

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

In the matter of:)	Docket No. 11-IEP-1J
)	
Preparation of the)	COMMITTEE DATA REQUEST
<i>2011 Integrated Energy Policy Report</i>)	Nuclear Power Plant-Related Data
_____)	

REQUEST FOR DATA RELATED TO CALIFORNIA'S NUCLEAR POWER PLANTS

As part of the California Energy Commission's *2011 Integrated Energy Policy Report (2011 IEPR)* proceeding, the IEPR Committee is requesting that Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) provide data related to the Diablo Canyon Power Plant, Humboldt Bay Plant, and the San Onofre Nuclear Generating Station (SONGS), as specified in Attachment A.

The Public Resources Code (PRC) section 25301 requires the Energy Commission to prepare and adopt an Integrated Energy Policy Report (IEPR) every two years beginning in 2003, with an update in the intervening years. The IEPR presents an assessment of all aspects of energy supply, demand, production, transportation, delivery, distribution, and price. This report serves as the foundation for energy analyses and 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.

On March 24, 2010, the Energy Commission adopted an Order Instituting Informational Proceeding to gather and assess information from market participants to be used in developing the *2011 IEPR* and to delegate authority to develop the *2011 IEPR* to the Committee. The information and data collected during the current proceeding will provide the robust and complete record needed for the Committee to make its energy policy recommendations to the full Energy Commission.

The Public Resources Code also directs state government entities to carry out their energy-related duties and responsibilities using the information and analyses contained in the IEPR. Therefore, the Committee will coordinate closely with other agencies during this proceeding to ensure consistency in the underlying information that is used to develop policy recommendations in this report that may affect those agencies.

In 2006, the California Legislature enacted Assembly Bill 1632 (Blakeslee, Chapter 722, Statutes of 2006; codified as Public Resources Code 25303), which directed the Energy Commission to assess the vulnerabilities of large baseload power plants greater than 1,700 megawatts to a major disruption due to a seismic event or plant aging, the potential impacts of such a disruption, the costs and impacts from waste accumulating at these plants, and major issues related to the future role of these plants in the state. California's two operating nuclear power plants, Diablo Canyon and the San Onofre Nuclear Generating Station, are the only two California plants that meet the 1,700-megawatt baseload criterion.

In 2008, the Energy Commission adopted *An Assessment of California's Nuclear Power Plants: AB 1632 Report*, as required by AB 1632, which made recommendations on nuclear-related efforts for the 2008 and the 2009 IEPRs. The Committee Revised Scoping Order for the 2011 IEPR identified the following topic related to the state's nuclear power plants that would be covered in the 2011 IEPR:

“Report on the utilities’ progress in implementing recommended actions related to nuclear power plants that were provided in the Energy Commission’s 2008 *Integrated Energy Policy Report Update* as directed by Assembly Bill 1632.”

Due Date

The deadline for utilities to submit the requested information is **Friday, May 23, 2011**. Please include the docket number **11-IEP-1J** and indicate “Nuclear Data” in the subject line or first paragraph of your comments.

All filings in the IEPR proceeding are now done electronically. Please send them by electronic mail to [docket@energy.state.ca.us] or on a compact disc to:

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 11-IEP-1J
1516 Ninth Street
Sacramento, CA 95814-5512

Please include your name or organization's in the name of the file. Signatures may be indicated on electronic copies by embedding a scanned signature graphic, “Original signed by” or similar words, or a scanned copy of the signature page may be appended to the electronic file.

Public Participation

The Energy Commission's Public Adviser provides the public assistance in participating in Energy Commission activities. If you would like information on how to participate in this proceeding, please contact the Public Adviser's Office at (916) 654-4489 or toll free at (800) 822-6228, by FAX at (916) 654-4493, or by e-mail at [PublicAdviser@energy.state.ca.us]. If you have a disability and require assistance to participate, please contact Lou Quiroz at (916) 654-5146 at least five days in advance.

Please direct all news media inquiries to the Media and Public Communications Office at (916) 654-4989, or by e-mail at [mediaoffice@energy.state.ca.us]. If you have technical questions about this data request, please contact Barbara Byron of the Energy Commission's Executive Office at (916) 654-4976 or by e-mail at [bbyron@energy.state.ca.us]. For general questions regarding the IEPR proceeding please contact Lynette Green, IEPR project manager, at (916) 653-2728 or by e-mail at [lesterno@energy.state.ca.us].

