



## CALIFORNIA ENERGY COMMISSION

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Michael R. Peevey  
President  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

### **Re: PG&E's Applications to Recover Costs for Diablo Canyon Seismic Studies and Obtain State and Federal Approvals Related to Relicensing Diablo Canyon**

Dear President Peevey:

I am writing in regards to Pacific Gas and Electric Company's (PG&E) application for approval of ratepayer funding related to relicensing the Diablo Canyon Nuclear Power Plant (A.10-01-014) and their application to perform advanced seismic studies at Diablo Canyon (A.10-01-022). As discussed in my March 22, 2010 letter to you, the Energy Commission supports the California Public Utilities Commission's (CPUC) approval of ratepayer funding for PG&E to perform these additional seismic studies. I also would like to suggest that the CPUC require that PG&E complete these advanced seismic studies and that these studies be independently peer reviewed and made part of PG&E's license renewal feasibility studies before the CPUC issues a decision on PG&E's license renewal application.

The Energy Commission's 2009 Integrated Energy Policy Report (IEPR) stated that, "to help ensure plant reliability and minimize costs, PG&E and Southern California Edison Company should complete and report in a timely manner on all of the studies recommended in the AB 1632 Report, including those that the CPUC identified for completion as part of license renewal review. The utilities should make their findings available for consideration by the Energy Commission and to the CPUC and the U.S. Nuclear Regulatory Commission (NRC) during their review of the utilities' license renewal applications. The utilities should not file license renewal applications with the NRC without prior approval from the CPUC."<sup>1</sup> Without the benefit of the findings from these studies, particularly the seismic studies, information that is essential for cost-benefit analyses of Diablo Canyon's license renewal will be absent from the record.

Recent California Legislature and state agencies' activities and recommendations regarding Diablo Canyon's license renewal and additional seismic studies are summarized below:

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<sup>1</sup> California Energy Commission, *2009 Integrated Energy Policy Report*, p. 238; also see letter from Michael Peevey, CPUC, to Peter Darbee, PG&E, June 15, 2009, directing PG&E to complete the AB 1632 studies.

**AB 1632:** On September 29, 2006, Governor Schwarzenegger signed into law Assembly Bill 1632 introduced by Assemblyman Sam Blakeslee (Chapter 722, Statutes of 2006, Public Resources Code 25303). AB 1632 requires the Energy Commission to conduct a “[c]ompilation and assessment of existing scientific studies...to determine the potential vulnerability, to a major disruption due to aging or a major seismic event, of large baseload generation facilities” including Diablo Canyon.” It also requires the Energy Commission to perform subsequent updates as new data or new understanding of potential seismic hazards emerges.

**2007 General Rate Case Decision:** In March 2007, the CPUC approved \$16.8 million for PG&E to conduct a Diablo Canyon license renewal feasibility study (General Rate Case D07-03-044) and directed PG&E to complete a license renewal feasibility study that incorporates the findings and recommendations of the AB 1632 assessments. It also stated that PG&E’s application should address whether license renewal is cost effective and in the best interests of PG&E’s ratepayers. This decision further stated that the CPUC would then decide as part of PG&E’s 2011 General Rate Case whether PG&E should pursue a license renewal and that, “the decision on whether to forgo license renewal should be made in a Commission proceeding or other appropriate venue.” This was intended to provide the state and PG&E with sufficient time (approximately 12 years) to develop alternate resources should the decision be to forego the Diablo Canyon license renewal.

**AB 1632 Assessment:** In November 2008, as required by AB 1632, the Energy Commission completed a two-year comprehensive assessment of the Diablo Canyon and San Onofre Nuclear Power Plants.<sup>2</sup> This assessment included studies of seismic hazards at Diablo Canyon and SONGS and the seismic vulnerabilities of these plants. This study found that important data on Diablo Canyon’s seismic hazard and vulnerabilities are incomplete and/or outdated. In addition, just prior to the completion of this assessment, PG&E announced the USGS’ discovery of the Shoreline Fault less than a mile offshore from Diablo Canyon. As a result, the Energy Commission recommended that PG&E conduct a number of additional seismic analyses, including using three-dimensional geophysical seismic reflection mapping and other advanced techniques, to explore fault zones near Diablo Canyon. This comprehensive assessment was adopted as part of the Energy Commission’s 2008 IEPR.

