



## SCE's Update on AB 1632 Report Recommendations and Fukushima Daiichi Nuclear Plant Event

California Energy Commission Nuclear Workshop  
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# Update on AB 1632 Report Recommendations

- SCE provided its evaluations of the California Energy Commission's AB 1632 report recommendations in February 2011
- Topics covered in the evaluation:
  - Seismic and Tsunami Evaluations
  - Nuclear Safety Culture
  - Alternative Generation
  - Economic Impact
  - Adequacy of Maintenance Programs
  - Used Fuel Management
  - Low Level Radioactive Waste
  - Emergency Preparedness
  - Ground Water Protection
  - Worker Training and Recruitment
  - Once Through Cooling
  - Open Item Regarding Discharge Conduit
- SCE has completed evaluation of recommendations addressed to San Onofre Nuclear Generating Station (SONGS) except for additional seismic studies
- SCE submitted an application to the CPUC for seismic research work

# SONGS Seismic and Tsunami Design

- NRC requires that plants must be designed to withstand the effects of natural phenomena including earthquakes, tornadoes, hurricanes, floods, and tsunamis that could credibly occur near the plant's location
- Seismic design of SONGS is robust
  - based on extensive studies prior to initial construction with periodic updates that evaluate recent scientific data
  - conservatively designed to a peak ground acceleration value of 0.67g
  - safety-related structures, systems and components (SSC) must remain functional to maintain the safety of the reactor and prevent release of radioactive material off-site
  - conservatively designed the seawall to a height of 30 feet
- On-going Seismic Program
  - periodic evaluations of new information on seismic and tsunami hazards
  - utilizes input from academia, research, and geotechnical professionals
  - NRC is currently performing a review of the adequacy of seismic margins for all plants, and SCE will participate in this review

# Seismic and Tsunami Studies

Period	Activity
Through early 1980s	Deterministic Analysis – extensive geotechnical studies
1995	Probabilistic Seismic Hazard Analysis
2001	Probabilistic Seismic Hazard Analysis – follow-up study
2010 – 2011	Probabilistic Seismic Hazard Analysis – follow-up study
	Evaluated “Tsunami Inundation Map for Emergency Planning”
Future work	<p>Source Characterization:</p> <ul style="list-style-type: none"> <li>• Additional GPS and seismic monitoring</li> <li>• 2D/3D reflective mapping</li> <li>• Data re-processing and re-analyzing using modern techniques</li> </ul> <p>Ground Motion:</p> <ul style="list-style-type: none"> <li>• Site specific characterization and site response analysis</li> </ul> <p>Site Specific Seismic Analysis</p> <p>Site Specific Tsunami Analysis</p> <p>Implementing new NRC requirements for seismic analysis</p>

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# Activities Resulting from the Fukushima Event

- NRC Taskforce conclusions
  - Sequence of events like the Fukushima accident is unlikely in the United States
  - Continued operation and continued licensing activities do not pose an imminent risk to public health and safety
  - Improvements can be made to the NRC regulatory framework
  - Next steps include engagement of stakeholders

# Activities Resulting from the Fukushima Event

- NRC Taskforce areas under review
  - Improvements in the NRC regulatory framework
  - Periodic review of seismic and flood design basis
  - Enhancements to prevention or mitigation of seismically induced fires and floods
  - Extended Station Black Out (SBO) mitigation capability
  - Hydrogen control and mitigation inside containment or in other buildings
  - Used fuel pools instrumentation and cooling water
  - Integrating onsite emergency response capabilities
  - Emergency plans for SBO and events involving multiple reactors
  - Strengthened regulatory oversight of plant safety performance

# Activities Resulting from the Fukushima Event

- Safe operation of SONGS is SCE's highest priority and SCE is committed to learning from the Fukushima Daiichi accident
- SCE confirmed existing capability to respond to beyond design basis events described in
  - B.5B Mitigation Strategies – Actions to address extensive plant damage following large explosions or fires
  - Severe Accident Management Guidelines – Actions to address malfunctions beyond design conditions, even core melt
  - While the above processes were created as a result of other events, their implementation would address some of the symptoms following a Fukushima-like event

# Activities Resulting from the Fukushima Event

- SCE Established Fukushima Event Response Steering Committee
  - Led by Chief Nuclear Officer and supported by site senior leadership team
  - Objectives include:
    - Evaluating potential improvements in safety, operational margins, and emergency response capabilities
    - Ensuring the workforce remains focused on day to day safety and operational excellence while being responsive to work associated with the Fukushima event
    - Working with the regulators to implement Fukushima lessons learned as they are disseminated