The service list for the 2011 IEPR is handled electronically. Notices and documents for this proceeding are posted to the Energy Commission website at [www.energy.ca.gov/2011_energypolicy/index.html]. 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 [www.energy.ca.gov/listservers/index.html].

ROBERT B. WEISENMILLER
Chair and Presiding Member
Integrated Energy Policy Report Committee

JAMES D. BOYD
Vice Chair and State Liaison Officer
to the U.S. Nuclear Regulatory
Commission

KAREN DOUGLAS
Commissioner and Associate Member
Integrated Energy Policy Report Committee

Date posted: April 22, 2011

Electronic Mail Lists: energypolicy

ATTACHMENT A

Section 1: Background

The Energy Commission is requesting that utilities with operating nuclear power plants in California provide the data described in Section 2. These data will provide a foundation for the analyses and recommendations in the *2011 Integrated Energy Policy Report*. This information is also needed to continue the Energy Commission's nuclear policy assessment initiated in 2005 and continued through the 2005, 2007, 2008, and 2009 IEPRs, as well as to support legislative mandates and provide information needed to support the Energy Commission's input into federal waste management proceedings.

Public Resources Code (PRC) Section 25301 directs the Energy Commission to conduct regular assessments of all aspects of energy demand and supply. To carry out these regular assessments of expected and needed electricity supplies, "the Commission shall conduct... (an) assessment of the availability, reliability, and efficiency of the electricity and natural gas infrastructure and systems including, but not limited to,...western regional and California electricity and transmission system capacity and use." (PRC Section 25303(a)[3])

If respondents have questions about the information being requested, Energy Commission staff will work with the utilities to clarify the information requests. General questions about these data requests should be directed to Barbara Byron at [bbyron@energy.state.ca.us] or by telephone at (916) 654-4976.

Filing Instructions

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

1. 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 (SONGS)-related data requests.
2. 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 should provide a reference to specific federal or state laws or regulations that provide the confidentiality treatment sought by the respondent.
3. Unless otherwise specified, the period for which data and documents are requested is **2008 through the most recent year that information is available (for example, 2011)**.

4. Unless otherwise specified, every effort should be made to provide the requested information in digital/electronic format such as CD/DVD-ROM, Portable Document Format (PDF) files, Excel spreadsheets, or similar formats. Links (URLs) to documents on Internet websites are 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 requires that the utilities provide the Energy Commission the information, as described below, on or before **Monday, May 23, 2011**. At a later date, the 2011 IEPR Committee, which is comprised of Chair Robert Weisenmiller as the Presiding Member and Commissioner Karen Douglas as the Associate Member, 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 Nuclear Power Plant, Humboldt Bay Plant, and San Onofre Nuclear Generating Station, are required to file information as indicated below. Please note: Where the 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 with attached required data; or
- A compact disc containing a cover letter and all required data

Where to File

Submit all requested data to:

California Energy Commission
Docket Office
Attention: **Docket 11-IEP-1J**
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Data that is submitted with an **Application for Confidential Designation**, however, 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

The Executive Director of the Energy Commission has the overall responsibility for determining what information submitted with an application for confidentiality to the Energy Commission will be deemed confidential. Parties who seek such a designation must identify the specific information and describe why the information should be protected from release, the length of time such protection is sought, and whether the information can be released in aggregated form.

Certain categories of information provided to the Energy Commission, when submitted with a request for confidentiality, will be automatically designated as confidential and do not require an application. The types of data that are eligible and the process for obtaining this confidential designation are specified in California Code of Regulations, Title 20, section 2505(a)(5).

The process for requesting a confidential designation for the data is described below. A more detailed description of this process is provided in Title 20 of the California Code of Regulations, Section 2501 et seq. (See *Energy Commission Regulations*).¹ Parties must make a separate written application to the Executive Director that specifies which data within the body of all submitted material warrants a confidential designation. A document or electronic file bearing a “confidential” stamp will not suffice. A formal application is necessary.

