

## DOCKETED

<b>Docket Number:</b>	16-IEPR-07
<b>Project Title:</b>	Nuclear
<b>TN #:</b>	211656
<b>Document Title:</b>	Request for Data Related to California's Nuclear Power Plants
<b>Description:</b>	Request for data for the Nuclear chapter of the 2016 IEPR Update.
<b>Filer:</b>	Laura Laurent
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
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**CALIFORNIA ENERGY COMMISSION**

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In the matter of: ) Docket No. 16-IEPR-07  
)  
Preparing the 2016 Integrated Energy ) LEAD COMMISSIONER DATA REQUEST  
Policy Report (IEPR) Update )  
\_\_\_\_\_ ) RE: Nuclear Power Plant-Related Data

## REQUEST FOR DATA RELATED TO CALIFORNIA'S NUCLEAR POWER PLANTS

As part of the California Energy Commission's *2016 Integrated Energy Policy Report Update (2016 IEPR Update)* proceeding, Commissioner Karen Douglas and Chair Robert Weisenmiller are requesting that Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) provide data related to the Diablo Canyon Power Plant (Diablo Canyon) and the San Onofre Nuclear Generating Station (San Onofre), as specified in Attachment A. **The deadline for PG&E and SCE to submit the requested information is July 13, 2016.**

Public Resources Code (PRC) section 25301 directs the Energy Commission to assess and forecast all aspects of energy demand and supply within the State of California in odd-numbered years. These assessments and forecasts serve as the foundation for developing energy analyses and providing policy recommendations to the Governor, Legislature, and other agencies. The broad strategic purposes of these policies are to conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. PRC section 25302(d) directs the Energy Commission to update the IEPR assessments in even-numbered years.

To perform these assessments and forecasts, the Energy Commission may request submission of data from electric and natural gas utilities and other market participants. On April 13, 2016, the Energy Commission issued an Order Instituting Informational Proceeding (Order) to gather and assess information to assist in preparing the *2016 IEPR Update*. That Order was adopted to ensure that the IEPR Lead Commissioner can collect the information needed to complete the *2016 IEPR Update*.

### Background

The Energy Commission has conducted a number of assessments concerning nuclear power in California. In 2008, the Energy Commission adopted *An Assessment of California's Nuclear Power Plants: AB 1632 Report*, as required by PRC section



25303(c), (hereafter referred to as *AB 1632 report*). The report made recommendations on nuclear-related efforts for the 2009 *IEPR*. In 2009, the Energy Commission recommended that PG&E and SCE complete the studies recommended in the *AB 1632 Report* and make the findings available to the Energy Commission, the California Public Utilities Commission, and the Nuclear Regulatory Commission as part of their license renewal applications. In the 2011 *IEPR*, the Energy Commission provided a status report on the utilities' progress on the *AB 1632 Report* recommendations and discussed streamlining and improving power plant licensing processes, as well as safety and reliability issues associated with the nuclear power plants. The 2013 *IEPR* also addressed nuclear issues in depth, including the status of San Onofre, safety and reliability issues, emergency response planning, and nuclear waste transport, storage, and disposal. The 2015 *IEPR* updated the discussions contained in the 2013 *IEPR* and briefly touched upon recent federal activity concerning the decommissioning of power reactors and the transport, interim storage, and long term disposal of high level radioactive waste.

### **Need for Nuclear Data**

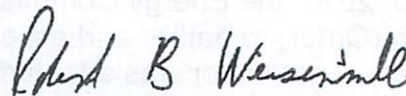
The Scoping Order for the 2016 *IEPR Update* identifies the need to analyze issues associated with nuclear power, such as potential greenhouse gas benefits, regional economic impacts, waste, seismicity, and safety. The 2015 *IEPR* briefly touched upon recent federal activity concerning the decommissioning of power reactors and the transport, interim storage, and long term disposal of high level radioactive waste. As a result of the scoping order direction and past *IEPR* discussions, the Energy Commission will be examining issues related to the safe storage and management of spent nuclear fuel at California's operating and decommissioning nuclear plants. To complete these analyses, current information about nuclear fuel and nuclear waste storage, as well as financial information is needed. We are therefore requesting PG&E and SCE to provide the data identified in Appendix A.

