

Permanent Cessation of Nuclear Power Plant Operation¹

The mission of the NRC is to ensure adequate protection of public health and safety, protection of the environment, and protection and safeguarding of nuclear materials and nuclear power plants in the interest of national security. The NRC's mission continues through the decommissioning period until termination of the nuclear plant's license. There are three distinct phases associated with the permanent cessation of operation by a nuclear power plant: Initial Activities, Major Decommissioning and License Termination; each is described below.

1. Initial Activities

- Licensee decides to permanently cease operations
- Within 30 days, the licensee notifies the NRC of the date to permanently cease power operations
 - SONGS permanent cessation of operation date was June 7, 2013
- Licensee removes the fuel from the reactor and submits a written certification to the NRC confirming its action
 - once the certification has been submitted, the licensee is no longer permitted to operate the reactor or to put fuel into the reactor vessel
 - at SONGS, the Unit 3 fuel is removed from the reactor and Unit 2 fuel is expected to be removed during the summer of 2013
- Licensee submits a Post-Shutdown Decommissioning Activities Report (PSDAR) to the NRC no later than 2 years after permanent cessation of operations. The PSDAR must include
 - a description of the planned decommissioning activities
 - a schedule for the accomplishment of significant milestones
 - a site-specific cost estimate for the decommissioning project
 - a summary that documents the environmental impacts evaluation
- Within two years of permanent cessation of operations, the licensees must also submit a description of how they intend to manage and provide funding for the management of irradiated fuel until title to the fuel is transferred to the Department of Energy (DOE)
- After a period of at least 90 days following the PSDAR submittal, the licensee may start major decommissioning activities
 - the start date for SONGS major decommissioning has not been identified

2. Major Decommissioning

- Decommissioning is the safe removal of a facility from service and reduction of residual radioactivity to a level that permits termination of the NRC license.
- Major decommissioning activities include the following:
 - permanent removal of major radioactive components, such as the reactor vessel, steam generators, or other components that are comparably radioactive
 - permanent changes to the containment structure
 - dismantling components resulting in low-level radioactive waste that is disposed of in a geologic repository
- Unless the licensee receives permission to the contrary, the site must be decommissioned within 60 years

3. License Termination

- To conclude its obligations, the licensee must submit a license termination plan (LTP) at least two years before the termination date. Key elements of the LTP are:
 - plans for site remediation
 - detailed plans for the final survey of residual contamination on the site
 - a description of the end-use of the site; SONGS is on land owned by the US DOD
 - an updated site-specific estimate of remaining decommissioning costs
 - a supplement to the environmental report
- The NRC must approve the LTP by a license amendment
- Once the NRC is satisfied with the implementation of the LTP and any supplemental conditions, the license is terminated

¹ – The information contained in this document comes from <http://www.nrc.gov/about-nrc/regulatory/decommissioning/faq.html>; except when SONGS is mentioned

Briefing on San Onofre Nuclear Generating Station, Units 2 & 3 Retirement Plans

IEPR Nuclear Workshop

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SOUTHERN CALIFORNIA EDISON®

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SONGS Status

- As announced on June 7, both units of SONGS are being retired
 - A certification of permanent cessation of power operations has been submitted to the NRC
 - Preliminary planning for permanent shutdown and decommissioning SONGS is underway
- SONGS 2 & 3 provided power to Southern California for 30 years, supported by many dedicated employees
- "...the continuing uncertainty about when or if SONGS might return to service was not good for our customers, our investors, or the need to plan for our region's long-term electricity needs."

SONGS Retirement

- Nuclear Safety
 - As always, we will continue to operate SONGS's remaining systems safely, to the highest standards, to protect the health and safety of the public and our employees
- Key SONGS Issues
 - Decommissioning
 - Staffing
 - Used Fuel Storage
 - Seismic
 - Once Through Cooling
- Grid Reliability
 - Short term considerations
 - Longer term considerations

SONGS Issues

- Decommissioning
 - Long process over many years
 - Removal of radioactive material from site and storage of used fuel in approved dry cask containers
 - Funded by SONGS decommissioning trust
 - Current SCE trust is \$2.7 Billion
 - Re-evaluating estimate in light of retirement decision
- Staffing
 - Staffing will be reduced from about 1500 to 400
 - Mostly this year
 - Transition plans will ensure orderly and compliant plant closure
 - Working with unions and Human Resources for a fair transition plan
 - Evaluating contractor support on a case-by-case basis

SONGS Issues

- **Used Fuel Storage**
 - Assemblies in wet storage - 2346
 - Assemblies in dry cask storage - 792
 - Removal of Unit 2 fuel from the reactor will begin in July
 - Movement of used fuel from pools to dry cask storage will occur over the next 7 – 12 years
- **Seismic**
 - Research (e.g., GPS, shallow surveys, seismometers)
 - The seismic reliability evaluation of SONGS required by AB 1632 was completed and provided in our February 2011 Report
 - Current seismic activities are under review and likely will be terminated
 - Analysis of seismic data
 - Support of NRC's 50.54(f)
 - Assessing what analysis is required for support of used fuel pools and dry cask storage facility

SONGS Issues

- **Once Through Cooling**
 - Flow through the intake and discharge conduits will be approximately 25% of that at full power operations
 - Required for used fuel pool cooling
 - May be required during decommissioning
 - **Project Activities**
 - OTC Nuclear Special Studies
 - No need to continue the study for SONGS
 - Implementation of selected technology is post 2022
 - Large Organism Exclusion Device
 - Assessing scope

Short Term Reliability Considerations

- SCE & SDG&E have been actively pursuing steps to provide reliable power to our communities during the summer months without SONGS
 - We've worked with CAISO and CPUC since early last year
 - No power outages or incidents last year
 - Moderate summer
 - Demand Side Resources
 - Generation and transmission projects
 - Summer readiness plan for this year
 - New generation
 - Transmission projects
 - Demand Side Resources
 - Communications and Outreach

Longer Term Reliability Considerations: Local Reliability in the LA Area

- **SCE Service Territory Generation Reductions**
 - Fossil OTC retirements 6,592 MW
 - SONGS retirement 2,150 MW
 - Total 8,742 MW
- Recent CAISO studies show a need for 3,000-4,600 MW of "West LA Basin" generation to replace OTC plants and the SONGS retirement
- The local transmission grid (220kV) was built to serve load using coastal generation
- Re-powering at beach sites may face stiff opposition
- As a non-attainment area, AQMD rule 1304 is one of the few sources of emissions offsets for new generation



Longer Term Reliability Considerations: Resource Mix

- Aggressive use of preferred resources
 - Use of living pilots to learn how to drive deeper preferred resource penetrations and develop better understanding of efficacy and grid operational impacts
- New and Upgraded Transmission
 - Development or upgrade of lines and substations to better move power, development of reactive support as needed
- Targeted Generation
 - Construction of fossil generation in targeted locations to support grid reliability and provide a backstop to pursue higher levels of preferred resources

Longer Term Reliability Considerations: Any Solution is Multi-Jurisdictional

- Federal Law - CWA 316(b)
- State Regulations - SWRCB OTC Policy
- Reliability Assessment – CAISO
- Power Plant Permitting – Energy Commission and the Application for Certification process
- Determination of Need for IOUs – Public Utilities Commission and the Long Term Procurement Plan
- Air Permitting (Clean Air Act) – South Coast AQMD (Rule 1304) and other APCDs
- OTC Impacts on Reliability - California Assembly Bill 1318 Study
- Local Zoning – Redondo Beach Measure A (Rezone to 60-70% parks and 30-40% commercial/industrial)