Southern California Grid Reliability

Los Angeles Chamber of Commerce
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An Overview of the Grid
Current State of SCE Grid

• 2014 will continue to have sufficient system-wide resources to cover all resource adequacy requirements
  – Provided major transmission lines and large generation sources remain available

• SCE directed to procure additional resources and perform transmission upgrades to address generator plant retirements
  – CAISO and CPUC proceedings addressed the closure of all once-through cooling (OTC) plants, including the San Onofre Nuclear Generating Station (SONGS)

• SCE pursuing “preferred resources” to address local reliability needs
  – Continuing to educate customers on benefits of DSM
  – Managing various demand response (DR) and energy efficiency (EE) programs
  – Implementing a pilot to explore if preferred resources meet local capacity needs in the southern portion of SCE’s service territory

• SCE proposing contingency siting/option gas-fired generation contracts to backstop other strategies and meet reliability needs
### 2013 Summer Readiness Efforts

As a result of the SONGS retirement, SCE evaluated and implemented a number of projects and programs along with a comprehensive communications and outreach campaign to mitigate possible system reliability issues in 2013.

#### Transmission
Projects included: (1) installing four 79.2 MVAR 230 kV capacitor banks at three Orange County substations, (2) decoupling the two 230 kV Barre-Ellis into four lines, and (3) converting Huntington Beach Units 3 and 4 to synchronous condensers.

#### Demand Side Resources
SCE engaged customers and encouraged participation in one or more of the following programs: Summer Discount Plan, automated demand response technology, Flex Alert, pool pump education and home area network studies, third-party smart thermostat study, Save Power Day, energy efficiency projects, and Energy Leader and institutional and governmental partnership programs.

#### New Generation
Over 1,700 MW of new generation capacity (Walnut Creek, CPV Sentinel, and El Segundo) were brought online, as a result of prior solicitations, which improved reserve margins in the LA Basin.

#### Communications and Outreach
Developed an integrated multi-language, multi-cultural communications and outreach plan utilizing all media and marketing channels.
2013 Summer Readiness: Agency Coordination and Community Participation

State and Local Agency Coordination
- Meetings and updates with the CAISO/SDG&E
- Governor/Legislator briefings
- CAISO Flex Alert kick-off and support
- City and county briefings and partnerships
- Water district coordination and outreach
- Coordination with Orange County Emergency Operation Center
- Media briefings/“Outage Schools”

Community Participation
- Advisory panels/forums
- Water Energy Nexus
- Civic/governments
- Community forums
- BCD customer briefings
- Executive customer briefings
- Technology associations
Planning For Long-Term Reliability

Ensuring reliability in southern California is a multi-faceted effort consisting of coordination and interaction among different regulatory agencies and proceedings.
2014 Transmission Planning

CAISO approved three projects to address southern California reliability

- **Mesa Loop-In**: This upgrade provides a new 500 kV source to the Western LA Basin which help with the SONGS and once-through-cooling plant retirements and relieving replacing OTC units and relieving the Serrano corridor to support SD&E

- **San Luis Rey Dynamic Reactive Support**: This will enable the existing system to transport more power and build upon previously approved VAR projects

- **Imperial Valley Flow-Controller**: This project will restrict flow into CFE and prevents overload of Otay Mesa–Tijuana 230kV line

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*San Onofre Generating Station (2200 MW net) - Permanently Retired June 2013*
2014+ Resource Planning & Replacement

- SCE ordered to procure resources to meet LCR needs:
  - Track 1 resources address the expected requirement of OTC plants
  - Track 4 resources address SONGS retirement

### Total Authorization in Los Angeles Basin

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Track 1 LCR Resources Authorization (D.13-02-015)</th>
<th>Track 4 Authorization (D.14-03-004)</th>
<th>Total Authorizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Resources (Minimum Requirement)</td>
<td>150 W</td>
<td>400 MW</td>
<td>550 MW</td>
</tr>
<tr>
<td>Energy Storage (Minimum Requirement)</td>
<td>50 MW</td>
<td>---</td>
<td>50 MW</td>
</tr>
<tr>
<td>Gas-Fired Generation (Minimum Requirement)</td>
<td>1,000 MW</td>
<td>---</td>
<td>1,000 MW</td>
</tr>
<tr>
<td>Optional Additional Resources (From Preferred Resources and/or Energy Storage Only)</td>
<td>Up to 400 MW</td>
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<td>Up to 400 MW</td>
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<tr>
<td>Additional From Any Resources</td>
<td>200 MW</td>
<td>100 to 300 MW</td>
<td>300 to 500 MW</td>
</tr>
<tr>
<td>Total Procurement Authorization</td>
<td>1,400 to 1,800 MW</td>
<td>500 to 700 MW</td>
<td>1,900 to 2,500 MW</td>
</tr>
</tbody>
</table>