**CPUC Directives to PG&E in 2009:** Your June 15, 2009 letter to Peter Darbee, which directed PG&E to complete the AB 1632 studies as part of their license renewal feasibility studies for Diablo Canyon, reinforced the state’s expectations that the AB 1632 studies should be completed in a timely manner, so that their findings can be considered during license renewal reviews. The CPUC directed PG&E to report on their findings from updated seismic and tsunami hazard studies, as recommended in the AB 1632 Report, and report on the implications of these

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<sup>2</sup> California Energy Commission, *An Assessment of California’s Nuclear Power Plants: AB 1632 Report*, November 2008, CEC-100-2008-009-CMF.

findings and conclusions for the long-term seismic vulnerability and reliability of the plant. This letter noted that, “PG&E’s rate case, D.07-03-044, specifically linked PG&E’s license renewal feasibility study for Diablo Canyon to the AB 1632 assessment and PG&E is obligated to address the above itemized issues in its plant relicensing application. This commission will not be able to adequately and appropriately exercise its authority to fund and oversee Diablo Canyon’s license extension without these AB 1632 issues being fully developed.”

**AB 42 and Governor’s Veto Language:** The California Legislature in 2009 unanimously passed AB 42 (Blakeslee 2009) which would have required PG&E to conduct three-dimensional seismic mapping and other advanced techniques to explore fault zones near Diablo Canyon. AB 42 also called for an independent peer review of these seismic studies. The Energy Commission fully supports this peer review requirement and PG&E’s completion of these advanced seismic studies. The Governor did not sign the legislation noting that, “in light of the actions already taken by the CPUC and the Energy Commission on this matter, further legislative authorization is unnecessary.”

**IEPR 2009:** The Energy Commission’s 2009 IEPR recommended that, to help ensure plant reliability and minimize costs, PG&E should complete and report on the AB 1632 studies and make their findings available for consideration by the Energy Commission and the CPUC and the NRC during their reviews of PG&E’s license renewal applications. The 2009 IEPR noted that “[t]hese studies are necessary to allow the CPUC to properly undertake its obligations to ensure plant and grid reliability in the event that either Diablo Canyon or SONGS has a prolonged or permanent outage and for the CPUC to reach a decision on whether to pursue license renewal.”<sup>3</sup>

**PG&E Files for License Renewal in 2009:** On November 24, 2009, rather than following the Energy Commission’s IEPR recommendations and the CPUC’s schedule and directives, PG&E filed an application for license renewal with the NRC before PG&E had completed the AB 1632 studies and before the CPUC had an opportunity to evaluate Diablo Canyon’s license renewal cost-effectiveness.

**California Coastal Commission Letter to PG&E:** The California Coastal Commission staff on December 29, 2009, informed PG&E that the results from updated seismic studies, including three-dimensional seismic data, are needed to complete its federal consistency review for the proposed Diablo Canyon license renewal (Letter to PG&E from Tom Luster). Coastal Commission staff determined that PG&E’s consistency certification, which was submitted to the Coastal Commission in December 2009, was incomplete in part due to the need for results from updated seismic studies. They requested that PG&E, pursuant to AB 1632 recommendations, “provide the three-dimensional seismic data...collected and interpreted as part of this evaluation.”

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<sup>3</sup> 2009 IEPR, p. 239.

**CEC Testimony to the NRC in March 2010:** Energy Commission staff testified at an NRC public meeting on March 3, 2010 on the scope of NRC's license renewal environmental review for Diablo Canyon and requested that the NRC evaluate the safety and environmental implications of the AB 1632 studies and require that the seismic and other state-mandated studies be reviewed as part of the NRC's Atomic Safety and Licensing Board review of Diablo Canyon's license renewal application.

**CPUC Letter to the NRC in April 2010:** Paul Clannon, Executive Director of the CPUC, in his April 4, 2010 letter to the NRC, advised the NRC of the impending PG&E applications for license renewal to the CPUC for over \$100 million and strongly urged the NRC "to fully consider the findings from any studies that PG&E conducts as the NRC reviews PG&E relicensing application." The CPUC noted that the seismic studies in PG&E's application, if approved by the CPUC, could provide valuable information to assist the NRC.