The following information items are needed by the Executive Director to make a confidentiality determination:

1. A printed cover letter bearing the following address:

Melissa Jones
Executive Director
California Energy Commission
1516 Ninth Street, MS 39
Sacramento, California 95814-5504

2. The data. For this data request, the data must be submitted on a compact disc that bears the name of the utility and the following sub-docket number:
Docket #11-IEP-1J. The confidential information must be clearly and properly labeled.
3. A signed and dated “penalty of perjury” certification must be included in the hard copy and electronic format, containing the following paragraphs, signature line, and signature by the person primarily responsible for preparing the application:

¹ California Energy Commission regulations can be found at: <http://www.energy.ca.gov/siting/title20/index.html>

“I certify under penalty of perjury that the information contained in this application for confidential designation is true, correct, and complete to the best of my knowledge.” And,

“I certify that I am authorized to make the application and certification on behalf of (company, firm, partnership, trust, corporation, or other business entity, or an organization or association.)

4. In addition, the application for confidentiality submitted to the Executive Director may be deemed incomplete and returned to the applicant if the application does not contain the following:
 - Identification of the information being submitted, including title, date, file size (for example, pages, sheets, MB), and sub-docket number;
 - Description of the data for which confidentiality is being requested;
 - Description of the length of time for which confidentiality is being sought, with an appropriate justification, for each confidential data category request;
 - Identification of applicable provisions of the California Public Records Act (Government Code Section 6250 *et seq.*), and/or other laws, for each confidential data category request;
 - A statement that describes how each category of confidential data may be aggregated with other data for public disclosure;
 - Description of how the information is kept confidential by the applicant and whether it has ever been disclosed to a person other than an employee of the applicant, and if so, under what circumstances, and
 - A statement attesting that: a) the specific records to be withheld from public disclosure are exempt under provisions of the Government Code, or b) the public interest in nondisclosure of these particular facts clearly outweighs the public interest in disclosure.

The items listed above should be hand-delivered or mailed to the Executive Director’s office in a sealed package (or envelope) marked “Confidential.”

If the filer is seeking confidential designation of information that is substantially similar to information that was previously determined to be confidential by the Commission, the application need only contain a certification, identical to that filed with the application for confidential designation of new information, stating that fact and that all the facts and circumstances relevant to that prior determination of confidentiality remain unchanged.

Application packages deemed incomplete will not be reviewed by the Executive Director. Instead, incomplete application packages will be placed in a “suspense” file, and the filer will be notified by mail and by e-mail about the deficiencies in the application. The filer has 14 calendar days to correct the deficiencies and to deliver to the Executive Director an amended *Application for Confidential Designation*, including the signed and dated “penalty of perjury” certification. If the Executive Director has not received the amended application within 14 calendar days from the date the letter was

received, all information associated with the deficient application package will be deemed public information and docketed accordingly.

Once an application package is complete, the Executive Director of the Energy Commission has 30 days to render a decision regarding the confidentiality request. Confidentiality determination letters are signed by the Executive Director. If the letter states that the Executive Director has determined that the submitted data does not warrant confidential designation, then the applicant has 14 calendar days to appeal the Executive Director's decision to the full Commission. More specific questions about confidentiality may be directed to Kerry Willis at [kwillis@energy.state.ca.us] or (916) 654-3967.

Section 2: Nuclear Power Plant Data Request

A. Progress in Completing the AB 1632 Report/2008 IEPR² and 2009 IEPR Recommendations

1. Please report on the overall plans, schedule and progress for completing the recommendations in the AB 1632 Report/2008 IEPR Report (pp. 78-81), the 2009 IEPR (pp. 238-240), and the California Public Utilities Commission's (CPUC) letters of June 2009 to PG&E and SCE; please indicate when PG&E and SCE plan to report to the Energy Commission and the CPUC on the findings from these studies. How do the schedule and plans for completing these recommendations compare to the schedule and plans for license renewal? (Diablo Canyon, SONGS)
2. The *AB 1632 Report* recommended that PG&E and SCE use three-dimensional (3-D) geophysical seismic reflection mapping and other advanced technologies to explore fault zones near the plants. Please provide a detailed description of the study plans, including plans for obtaining the necessary permits, as identified in the Request for Proposal. What are the major milestones and schedule for completing these studies including the expected start and completion date for the onshore and offshore 3-D seismic imaging survey and the entire 3-D imaging analysis? When will the findings and conclusions from these studies be provided to the Energy Commission, CPUC, and the California Coastal Commission? (Diablo Canyon, SONGS)
3. The *AB 1632 Report* noted that updated seismic hazard analyses incorporating the USGS National Seismic Hazard Mapping Project models and the UCERF-2 data base would provide additional information for regulators and the public regarding the seismic hazard at the plant sites. Please discuss the relevance of

