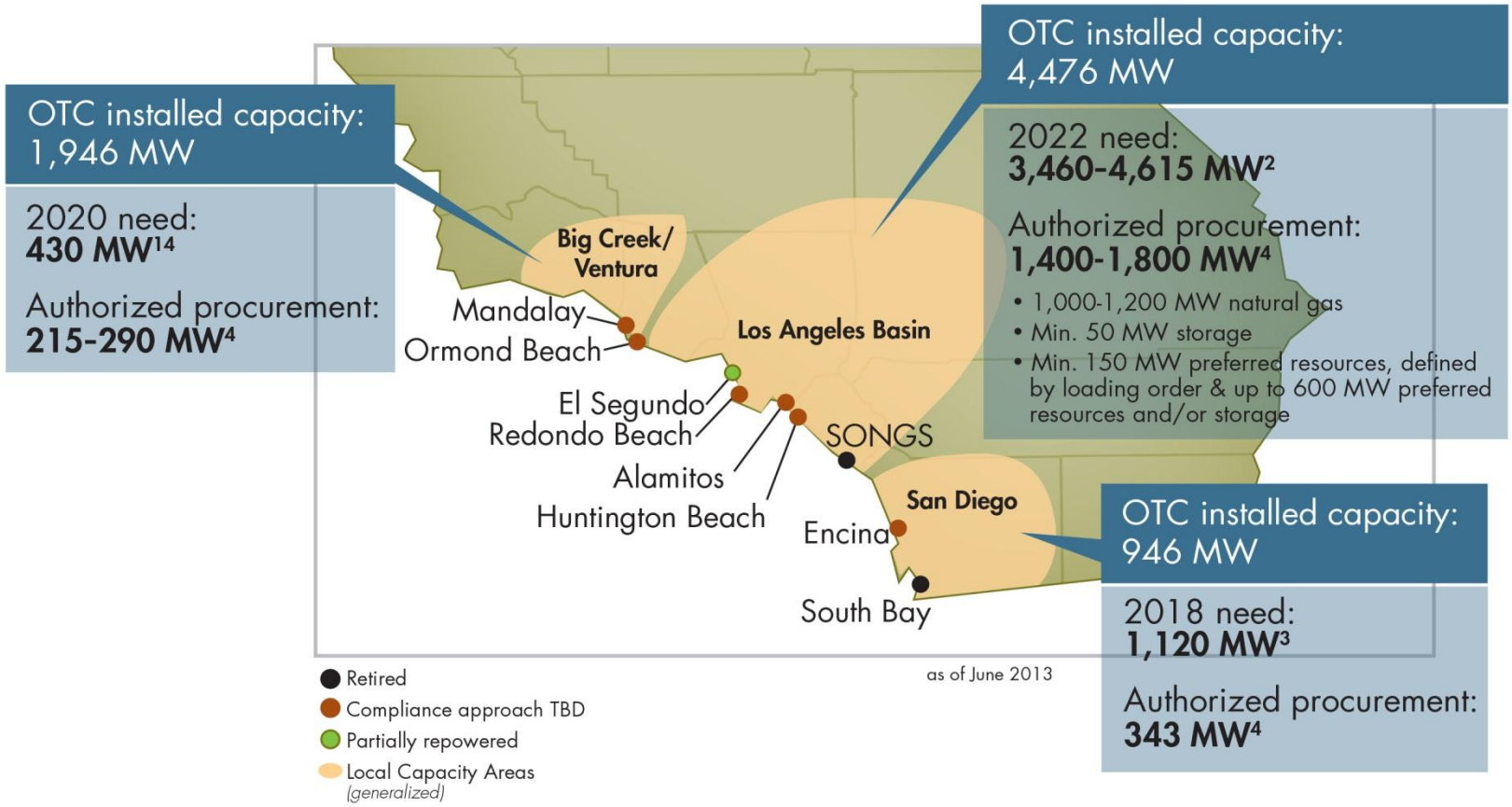
Processes for Approving New Resources

- 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
- Transmission Planning Process (ISO)
  - Annual overlapping 15 month process; 10 year horizon
  - Draft plan by January 31; board approval in March
- Application for Certification Process (CEC)
  - Lead CEQA agency for certification of thermal generation greater than or equal to 50 MW; one-stop permitting that coordinates project review with 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

Current Long Term Procurement Plan Process at CPUC

- Currently assessing SONGS replacement needs
  - Dec. 2012: Decision on planning assumptions adopted a case without SONGS.
  - May 2013: Revised Scoping Memo added SONGS local area needs assessment.
  - June 2013: Judge changes scenario analysis to remove SONGS.
- Work in 2013 focuses on operational flexibility and additional LA Basin and San Diego local capacity needs.

OTC retirements and SONGS closure create local capacity shortfalls.



[1] ISO 2011-2012 Transmission Plan – Table 3.3-1

[2,3] 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.

[4] 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.

A diversified resource portfolio can provide a balance of tradeoffs and capabilities

- **Demand Response** – *managing customer consumption of energy*

  Pro: clean, geographically targetable, low capital investment needed, can provide some ancillary services

  Con: difficult to dispatch, dependent on customer enrollment year to year, limited run times

- **Renewable DG** – e.g. *small scale solar and wind generation*

  Pro: clean, geographically targetable, does not require air permits

  Con: capital intensive, intermittent (depends on weather), unable to dispatch, provides limited ancillary services, power quality dependent on location, can be difficult to permit

- **Large Scale Renewables**

  Pro: sustainable, does not require air permits (but does require other permits)

  Con: capital intensive (including transmission), intermittent, unable to dispatch, provides limited ancillary services, large land use needed (land use permits can be difficult to obtain), power quality dependent on location

- **Conventional Fossil Generation**

  Pro: dispatchable, provides ancillary services, easier to site at needed locations, provides inertia, less capital intensive than renewables

  Con: emits criteria pollutants (making air quality permitting difficult), capital intensive, may be opposed by local communities

Next Steps

- The task force comprised of state energy and environmental agencies, the ISO and utilities will identify options for meeting reliability needs through:
  - preferred resources
  - transmission system upgrades
  - conventional generation
- The CEC & CPUC are conducting a joint workshop in Southern California on July 15th focused on electric infrastructure issues resulting from SONGS closure
- A task force plan should be ready for public release in mid-September, with regulatory deliberations to follow
- Additional CEQA/Permitting and contract approval will be needed for most projects