SACCWIS
Encina Power Station
2018 Reliability Study Report

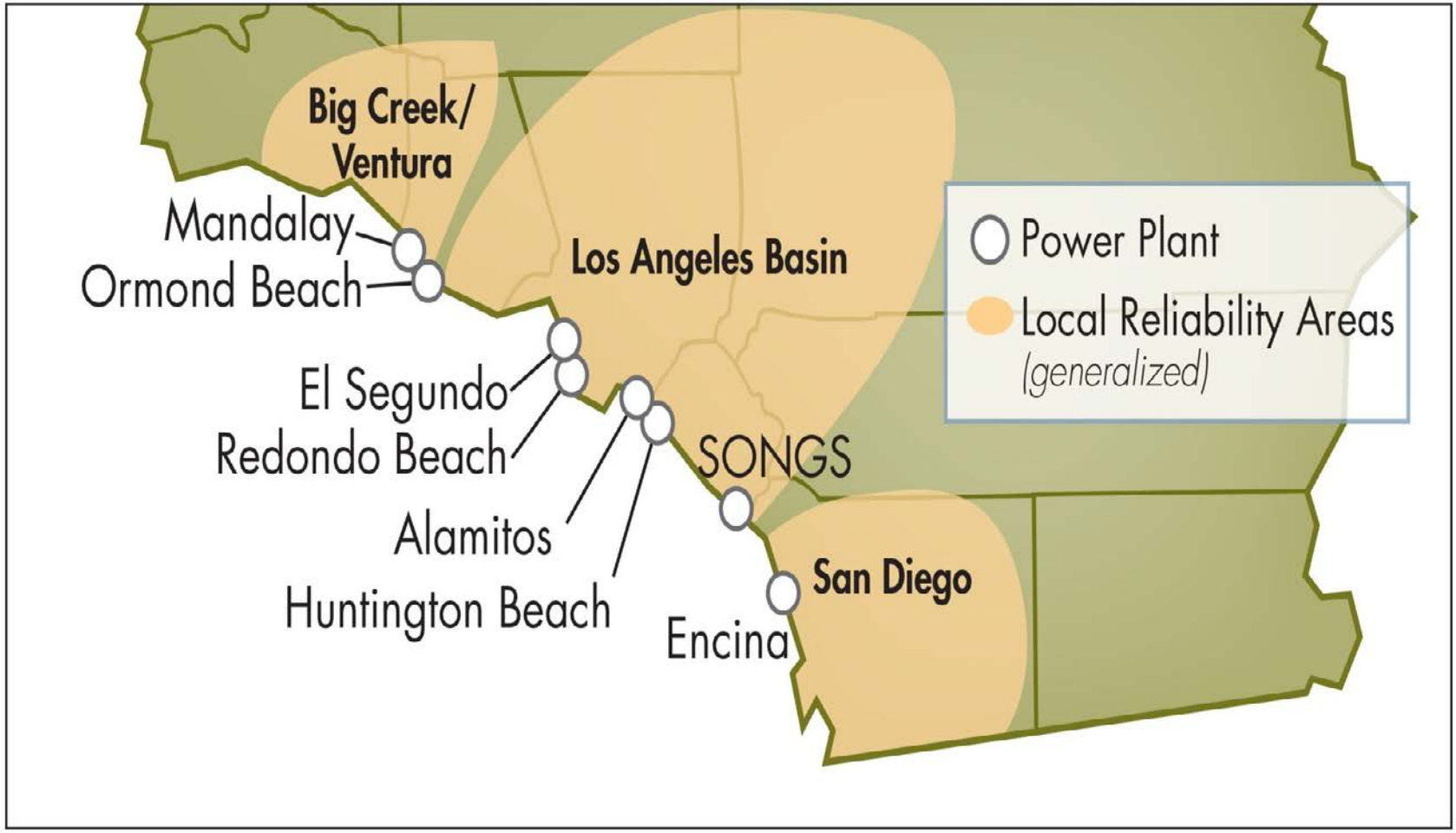
SWRCB Meeting

March 21, 2017

Agenda

- Background
- Reliability Analysis
- Alternatives
- Conclusions and recommendations