Any questions about this data request should be directed to Heather Raitt at [heather.raitt@energy.ca.gov](mailto:heather.raitt@energy.ca.gov) or (916) 654-4735 or to Justin Cochran at [justin.cochran@energy.ca.gov](mailto:justin.cochran@energy.ca.gov) or at (916) 657-4353.

Date: May 23, 2016



KAREN DOUGLAS  
Lead Commissioner  
2016 Integrated Energy Policy Report Update



ROBERT B. WEISENMILLER, Chair  
Lead Commissioner  
Nuclear



# ATTACHMENT A

## Section 1: Filing Instructions

**The general instructions for responding to these data requests are provided below:**

Each section and/or question identifies the specific nuclear power plant associated with the section's/question's data requests. We encourage Southern California Edison Company (SCE) to coordinate responses with its co-owners for San Onofre Nuclear Generating Station (San Onofre)-related data requests.

If the respondent believes certain data or information is confidential or not intended to be released publicly, the respondent should provide a specific rationale for claiming confidentiality (please see below). Further, the respondent shall provide a reference to specific federal or state laws or regulations that provide the confidentiality treatment sought by the respondent.

Unless otherwise specified, the period for which data and documents are requested is **2015 through the most recent date in 2016 that information is available.**

The requested information should be provided in digital/electronic format such as CD/DVD-ROM, Portable Document Format (PDF) files, Excel spreadsheets, or similar formats.

Links (URLs) to specific documents on websites are also acceptable. However, a URL link should be verified as working and must point to the specific document and not be general (for example, a general link to [www.nrc.gov] is not acceptable).

## When to File

The Energy Commission requests that Pacific Gas and Electric (PG&E) and SCE provide the Energy Commission the information, as described below, on or before **July 13, 2016**. At a later date, the *2016 IEPR Update* Lead Commissioner, Commissioner Karen Douglas, may direct that additional data be filed to assess particular issues or policy proposals.

## Who Must File

California utilities owning and/or operating the Diablo Canyon and San Onofre facilities are requested to file information as indicated below.<sup>1</sup> Please note: where the information

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<sup>1</sup> Information is being requested of Southern California Edison Company since they are the majority owner and primary agent responsible for decommissioning activities but all owners are responsible for ensuring the transfer of information.

is available through another forum, utilities are asked to identify a web link and a contact person (name, phone number, and e-mail address).

## What Must be Filed

For all filings, parties are requested to submit the following:

- A brief cover letter, addressed to the Energy Commission's Docket Office and including "Docket 16-IEPR-07 – Nuclear";
- A compact disc containing all requested data; or
- A paper copy of requested data if not available in electronic format.

## How to File

For the *2016 IEPR Update*, the Energy Commission is using an electronic commenting system. Visit the Energy Commission's website at [http://www.energy.ca.gov/2016\\_energy\\_policy/](http://www.energy.ca.gov/2016_energy_policy/) 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 **16-IEPR-07 – Nuclear**.

This will take you to the page for adding comments to that docket. Please enter your contact information and comment title. Under "**subject(s)**," select "**IEPR 2016-07-18**" and "**IEPR General Information**." You may include comments in the box titled "Comment Text" or attach a file. The attached response to the data request 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 filings may also be submitted by e-mailing them to the Dockets Office, or by U.S. Mail to:

California Energy Commission  
Docket Office, MS-4  
Attention: **Docket 16-IEPR-07**  
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 submittals. Filings may be e-mailed to [docket@energy.ca.gov](mailto:docket@energy.ca.gov) and copy the technical lead, Justin Cochran, by e-mail at [Justin.Cochran@energy.ca.gov](mailto:Justin.Cochran@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.

Data that is submitted with an Application for Confidential Designation must be sent to the Executive Director of the Energy Commission rather than to the Docket Office, as explained in the next section.

