

DOCKETED

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CALIFORNIA ENERGY COMMISSION1516 Ninth Street
Sacramento, California 95814Main website: www.energy.ca.gov

In the matter of,)	Docket No. 15-IEPR-12
)	
<i>2015 Integrated Energy Policy Report (2015</i>)	NOTICE OF WORKSHOP
<i>IEPR)</i>)	
_____)	RE: Nuclear Power Plant Issues

Notice of Joint Lead Commissioner Workshop on Nuclear Power Plant Issues

The California Energy Commission Lead Commissioner for the *2015 Integrated Energy Policy Report (2015 IEPR)* and the Lead Commissioner for Electricity and Natural Gas will conduct a workshop to report on progress in implementing recommendations made in the *2013 IEPR* for San Onofre Nuclear Generating Station (San Onofre) and Diablo Canyon Power Plant (Diablo Canyon), including spent fuel storage. The workshop will also explore contingency planning for the Diablo Canyon.

Commissioner Andrew McAllister is the Lead Commissioner for *2015 IEPR* and Chair Robert B. Weisenmiller is the Lead Commissioner for Electricity and Natural Gas. Other Commissioners at the Energy Commission and the California Public Utilities Commission may also attend and participate in the workshop.

Monday, April 27, 2015

1:00 p.m.

CALIFORNIA ENERGY COMMISSION

1516 Ninth Street

First Floor, Rosenfeld Hearing Room (Hearing Room A)

Sacramento, California

(Wheelchair Accessible)

Remote Access Available by Computer or Phone via WebEx™
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Background

In the *2013 IEPR*, the Energy Commission made numerous recommendations related to the continued operations and storage of spent nuclear fuel at Diablo Canyon as well as the decommissioning and storage of spent nuclear fuel at San Onofre. San Onofre Units 2 and 3 were permanently retired in June 2013, and Diablo Canyon Units 1 and 2 are operating

under their original licenses, which are set to expire in 2024 and 2025, respectively. Pacific Gas & Electric has suspended relicensing activities and so whether Diablo Canyon will continue to operate after 2024 and 2025 remains uncertain. Additional background is provided as an attachment to this notice.

Agenda

The workshop will include a presentation by the NRC to provide an update on decommissioning San Onofre followed by presentations by utility and environmental representatives on spent fuel management at San Onofre and Diablo Canyon. With respect to Diablo Canyon, there will also be a presentation by staff at the State Water Resources Control Board on once through cooling issues and representatives from Pacific Gas & Electric and the California Geological Survey will provide an update on seismic issues. Finally, there will be discussion of contingency planning for Diablo Canyon.

Public Comment

Oral Comments. Staff will accept oral comments during the workshop. Public comments may be limited to three minutes per speaker. Any comments will become part of the public record in this proceeding.

Written Comments. Written comments should be submitted to the Dockets Unit by **May 11, 2015**. All written comments will become part of the public record of this proceeding.

For the 2015 IEPR, the Energy Commission is using a new electronic commenting system. Visit the website at http://www.energy.ca.gov/2015_energypolicy/ and click on the “**Submit e-Comment**” link in the “Proceeding Information” box. From the drop down menu, please select the appropriate docket number. For this workshop, please select docket 15-IEPR-12 – Nuclear Power Plants.

This will take you to the page for adding comments to that docket. Please enter your contact information and comment title. Select the appropriate IEPR workshop date under “subject(s).” You may include comments in the box titled “comment text” or attach a file with your comments. Attached comments must be in a Microsoft® Word (.doc, .docx) or Adobe® Acrobat® (.pdf) formatted file.

The Energy Commission encourages use of its electronic commenting system, but written comments may also be submitted by e-mailing them to the Dockets Office, or by U.S. Mail to:

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 15-IEPR-12
1516 Ninth Street
Sacramento, CA 95814-5512

If you choose not to use the electronic filing system, please include the appropriate docket number on any e-mailed or written comments. Comments may be e-mailed to docket@energy.ca.gov and copy Raquel Kravitz at Raquel.Kravitz@energy.ca.gov.

Please note that your electronic, e-mailed, written and oral comments, attachments, and associated contact information (for example, address, phone, and e-mail) become part of the viewable public record. Additionally, this information may become available via Google, Yahoo, and other search engines.