² The Energy Commission adopted in November 2008 several recommendations regarding Diablo Canyon and SONGS (See: An Assessment of California's Nuclear Power Plants: AB 1632 Report, CEC-100-2008-009-MF). This section includes requests for information from the utilities on progress being made in carrying out these recommendations.

these models and the revised UCERF database for the studies that might be required as part of the license renewal feasibility assessments for the plant. (Diablo Canyon, SONGS)

4. Please report on efforts to develop an active seismic hazards research program for SONGS, similar to PG&E's Long-Term Seismic Program (LTSP), to assess whether there are sufficient design margins at the plant to avoid major power disruptions and withstand a major seismic/tsunami event. (SONGS)
5. Please report on progress in efforts to prioritize and include further investigations into the seismic setting at SONGS and assess whether recent or current seismic, geologic or ground motion research in the vicinity of SONGS has implications for the long-term seismic vulnerability of the plant. (SONGS)
6. Please report on progress in assessing the implications of a San Simeon-type earthquake beneath Diablo Canyon, including expected ground motions and vulnerability assessments for safety- and non safety-related plant systems and components that might be sensitive to long-period motions in the vicinity of an earthquake rupture. (Diablo Canyon)
7. Please report on the status of and findings from PG&E's and SCE's assessments regarding to what extent their plants' non-safety related systems, structures and components (SSCs) comply with current building codes and seismic design standards for non-nuclear power plants. (Diablo Canyon, SONGS)
8. Please report on the status and findings from PG&E's and SCE's evaluation of the seismic vulnerability and plant reliability implications for the non-safety related SSCs from changes to seismic design standards that have occurred since the plants were designed and built and any retrofits, focusing on systems or components whose failure could lead to extended outages. Please consider the changes to seismic design standards since the plants were built including the International Atomic Energy Agency Standards (IAEA) and Safety Reports (Diablo Canyon, SONGS)
9. Please describe the plant component repair/replacement plans including initial estimates of time needed to repair or replace key plant systems or components that could cause a prolonged plant outage or compromise plant safety as a result of being damaged from an earthquake. This should consider the fragility of components both in their operating positions and when relocated for refueling or plant maintenance. (Diablo Canyon, SONGS)
10. The National Academies in 2006 reported on the risk of fire from overheated spent fuel rods in spent fuel pools. Fires were reported in the spent fuel pools at the Fukushima Daiichi plant. Please report on the progress in returning the spent fuel pools to open racking arrangements, as recommended in the 2008 IEPR,

11. Please report on the status of any reassessments of whether emergency plans and access roads to the plants and surrounding roads are adequate for allowing emergency response personnel to reach the plants and local communities and plant workers to evacuate following a major seismic event/ plant emergency to protect the public, workers and plant assets and allow for timely evacuation following such an event. Please take into account changes to the local population and traffic density/congestion since the plants were constructed and the possible loss of some of the roads due to a major seismic event or other plant emergency. (Diablo Canyon, SONGS)
12. Please provide information on the plans and estimated costs for storing and/or disposing of low-level nuclear waste and spent nuclear fuel that would be generated through a 20-year license extension and plant decommissioning. (Diablo Canyon, SONGS)
13. Please describe any studies underway or to be completed for as part of license renewal feasibility studies that: (a) quantify the local economic impacts of shutting down the plants compared with alternate uses of the site and (b) assess the reliability, economic and environmental impacts of replacement power options for the plants. Please provide copies of any assessments conducted since 2008. (Diablo Canyon, SONGS)
14. Please describe any safety culture issues at the plants that have arisen since 2008, efforts to improve the safety culture and maintain major safety-related equipment, e.g., related to emergency back-up power and cooling systems, and NRC's evaluation of these efforts and the plants' overall performance. (Diablo Canyon, SONGS)
15. Please provide copies of plant evaluations conducted by the Institute of Nuclear Power Operation (INPO) and any INPO Performance Index for the facility from 2009-2011. As for other areas, confidentiality protection will be provided for proprietary information as needed upon identification by the respondent. (Diablo Canyon, SONGS)
16. Please provide updated assessments of the options and costs for complying with the State Water Resources Control Board's once-through cooling policy and plans for how these options and estimated costs will be included in the cost-benefit assessments for the plants' license renewal feasibility studies. (Diablo Canyon, SONGS)
17. Please describe progress in providing greater representation on the SONGS' Seismic Advisory Board from independent seismic experts, such as university or