LA Basin and San Diego Local Capacity Areas



Encina Power Station

- Consists of five steam boiler generating units using once-through cooling and one gas turbine with an aggregate capacity of 964.5 MW

- Encina power station is comprised of:
  - Unit 1 (106 MW)
  - Unit 2 (104 MW)
  - Unit 3 (110 MW)
  - Unit 4 (300 MW)
  - Unit 5 (330 MW)
  - Encina GT (14.5 MW) does not use once-through cooling

NRG Implementation plan

- Retire Encina no later than December 31, 2017 for OTC compliance
- Construct Carlsbad Energy Center Project pursuant to agreement with City of Carlsbad and San Diego Gas and Electric
- Complete Carlsbad Energy Center Project by Fall 2017 ahead of Encina's OTC compliance date

Regulatory Background

- May 2015 – CPUC approved SDG&E procurement of 500 MW conventional generation and 100 MW preferred resources in Decision D.15-05-051

- July 2015 - CPUC approved SDG&E Power Purchase Tolling Agreement with NRG for 500 MW Carlsbad Energy Center Project (CECP)

- July 2015 - CEC approved amended license for 600 MW CECP (original permit May 2012 for 558 MW plant)

- November 2015 – CEC issued order on rehearing affirming decision approving the amendment. No party appealed the CEC's decision

Legal Challenges

- December 2015 Intervenors file Applications for Rehearing with the California Court of Appeal appealing the CPUC's decision

- December 2016 - First District Court of Appeals affirms CPUC decision

- January 9, 2017 – Deadline for CA Supreme Court review – no request received

Construction Timeline

- May - Nov 2015 - Original expected on-line date Fall 2017
- Feb - Nov 2016 – NRG 10-K/10-Q filings indicate Winter 2018
- January 2017 – NRG communicated to inter-agency working group
  - 21 month construction expected to begin April 2017
  - Unit 1 to be permanently shut down by April 2017
  - New expected on-line date of Q4 2018

Reliability Analysis

- ISO Local Capacity Technical Analyses (LCTA)
  - 2017 LCTA April 29, 2016
  - 2018 LCTA will be completed by May 1, 2017
- Interim 2018 Analysis – January 16, 2017
  - Relied upon 2017 LCTA base assumptions, processes and criteria
  - Appended to include updated resource, infrastructure information, and peak load forecast to include improved rooftop PV impacts
  - Not for Resource Adequacy (RA) procurement
- Study area definition - San Diego and LA Basin areas have been studied together as a single region since SONGS closure
- Aliso Canyon uncertainty – two scenarios

Study Results

Study scenario	LA Basin LCR (MW)	San Diego subarea LCR (MW)	Encina Generation (MW)	Encina required?
Scenario 1: Aliso Canyon Gas Storage Unconstrained Scenario				
Most critical thermal loading concerns in the San Diego subarea	7,383	2,886	560	Yes
Scenario 2: Aliso Canyon Gas Storage Constrained Scenario				
Most critical thermal loading concerns in the LA Basin	7,079	3,185	859	Yes

Alternatives

- Alternative 1: Do nothing
- Alternative 2: Fast-track preferred options in-service
- Alternative 3: Stop-gap generation
- Alternative 4: New transmission

Conclusion and Recommendations

- ISO reliability analysis shows need for capacity at Encina site in summer 2018
- Legal delays have caused Carlsbad online date to slip to Q4 2018
- Encina Unit 1 is anticipated to retire by March 31, 2017 to make way for 21 month Carlsbad construction
- SACCWIS recommends the SWRCB defer the compliance dates for Encina units 2-5 until December 31, 2018 to maintain grid reliability
- SACCWIS will update the SWRCB and if necessary provide any revisions to this recommendation when the CAISO's 2018 LCTA results become available.