Public Adviser and Other Commission Contacts

The Energy Commission's Public Adviser's Office provides the public assistance in participating in Energy Commission proceedings. If you want information on how to participate in this forum, please contact the Public Adviser, Alana Mathews, at PublicAdviser@energy.ca.gov or (916) 654-4489, or toll free at (800) 822-6228.

If you have a disability and require assistance to participate, please contact Lou Quiroz at lou.quiroz@energy.ca.gov or (916) 654-5146 at least five days in advance. Media inquiries should be sent to the Media and Public Communications Office at mediaoffice@energy.ca.gov or (916) 654-4989.

For general questions regarding the IEPR proceeding, please contact Raquel Kravitz, IEPR project manager, at (916) 651-8836 or by e-mail at Raquel.Kravitz@energy.ca.gov.

The service list for the *2015 IEPR* is handled electronically. Notices and documents for this proceeding are posted to the Energy Commission website at www.energy.ca.gov/2015_energypolicy/.

When new information is posted, an e-mail will be sent to those on the energy policy e-mail list server. We encourage those who are interested in receiving these notices to sign up for the list server through the website at www.energy.ca.gov/listservers/index.html. The listserv is titled "energypolicy."

Remote Attendance

You may participate in this meeting through WebEx, the Energy Commission's online meeting service. Presentations will appear on your computer screen, and you may listen to the audio via your computer or telephone. Please be aware that the meeting may be recorded.

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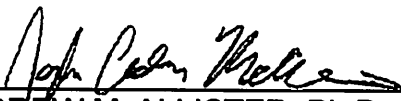
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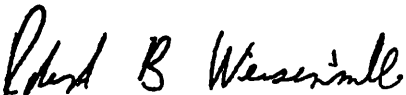
Availability of Documents

Documents and presentations for this meeting will be available online at: www.energy.ca.gov/2015_energypolicy/

Date: April 10, 2015



ANDREW McALLISTER, Ph.D.
Lead Commissioner
2015 Integrated Energy Policy Report



ROBERT B. WEISENMILLER, Ph.D.
Chair

Mail Lists: [energypolicy](#), [electricity](#)

Attachment

Below is background on the recommendations the Energy Commission made in the *2013 Integrated Energy Policy Report (IEPR)* with regard to San Onofre Nuclear Generating Station (San Onofre) and Diablo Canyon Nuclear Power Plant.

San Onofre Nuclear Generating Station Decommissioning

On June 7, 2013, Southern California Edison (SCE) announced it had decided to permanently retire San Onofre Units 2 and 3. On June 13, 2013, SCE formally notified the Nuclear Regulatory Commission (NRC) that it had permanently ceased operation of San Onofre Units 2 and 3 in a Certification of Permanent Cessation of Power Operations, which was the first step in preparing for decommissioning. Decommissioning is a well-defined NRC process that involves transferring the used fuel into safe storage, followed by the removal and disposal of radioactive components and materials.

SCE submitted two letters (July 22, 2013 and June 28, 2013) certifying that fuel has been removed from the Unit 2 and 3 reactors, respectively. On September 23, 2014, SCE submitted a Post-Shutdown Decommissioning Activities Report (PSDAR), Irradiated Fuel management Plan (IFMP), and Site-Specific Decommissioning Cost Estimate (DCE) to the NRC, as required under 10 CFR 50.54(bb) and 10 CFR 50.82(a)(4)(i). Activities are underway to decommission and decontaminate the facility and continue to maintain the facility in a safe condition. Additional capacity will be added to the Independent Spent Fuel Storage Installation (ISFSI) and plans to isolate the spent fuel pools are in development.

On March 2, 2015, the NRC voted to approve SCE's request for exemptions from certain emergency planning requirements. The NRC staff recommendation explains that "The risk of an offsite radiological release is significantly lower and the types of possible accidents are significantly fewer, at a nuclear power reactor that has permanently ceased operations and removed fuel from the reactor vessel than at an operating power reactor. On this basis, the NRC has previously granted similar exemptions from [emergency planning] requirements for permanently shut down and defueled power reactor licensees."¹ Chairman Burns, Commissioner Svinicki, and Commissioner Ostendorff all approved the request without reservation, while Commissioner Baran approved the staff recommendation in part and disapproved it in part.² In particular, he noted that San Onofre is located in a more seismically active region and is thus more likely to experience large earthquakes. He also described a rulemaking plan from 2000, which recommended a 4-tiered approach to emergency planning for decommissioning plants that is based on the cooling of spent fuel and associated diminished risks over time.