government scientists and/or engineers with no current or prior employment with the plant owners or their consultants. (SONGS)

B. Lessons Learned from Fukushima Daiichi Plant Events

1. Please describe the studies that are underway or planned to examine the significant events at the Fukushima Daiichi Nuclear Plant following the March 11, 2011 earthquake/tsunami and the implications for California's operating plants. Please report on any seismic/tsunami and plant seismic vulnerability analyses that are planned or in progress related to these events. What are the preliminary findings from these assessments regarding the design safety margins for the plant including back-up power, emergency cooling, spent fuel pools and ISFSI (Diablo Canyon, SONGS, Humboldt Bay)
2. Please summarize any lessons learned from events at Fukushima and provide copies of any reports provided to the Nuclear Regulatory Commission (NRC) , IAEA, or other organizations describing these events, lessons learned, and any implications for California's plants. Please include whether any additional equipment or mitigation measures may be needed to prevent or minimize the risk of similar events at Diablo Canyon and SONGS, e.g., station blackout, hydrogen explosions, breach of containment, spent fuel pool overheating/fires, and loss or failure of back-up cooling systems. (Diablo Canyon, SONGS).
3. A problem at Fukushima was that monitors were not available during the emergency to indicate spent fuel pool conditions (e.g., water levels and temperature) as problems unfolded. Do the spent fuel pools have monitors or instrumentation that would be available and reliable under severe accident conditions? (Diablo Canyon, SONGS)
4. Please discuss plans and preparation for an extended station blackout and/or loss of emergency cooling, including spent fuel pool cooling that exceed planning assumptions for the plant. Please explain the reliability of the emergency back-up water supply system and how emergency water would be provided in the event of the loss of emergency back-up cooling systems, storage tank rupture or the failure or loss of the infrastructure necessary to access the backup water for cooling. (Diablo Canyon, SONGS)
5. The earthquake experienced on March 11, 2011 at the Fukushima-Daiichi plant was a 9.0 magnitude earthquake, although the plant was designed to withstand a 7.9 earthquake. Please explain the discrepancy and why predicting large-scale seismic and tsunami events is so difficult and uncertain. (Diablo Canyon, SONGS)
6. Given the lessons learned from the Fukushima plant in Japan and overheating problems in spent fuel pools, what are the estimated costs and potential risks of relying indefinitely upon onsite interim storage facilities? Please provide a copy of

any cost/benefit study on the costs and risks of long-term or indefinite onsite spent fuel storage in pools and dry cask storage. (Diablo Canyon; SONGS; Humboldt Bay)

C. Spent Nuclear Fuel Generation

1. Please update the following Table 12 from the *AB 1632 Assessment of California’s Operating Nuclear Plants: Final Report*, October 2008 (CEC-100-2008-005-F, page 213).