## **How to Apply for Confidential Designation of Submitted Data**

If you believe that any portion of the data to be submitted is entitled to confidential designation under the California Public Records Act (Gov. Code section 6250 et seq.), you may file an application for confidential designation by following the procedures contained in Title 20, California Code of Regulations, section 2505, subd. (a). Please note that the material that is the subject of the request must be included with your application. Questions about the confidentiality process can be directed to Jared Babula at [jared.babula@energy.ca.gov](mailto:jared.babula@energy.ca.gov) or (916) 651-1462.

## **Section 2: Nuclear Power Plant Data Request for Diablo Canyon Power Plant and San Onofre Nuclear Generation Station**

### **Progress in Spent Nuclear Fuel On-site Management**

#### **A. Nuclear Waste Accumulation – Diablo Canyon and San Onofre**

As follow-up to the 2013 and 2015 *IEPR* recommendations, the Energy Commission is requesting information from PG&E and SCE that pertain to the current status of onsite storage and disposal of low-level waste and spent nuclear fuel and their plans through plant decommissioning.

1. Please provide the most recent disposal plans and disposal cost assessments for low-level waste (categorized as Class A, B, C, or Greater-than Class-C) and spent nuclear fuel storage completed to satisfy this request.
2. Please provide a table of waste generated including number of spent fuel assemblies; metric tons of uranium; and volumes of low level waste (Class A-C & GTCC). This information should be categorized in a table by quantity generated through 2015, quantity expected at the end of license, and quantity expected during decommissioning.



## **B. Spent Fuel Pool and Independent Spent Fuel Storage Installation – Diablo Canyon and San Onofre**

1. Please provide a progress report on the transfer of spent fuel from pools into dry casks (in compliance with NRC spent fuel cask and pool storage requirements).
2. Please provide an updated evaluation of 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.
3. Please provide information on the developments of facility specific aging cask management programs onsite and within the nuclear engineering community, and any related technological considerations.
4. Please provide updated tables on the status of spent nuclear fuel and current onsite storage capacity and a table summarizing the current spent fuel conditions including radiation levels. Tables on the current Independent Spent Fuel Storage Installation (ISFSI) should contain information on capacity, planned expansions and timetables, planned loading configurations and associated thermal loads, and estimated thermal loads of the current ISFSI multi-purpose canisters.

## **Progress in Completing 2013 – 2015 IEPR Recommendations**

### **A. Diablo Canyon Power Plant License Renewal Issues for State Policymakers**

1. Please provide a status report on, and the results of, all feasibility studies in-progress or completed for license applications currently under review or planned for submittal with the NRC, including, but not limited to the following information:
  - a. total amount of money currently spent towards license renewal;
  - b. adequacy of the plant maintenance programs and safety cultures;
  - c. plans for waste storage, transport, and disposal;
  - d. seismic hazard and vulnerability assessments;
  - e. life cycle or “cradle-to-grave” environmental and economic impact evaluation of Diablo Canyon nuclear power plant compared with alternative generation and transmission resources;



- f. contingency plans in the event that the Diablo Canyon nuclear power plant has a prolonged outage;
- g. assessments of the options and costs for complying with the State Water Resources Control Board policy requiring a phase-out of once-through cooling facilities, and;
- h. the overall economic and environmental costs and benefits of license extension.

## **B. San Onofre Nuclear Generation Station Status of Decommissioning**

Please provide an update to the Energy Commission on the decommissioning status of the San Onofre facility. The decommissioning update should include information on the current terms of the Navy lease, as well as any planning pertaining to the funding and maintenance of the ISFSIs if on-site storage must be continued beyond 2029.

## **C. Status of PG&E Response to Itemized Letter from California Public Utilities Commission President Picker**

Please provide an update on the response(s) to California Public Utilities Commission (CPUC) President Michael Picker's letter of March 27, 2015.<sup>2</sup> CPUC President Picker provided a lengthy list of compliance items to be completed by PG&E, as part of any funding request for the Diablo Canyon nuclear power plant relicensing application process. PG&E should make a compliance filing that responds to President Picker's itemized list with status updates on each of the items in the letter. This compliance filing should be submitted to the Energy Commission and the CPUC annually or quarterly, as appropriate. The itemized list is provided below for convenience.