1 Satorius, Mark, Policy Issue (Notation Vote), Request by Southern California Edison for Exemptions from Certain Emergency Planning Requirements, SECY-14-0144, December 17, 2014.
<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2014/2014-0066scy.pdf>.

2 U.S. NRC, Commission Voting Record, Decision Item SECY-14-0144, Request by Southern California Edison for Exemptions from Certain Emergency Planning Requirements, March 2, 2015.
<http://pbadupws.nrc.gov/docs/ML1506/ML15062A141.pdf>.

In the *2013 IEPR*, the Energy Commission recommended that SCE expand the ISFSI and transfer spent fuel from pools into dry casks, while maintaining compliance with the NRC requirements. SCE was asked to report to the Energy Commission on its progress until all spent fuel is transferred to dry cask storage.

The Energy Commission also recommended that SCE submit a decommissioning plan to the NRC and proceed with decommissioning swiftly, providing progress updates to the Energy Commission until decommissioning of the site is completed.

Diablo Canyon Nuclear Power Plant

Diablo Canyon Units 1 and 2 are operating under their original licenses, which are set to expire in 2024 and 2025, respectively. Pacific Gas & Electric has suspended relicensing activities so whether Diablo Canyon will continue to operate after 2024 and 2025 remains uncertain.

The Energy Commission has over the years made numerous recommendations related to the safe operations of California's nuclear power plants, including Diablo Canyon. In 2013, the Energy Commission recommended that PG&E provide updated evacuation time estimates, including real-time evacuation scenario following a seismic event, and submit it to the Energy Commission as part of the IEPR reporting process.

In 1980, the NRC adopted fire protection regulations intended to reduce the chance of disabling fires at nuclear power plants. The NRC adopted an alternative set of fire protection regulations in 2004 and gave plant owners the option of complying with the 1980 recommendations or the 2004 regulations, and PG&E expressed its intent to comply with the most recent set, which involves extensive modifications to the plant and its procedures to obtain necessary protection against fire hazards. An NRC Event Notification Report in 2012 identified three fire protection deficiencies and implemented a corrective action program. PG&E submitted a license amendment request to the NRC in June of 2013, which would transition the DCPD fire protection program to a new risk-informed, performance-based alternative. In the *2013 IEPR*, the Energy Commission recommended that PG&E bring Diablo Canyon into compliance with the applicable 2004 National Fire Protection Agency fire protection regulations and report to the Energy Commission on its progress until full compliance is achieved.

The Energy Commission has made numerous recommendations related to the management of spent nuclear fuel at Diablo Canyon, as it has for San Onofre. Among these is a 2013 recommendation to evaluate the potential long-term impacts and projected costs of spent fuel storage in pools versus dry cask storage of higher burn-up fuels in densely packed pools, and the potential degradation of fuels and package integrity during long-term wet and dry storage and transportation offsite. These findings are to be submitted to the Energy Commission and the California Public Utilities Commission (CPUC). The Energy Commission further recommended that the CPUC require expedited transfer of spent fuel assemblies from wet pools to dry cask storage in the

decommissioning process, and that the costs of this expedited removal should be included in the decommissioning funds before license renewal funding is granted.

An additional consideration for Diablo Canyon Power Plant will be the costs associated with compliance with the State Water Resources Control Board's once-through cooling (OTC) policy. The OTC policy establishes uniform, technology-based standards to implement federal Clean Water Act section 316(b) at coastal power plants with the goal of reducing harmful effects associated with cooling water intake structures on marine and estuarine life.³ The policy provisions require the owner or operator of a nuclear facility to undertake special studies to investigate alternatives to meet policy requirements.