Table 12: Waste Generated at Diablo Canyon (Units 1 and 2) and SONGS (Unit 1, 2 and Unit 3)

		Spent Fuel		Low-Level Waste	
		(No. of assemblies)	(Metric tons of Uranium)	Class C (ft ³)	GTCC (ft ³)
Diablo Canyon	Total generated through 2011				
	2011 through end of Initial License				
	License Extension				
	Decommissioning				
	Total				
SONGS	Generated through 2011				
	2011 through end of Initial License				
	License Extension				
	Decommissioning				
	Total				

2. For each of the years 2008-2011, how much spent nuclear fuel was generated by each unit and what is the anticipated average annual spent fuel generation rate for each unit over the lifetime of the plant? (Diablo Canyon, SONGS)

D. Spent Nuclear Fuel Storage

1. Please provide current updates to Table 14 from page 217 of the *AB 1632 Assessment of California’s Operating Nuclear Plants: Final Report*, October 2008 (CEC-100-2008-005-F): Please also provide the information in metric tons of uranium.
2. What is the current total amount of spent fuel (number of assemblies and metric tons of uranium) stored in storage pools? How does this compare to the original storage capacity when the plant was originally designed (i.e., how many times more spent fuel is currently being stored, and planned for storage, compared to the original plant design for the spent fuel pool)? (Diablo Canyon, SONGS)

Table 14: On-Site Spent Fuel Storage Capacity (number of assemblies)

	Diablo Canyon	SONGS Units 2 & 3	Humboldt Bay
ISFSI Capacity	1,280	312	NA
Planned Expansions	3,136	1,488	
Total Planned ISFSI Capacity	4,416	1,800	
Spent Fuel Pool Current Capacity	2,648	3,084	
Total On-site Storage Capacity	7,064	4,884	
Assemblies Generated during Current Licensing period	4,310	4,972	
Spent Fuel Pool Original Design Capacity (Before re-racking)			

3. How many times has the spent fuel pool been re-racked? What are the plans for storing spent fuel in pools through the end of the operating license and through a 20-year license extension? (Diablo Canyon, SONGS)
4. What is the estimated time/costs to return the spent fuel pools to their original storage configuration (as originally designed), for example, by moving some spent fuel from the pools into dry cask storage (Diablo Canyon, SONGS)
5. What are the annual spent fuel pool operating and maintenance costs? Are any major capital investment projects planned and/or anticipated for the spent fuel pools, particularly in light of events at the Fukushima Daiichi plant? If so, what are the anticipated costs? (Diablo Canyon, SONGS)
6. What is the current status of the Interim Spent Fuel Storage Installation (ISFSI) and projected schedule for transfer of spent fuel to the ISFSI during the operating license period and through a 20-year license extension? What are the current estimated costs for constructing new dry cask storage facilities onsite? (Diablo Canyon, SONGS)
7. What is the current amount of spent fuel being stored and planned for storage (number of assemblies and metric tons of uranium) in the ISFS through the end of the operating license as well as through a 20-year license extension? What are the plans for increasing onsite storage capacity to accommodate all of the spent fuel generated during the current operating license and through a 20-year license extension? (Diablo Canyon, SONGS)
8. Given that the Yucca Mountain program has been terminated (except for the license application proceeding), what are the current plans and costs for indefinite onsite storage of spent fuel? (Diablo Canyon, SONGS, Humboldt Bay)
9. How long is the spent fuel upon removal from the reactor core currently cooled in the spent fuel pools before being transferred to the ISFSI? (Diablo Canyon, SONGS 2 and 3)

10. Please provide updated information on the amount and status of any damaged spent fuel that is being stored at the plant and any spent fuel generated at the plant that is unaccounted for by the plant owner. Please describe any special considerations or requirements for long-term storage of damaged spent fuel in the pools or ISFSI or for transport of damaged spent fuel offsite. (Diablo Canyon, SONGS, Humboldt Bay)
11. What are the most recent estimates for how long spent fuel can be safely stored in the ISFSIs without repackaging or refurbishing any ISFSI components? For ISFSI components with design lives of less than 50 years, please specify the design life for each component and describe: (a) what steps would be needed in order to continue to store spent fuel in the ISFSI beyond that design life, (b) the cost of these steps, and (c) the new design life of the component after these steps are taken. (Diablo Canyon, SONGS, Humboldt Bay)
12. What are the current estimated total costs to construct and fill the Diablo Canyon and SONGS ISFSIs with all the spent fuel expected to be generated through the current operating license? What would be the estimated total cost to construct and fill the ISFSIs with all the spent fuel that is expected to be generated through a 20-year license extension? (Diablo Canyon, SONGS)
13. What are the current annual and total estimated costs for the maintenance, operation, and security for the ISFSI? What are the estimated costs for storing spent fuel in the ISFSIs through the end of the plant's current operating licenses? What would be the additional operations, maintenance, and security costs resulting from delays in shipment to offsite storage lasting up to 25 years (for example, through the year 2034)? (Diablo Canyon, SONGS, Humboldt Bay)