**Additional Seismic Studies at Diablo Canyon Are Needed:**

Seismic events can cause major problems for nuclear power plants, as demonstrated by the July 2007 earthquake in Japan. The largest nuclear power plant in the world – the Kashiwazaka-Kariwa nuclear plant -- remains in partial shutdown nearly 3 years following this earthquake costing billions of dollars for plant retrofits and to purchase replacement power during the plant's extended outage. The AB 1632 study found that important data on Diablo Canyon's seismic hazard and plant vulnerabilities were incomplete and that three-dimensional geophysical seismic reflection mapping could resolve questions and might change conclusions about seismic hazards at this plant.

The Hosgri Fault – a major offshore fault near Diablo Canyon -- is considered to pose the dominant seismic hazard for Diablo Canyon and is estimated to be capable of generating up to a magnitude 7.5 earthquake. The discovery in the late 1960's of this fault while the plant was under construction led to years of investigations and hearings as well as costly revised plant design and seismic retrofits. This discovery was one of the main causes of plant construction delays, billions of dollars in construction cost overruns, and resulted in Diablo Canyon Unit 1 not becoming operational until 1984—15 years after work began at the site. Recent studies have found that ground motion in close proximity to a fault could be stronger than previously thought and that this might be important at Diablo Canyon, since the plant lies within a few kilometers of the Hosgri Fault. In light of these uncertainties, combined with the discovery in 2008 of a previously unknown offshore fault – the Shoreline Fault-- less than a mile from the plant, the Energy Commission's 2008 IEPR recommended that PG&E perform additional seismic studies, including using three-dimensional seismic reflection mapping and other advanced geophysical techniques to supplement ongoing seismic research programs.

An extended plant shutdown following a major seismic event would have significant economic, environmental, and reliability implications for California ratepayers. The risk of an extended outage should be included in the state's review of license

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renewal cost-benefits. To support this assessment, the AB 1632 Report recommended that the utilities update the nuclear plants' seismic assessments, including studies of earthquake and tsunami hazards at the plants, the vulnerability of the non-safety related parts of the plants, and the time needed to repair the plants following a major earthquake. It is important that the utilities complete these studies and submit them as part of the CPUC's license renewal review and cost-benefit analysis.

PG&E has begun to update the Diablo Canyon seismic hazard and plant vulnerability assessments and expects the assessments to be completed in 2013. PG&E is using a number of advanced techniques to identify and better characterize the fault zones near Diablo Canyon, including multi-beam bathymetry, high-resolution marine magnetic and aeromagnetic surveys, and is purchasing industry seismic data in the vicinity of the plant. PG&E has completed initial assessments of two specific seismic hazards near Diablo Canyon, concluding that seismic activity that could be generated by the recently discovered Shoreline Fault is within the plant safety design margins. The NRC's preliminary assessment concurs with this conclusion.

To reiterate, in light of continuing uncertainty about the seismic hazard at Diablo Canyon and the need to maintain reliable operation of California's electrical supply and to minimize customer rate impacts, I support the expeditious approval of PG&E's application to perform the advanced seismic studies, as recommended in the AB 1632 Report and the 2008 and 2009 IEPRs. Further, I suggest that the CPUC deny PG&E's application to recover the costs associated with relicensing until the seismic studies have been completed. In keeping with earlier recommendations of the Energy Commission and policy directives of the CPUC referenced above, I suggest that the CPUC require that PG&E complete the AB 1632 studies and have them independently peer reviewed by California agencies and made part of PG&E's license renewal feasibility studies before the CPUC takes further action on Diablo Canyon license renewal. I believe PG&E's completion of the AB 1632 studies is essential to fully evaluate the economic, environmental and reliability implications of relicensing Diablo Canyon.

Sincerely,



JAMES D. BOYD  
Commissioner and Vice Chair  
California State Liaison Officer to the  
Nuclear Regulatory Commission

Cc: Dian M. Grueneich, Commissioner  
John Bohn, Commissioner  
Timothy Alan Simon, Commissioner  
Nancy E. Ryan, Commissioner