1. Report on the major findings and conclusions from Diablo Canyon's enhanced seismic studies, including the 2-D and 3-D surveys in the vicinity of Diablo Canyon as contained in the Central Coastal California Seismic Imaging Project report dated September 2014, and report on the implications of these findings and conclusions for the long-term seismic vulnerability, seismic risk evaluations, and reliability of the plant.
2. A discussion of each of the comments and recommendations of the Independent Peer Review Panel (IPRP Reports 7, 8, 9, and 10) on the Central California

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<sup>2</sup> CPUC letter from President Picker to Christopher Johns, President of Pacific Gas and Electric, Diablo Canyon License Extension, May 27, 2015. Retrieved from <http://docketpublic.energy.ca.gov/>.



Seismic Imaging Project, and PG&E's proposals for continued engagement with these groups to resolve all outstanding issues.

3. A summary of the lessons learned from the Fukushima event with a discussion of any implications that PG&E evaluated that could affect Diablo Canyon, including potential expansion and maintenance of emergency planning zones.
4. Reassessment of the adequacy of access roads to Diablo Canyon and surrounding roadways for allowing emergency personnel to reach the plant and for local communities and plant workers to evacuate. This assessment needs to consider today's local population and not rely on the past situation when the plant was constructed.
5. Assessment of the adequacy of liability coverage in the event of a major event or potential release of large off-site release of radioactive materials.
6. Assessment of low and high-level waste disposal costs for waste generated through a 20-year plant license extension, including the low and high-level waste disposal costs for any major capital projects that might be required during this period, such as replacement of steam generators or high pressure turbines. This should include PG&E's plans and associated costs for storage and disposal of low-level waste and spent nuclear fuel through decommissioning of Diablo Canyon.
7. A review and response to the comments of the San Onofre Citizen Engagement Panel on the SCE decommissioning plan and the implications, if any, for Diablo Canyon decommissioning.
8. Alternative spent fuel management schemes to expeditiously transfer spent nuclear fuel assemblies from the wet spent fuel pool to dry casks in the ISFSI. PG&E should consider isolating the spent fuel pool to eliminate the need for using Pacific Ocean seawater for cooling the spent fuel pool system. PG&E should also include information demonstrating sufficient space for all spent fuel (fuel consumed if Diablo Canyon was relicensed) to be kept on site in the ISFSI and also all assessments of the lifetime of the dry casks.
9. An evaluation of the structural integrity of the concrete and reinforcing steel in the spent fuel pools, including any increased vulnerability to damage resulting from a seismic event, and an assessment of any radiological impacts from any prior leakages.
10. Alternative power generation options to quantify the reliability, economic, and environmental impacts of replacement power options.
11. At the 2015 IEPR nuclear workshop there was a discussion of potential over generation issues on the PG&E power system and potential cycling of the Diablo

Canyon units as a means of mitigating these issues. PG&E should include detailed studies of the costs and benefits of such cycling, particularly any safety implications, and the assessment of such cycling by the Diablo Canyon Independent Safety Committee including PG&E's responses to these studies.

12. The potential costs associated with mitigation or alternatives to the use of once-through cooling at Diablo Canyon for compliance with requirements imposed by the California Water Resources Control Board. PG&E should provide any assessments of the Diablo Canyon Independent Safety Committee of the implications of such alternatives, and PG&E's proposals to address their concerns.
13. All studies of the tsunami risks at Diablo Canyon, and PG&E's assessment of the potential risks from tsunamis.
14. All studies of the pressure vessel embrittlement issues.
15. If there have been any recent downgrades of PG&E by the Institute of Nuclear Power Operations discuss reasons for the downgrade.
16. Status of PG&E's responses to the formal recommendations of the Diablo Canyon Independent Safety Committee in its 21st and 23rd Annual Reports.
17. The status of litigation concerning PG&E's alleged violations of the Seismic Design requirements in its operating license made by the NRC Resident Inspector. When does PG&E believe this litigation will be resolved? What is the magnitude of the expenditures PG&E expects to have incurred before this resolution?
18. Include PG&E's responses and any actions taken as recommended by the Energy Commission in their 2013 and 2015 *IEPRs* to any nuclear issues related to Diablo Canyon.