E. Seismic and Tsunami Issues

1. A recent report by the US Geological Survey (USGS) that was presented at the Seismological Society of America's Annual Meeting (Jeanne Hardebeck et al.) concluded that, "There's no objective evidence for any discontinuities or segmentation of the Shoreline Fault." This conclusion may have major implications for estimates of the earthquake potential for this fault and appears to conflict with PG&E's assertion that the Shoreline Fault is segmented. This USGS report further states that, "The Shoreline plane is ~25 km long, and its NW end extends to the mapped trace of the Hosgri Fault, indicating that there is no gap between these faults at seismogenic depths." Please explain the apparent discrepancies between this USGS report and PG&E's assertions about the Shoreline and Hosgri Faults, i.e., whether the Shoreline Fault is segmented and its potential interaction with the Hosgri Fault, implications for seismic hazard for Diablo Canyon, and any planned seismic research to address these questions. (Diablo Canyon)

2. What refinements, if any, have been achieved or are being conducted in ground motion models to account for ground motion near an earthquake rupture and what are the implications of these refinements for the design and reliable operation of Diablo Canyon and SONGS considering both safety-related and non safety-related systems, structures and components (SSCs) of the plant? What are the estimated outage times to repair/replace these non-safety related SSCs and what are the repair/replacement plans to minimize plant outage time? (Diablo Canyon, SONGS)
3. Recent high resolution seismic reflection data relevant to SONGS was collected by the USGS (spring 2008) that revealed a previously unknown but apparently active fault zone between the San Diego Trough fault zone (SDTFZ) and the San Pedro Basin fault (SPBF). The interpretation of this data is that the new fault connects the SDTFZ and the SPBF, forming a combined fault zone about 250 km in length and that the new combined fault zone may pose more significant seismic hazard than previously recognized. Has SCE assessed whether this research has implications for the long-term seismic/tsunami vulnerability of both safety-related and non safety-related systems and components of SONGS? If so, what are the results of the assessment? (SONGS)
4. What efforts are planned, in progress or have been completed to install a permanent GPS array for helping to resolve seismic uncertainties in the vicinity of the plants? (Diablo Canyon, SONGS)
5. What efforts are planned to assess tsunami hazards using new data from NOAA, given the recent devastating tsunami in Japan, and any revised tsunami run-up maps from the University of Southern California (USC)? Please provide the results of any recent tsunami hazard studies for the site that have been conducted and their implications for plant vulnerability and reliability (since SCE's February 2, 2011 report). (Diablo Canyon, SONGS, Humboldt Bay)
6. Significant global warming issues for coastal nuclear power plants include sea level rise and increased storm activity. Please describe any studies planned, underway or completed regarding global warming phenomena and their effects on the plant. (Diablo Canyon, SONGS, Humboldt Bay)
7. Please provide a copy of any testimony, scientific papers, reports or formal comments on seismic and tsunami issues related to Diablo Canyon, SONGS, and Humboldt Bay since 2008. (Diablo Canyon, SONGS, Humboldt Bay)
8. Regarding PG&E's recent report to the Nuclear Regulatory Commission on the Shoreline Fault (January 2011), please explain why, when looking at the fault traces mapped onshore in the vicinity of Diablo Canyon, all of the mapped traces of faults that trend toward the plant terminate approximately 5 to 10 kilometers from the facility. (Diablo Canyon)