Note: In addition to authorization for procurement of new resources in the Los Angeles Basin, Track 1 authorized SCE to procure 215-290 MW of new LCR resources in the Moorpark subarea.
Preferred Resources Pilot (PRP)

Evaluate ability of preferred resources to meet reliability needs through changes to how preferred resources are planned, procured, operated, and monitored for performance.
PRP (continued)

- Region selection
  - Transmission contingencies will occur at Johanna and Santiago areas in 2020 due to the SONGS retirement and OTC plant closures
  - On average, total peak load growth is forecasted at approximately 25 MW/year
  - Although the system is currently adequate, meeting peak demand in the future will be a reliability concern as substation load grows

- Objectives
  - Measure local grid impact of preferred resources
  - Implement preferred resources portfolio to address local peak needs
  - Demonstrate preferred resources can be used to meet local capacity requirements
  - Minimize/eliminate need for gas-fired generation at these locations
  - Identify lessons learned for application to other grid areas
AB 2514 – Storage Bill

- California IOUs to procure 1,325 MW of storage capacity by 2020
- SCE’s share is 580 MW, which will be divided into biennial procurement targets in 2014, 2016, 2018, and 2020
  - Target for the 2014 storage procurement cycle is 90 MW (50 MW of transmission-connected storage, 30 MW of distribution-connected storage, and 10 MW of customer-connected storage)
  - SCE aiming for 100 MW (50 MW of transmission-connected storage, 30 MW of distribution-connected storage, and 20 MW of customer-connected storage)
  - Of the 100 MW, SCE believes 74 MW will be procured in 2014 via existing distribution and customer storage projects and the 50 MW required in the Track 1 LTPP LCR RFO

14 MW existing distribution
+ 10 MW existing customer
+ 50 MW upcoming LCR minimum

~ 74 MW existing storage
Community Engagement Panel
Decommissioning Principles

With our co-owners, Southern California Edison is committed to:

Safety
- Safely decommissioning San Onofre
- Safely move the power plant’s spent fuel into dry cask storage, until government approved long-term storage options are available

Stewardship
- Leave the community better off
- Spending Nuclear Trust Funds wisely
- Return any unused monies to ratepayers

Engagement
- Decommissioning process is inclusive, forward-thinking, involving diverse stakeholders
NRC Requirements – Three Phases of Decommissioning

**Decommissioning Planning**
- SCE ceases operations and notifies NRC
- SCE submits Post-shutdown Decommissioning Activities Report
- NRC reviews Post-shutdown Decommissioning Activities Report

**Major Decommissioning Activities**
- SCE initiates cleanup activities, per the Post-shutdown Decommissioning Activities Report
- NRC conducts periodic inspections
- SCE submits license termination plan
- SCE completes cleanup activities
- NRC performs technical and environmental reviews of license termination plan and approves plan

**License Termination**
- SCE conducts final status survey and submits reports
- NRC conducts confirmatory surveys and reviews report
- NRC approves final status survey report and modifies license
- Dry Fuel Storage Part 50 license remains
SONGS Initial Activities

SONGS Initial Activities Decommissioning Timeline
NRC Regulatory Requirements

Announcement of Permanent Cessation of Operations (6/7/2013)

Submit certification of permanent cessation of operation (6/12/2013)

Within 30 Days

Submit certification of permanent fuel removal (variable) (7/31/2013)

Within 2 Years

Submit Irradiated Fuel Management Plan

Public Meeting 30 Days

90 Days

Submit Site Specific Decommissioning Cost Estimate

Submit Post-Shutdown Decommissioning Activities Report

End of Initial Activities Phase (9/7/2015)
Proposed Decommissioning Schedule