Currently, the timeframe for elimination of OTC for Diablo Canyon lines up with the license expiration; 2024 and 2025 for Units 1 and 2, respectively. Estimates of construction costs for possible solutions range from \$456 million to over \$14 billion, depending on technology. Closed cycle cooling systems could range as high as \$6 billion to \$12 billion with modifications taking as long as 8 to 14 years to complete. Each of the closed-cycle cooling options involve extensive modifications to the plant, each of which have the potential to affect the operability of safety-related systems both during and following construction. As such, the Diablo Canyon Independent Safety Committee concluded that a license amendment request would likely be required for installation of any of the five closed cooling options. The Energy Commission offered comments as part of a subcommittee of the Review Committee for Nuclear Fueled Power Plants, concluding that closed-cycle cooling is a viable technology that can ensure Diablo Canyon's compliance with OTC policy, and suggested that the only definitive way to determine the costs of retrofitting Diablo Canyon is to competitively bid the project with the appropriate risk management and performance terms.

Of particular focus to the Energy Commission on nuclear matters is implementation of AB 1632 (Blakeslee, Chapter 722, Statutes of 2006) and results of research from the seismic hazard reevaluations associated with implementation of Japan Lessons-learned NTTF Recommendations.

The AB 1632 Report⁴ made recommendations that required the utilities to report biennially on topics such as seismic vulnerability, plant aging-related degradation, impacts of a major disruption, economic and environmental policy issue, nuclear waste accumulation, and licensing renewal issues. In the 2013 *IEPR*, the Energy Commission recommended that PG&E complete and make available AB 1632 Report and make its findings and conclusions available to the Energy Commission, the CPUC, and the NRC during their reviews of the Diablo Canyon license renewal application. In September 2014, PG&E completed the Central Coastal California Seismic Imaging Project (CCCSIP),⁵ which was the topic of three public meetings between PG&E and the appointed Independent Peer Review Panel (IPRP) between September of 2014 and March 2015. The IPRP responded

3 http://www.swrcb.ca.gov/water_issues/programs/ocean/cwa316/rcnfpp/index.shtml.

4 <http://www.energy.ca.gov/2008publications/CEC-100-2008-005/CEC-100-2008-005-F.PDF>.

5 <http://www.pge.com/en/safety/systemworks/dcpp/seismicsafety/report.page>

to the assumptions and the conclusions of the study in three separate reports (IPRP Reports 7, 8, and 9)⁶ during that timeframe. At the time of this notice, PG&E has not responded to the IPRP reports on the CCCSIP report, so it is unclear how the inputs and assumptions of the CCCSIP have been used in other seismic studies submitted to the NRC on March 12, 2015.

As part of its response to the Fukushima event in Japan in 2011, the NRC directed all U.S. commercial nuclear power plants to perform a reassessment of the potential seismic and flooding hazards to their facilities. The reassessment of Diablo Canyon was submitted to the NRC by PG&E on March 12, 2015. PG&E used the results of this report to extend their claims that the plant's design can withstand earthquakes from all regional faults. It determined that an earthquake producing a ground motion of 0.8g does not exceed the seismic design margin of the plant. The licensing basis of the plant is a topic of continued discussion among PG&E, seismic experts, the NRC, and former resident inspector Michael Peck. Additionally, it is the subject of a legal challenge by Friends of the Earth to the Atomic Safety and Licensing Board, and is likely a topic that the NRC will review in light of this seismic submittal. In 2013, the Energy Commission recommended evaluation of the seismic hazard analysis against the licensed design of the plant in order to ensure plant reliability and minimize costs to ratepayers.

In light of the uncertainty of relicensing, seismic determinations, and OTC policy, and given the 2024 and 2025 expiration dates for Diablo Canyon Units 1 and 2, the Energy Commission will explore contingency planning for Diablo Canyon, reviewing information from the California Independent System Operator (CAISO) and the Final AB 1632 report that speaks to impacts of a major disruption at Diablo Canyon.⁷ The study found that some generation replacement scenarios would result in violations of reliability criteria in the event of a Diablo Canyon shutdown, but that such violations could be mitigated without the construction of additional transmission lines, voltage support equipment, or generation. The study further explored mitigation for scenarios where generation was replaced entirely with generation either north of Path 15 or south of Path 26.

⁶ <http://www.cpuc.ca.gov/puc/energy/nuclear.htm>

⁷ <http://www.energy.ca.gov/2008publications/CEC-100-2008-005/CEC-100-2008-005-F.PDF> p. 190.