9. On Geologic Map of the Fault Zone Study Area, Plate 1, in the report referenced above, there are numerous geologic structures (anticlines/synclines) mapped within Quaternary sand wave deposits. According to the geologic map, these structures are “approximately” located as opposed to “concealed”. This mapping indicates extensive deformation of recent sediments. Is this accurate or is the area just offshore DCPD subject to active compressional forces? (Diablo Canyon)
10. Plate 1 shows fault lines of various thickness presumably depicting activity and/or rate of movement. How were the inactive Tertiary faults (thin line) differentiated from the <1mm/year faults (medium width line)? (Diablo Canyon)
11. What are the most recent estimated maximum credible earthquake magnitudes for all the major Southern California faults (onshore and offshore) that could impact SONGS? To what extent have these numbers increased since the plant was built? (SONGS)
12. A recent California Coastal Commission staff report dated March 24, 2011, entitled “*The Tohoku Earthquake of March 11, 2011: A Preliminary Report on Implications for Coastal California*”, noted that, “Tsunami run up and inundation were considered by the SCE and NRC for permitting of the SONGS facility. However, more recent examinations indicate that a larger earthquake or a large submarine landslide could generate a tsunami larger than that considered by SCE or NRC.” Reference was made to the Coastal Commission’s findings for the ISFSI permit which concluded that, “these studies suggest that large local-source tsunamis could be generated by mechanisms other than those considered during licensing for SONGS 2 and 3, the basis for the 1995 SCE report. However, there have been no local run-up studies based on this mechanism that are widely agreed upon, and certainly none for the SONGS site itself.” What are SCE’s plans for additional tsunami hazard studies at SONGS and plans to address tsunami hazard concerns for the plant? (SONGS)
13. What are PG&E’s and SCE’s plans for tsunami hazard studies/updates in light of the devastating tsunami that occurred on March 11 that greatly exceeded the tsunami hazard estimates for the Fukushima Daiichi plant? Land subsidence on the coast of Japan of approximately 2 meters reportedly contributed to the severe impacts from the March 11 tsunami. What are the planned studies and possible implications for California’s plants from the combination of a tsunami and coastal land subsidence? (Diablo Canyon, SONGS, Humboldt Bay)

F. Loss of Offsite Power and Contingency Plans for Extended Outages

1. Please provide any studies or reports that describe the characteristics of the resources that might be needed to replace the plant in the 2020s (when current operating licenses for the plants are scheduled to expire) in terms of baseload capacity and energy, ancillary services, transmission support, grid stability, and local reliability. (Diablo Canyon, SONGS)
2. What new generation and/or transmission facilities would be needed to maintain voltage support and system and local reliability in the event of a long-term outage at Diablo Canyon or SONGS? Please describe the contingency plans to maintain reliability and grid stability in the event of an extended shutdown at the plant. (Diablo Canyon, SONGS)
3. Please describe plans for replacing power from the plant if an outage lasts longer than 90 days. What are the contingency plans for replacement power if a prolonged outage lasts one year or more? (Diablo Canyon, SONGS)
4. What resources might be needed to provide grid stability to the system in the absence of the nuclear plants for an extended outage during the summer? Would replacement power purchased by the utility be likely to come from those resources? (Diablo Canyon, SONGS)

G. Nuclear Insurance

1. Please provide current information summarizing the insurance policies concerning nuclear liability claims for the facilities including what is the current maximum liability for secondary financial protection for your facility. (Diablo Canyon; SONGS; Humboldt Bay)
2. Does the plant's liability insurance coverage, e.g., the Price-Anderson Act coverage, include unanticipated natural disasters and extended offsite damage, such as decontamination and debris removal, losses to fisheries, wineries, agriculture, food, milk and water supplies, ranching? If so, what is the deductible and maximum coverage? (Diablo Canyon, SONGS)
3. Does the utility have any form of coverage for outage expenses and replacement power costs, and, if so, what is the deductible and what is the maximum coverage? (Diablo Canyon, SONGS)
4. Does the utility have nuclear liability and property tax insurance for non-certified acts (as defined by the Terrorism Risk Insurance Act) for terrorism-related losses, including replacement power costs, and, if so, what is the deductible and what is the maximum coverage? (Diablo Canyon; SONGS; Humboldt Bay)

H. Other Issues (Diablo Canyon, SONGS)

1. If Diablo Canyon or SONGS were to be shut down in the mid-2020s, will there be sufficient funds available to pay the decommissioning costs? What are the current estimated costs for decommissioning these plants? (Diablo Canyon, SONGS)
2. What are some of the major advantages and disadvantages for establishing a San Onofre Independent Safety Committee similar to the Diablo Canyon Independent Safety Committee for Diablo Canyon? (SONGS)