



June 19, 2012

PG&E Letter DCL-2012-629

Mr. Eric Greene  
California Public Utilities Commission  
Energy Division  
505 Van Ness Avenue  
San Francisco, CA 94102-3214

Pacific Gas and Electric Company's Response to IPRP Report No. 3, Comments on  
PG&E's Enhanced Seismic Study Plans for Diablo Canyon Power Plant

Dear Mr. Greene:

On April 6, 2012, the Independent Peer Review Panel (IPRP) issued IPRP Report No. 3 titled: *Comments on PG&E's Enhanced Seismic Study Plans for Diablo Canyon Power Plant*.

Enclosed is Pacific Gas and Electric Company's (PG&E's) response to IPRP Report No. 3 comments on the hazard sensitivity for Diablo Canyon Power Plant (DCPP) geophysical survey targets.

Regarding the status of the Enhanced Seismic Studies Program at DCPP, many of the elements of the Enhanced Seismic Studies Program are now included in the Central Coastal California Seismic Imaging Project as part of PG&E's application to the California State Lands Commission for a geophysical permit to conduct High Energy Seismic Survey work offshore of DCPP in 2012.

PG&E is looking forward to the next IPRP meeting scheduled for June 29, 2012, to further discuss its responses to the comments and recommendations in IPRP Report No.3 as well as to review PG&E's survey plans for the 2012 field season.

Please contact Mr. Richard Klimczak at (415) 973-2791 (email: [RLK1@pge.com](mailto:RLK1@pge.com)) or me should you have any questions regarding this letter.

Sincerely,

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Enclosure

**Pacific Gas and Electric Company (PG&E) Response  
IPRP Report No. 3 Comments**

*IPRP February 2012 Comment 2.1 – Hosgri-San Simeon Stepmover*

*Ongoing investigation and more closely spaced seismic survey lines by USGS have shown that the direct connection between the San Simeon and Hosgri faults is by far the most likely explanation of the available data. It appears very unlikely that additional data from high energy survey of this area (Box 3) would significantly change the seismic hazard analysis results based on these faults. The additional cost and impacts of this part of the survey probably cannot be justified.*

PG&E Response to Comment 2.1

The IPRP notes that the available recent U.S. Geological Survey (USGS) Low Energy Seismic Survey (LESS) coverage in the area only images the top few hundred meters whereas PG&E's High Energy Seismic Survey (HESS) program would provide deeper penetration, which would allow imaging of faults' structures in this area at depths previously unavailable. The HESS would improve upon both USGS LESS and older multichannel imaging.

While PG&E differs with the IPRP's assessment, PG&E understands the basis for the perspective.

*IPRP February 2012 Comment 2.2 - Hosgri-Shoreline Intersection*

*The IPRP recommends that the survey orientation be slightly adjusted and extended to the northeast to give more complete coverage of this area.*

*IPRP February 2012 Comment 2.8 – Los Osos Fault Dip*

*The IPRP recommends that the high energy off-shore survey be configured so that it compliments, as much as possible, the on-shore surveys including providing as continuous as possible imaging of the areas between the on-shore and offshore survey.*

PG&E Response to Comments 2.2 and 2.8

PG&E examined the feasibility of rotating and changing the shooting direction in HESS Box 4 to provide more complete survey coverage of the area offshore Point Buchon, the potential intersection of the Shoreline and Hosgri faults and to the north where the Los Osos fault may interact with other faults in Estero Bay (2.2), and the offshore extension of the Los Osos fault (2.8). These changes do not appear to be feasible due to proposed California State Lands Commission (CSLC) alternatives that establish a setback from shore of approximately 1.9 km (1.2 mi) as well as the ability of the seismic survey vessel, *R/V Marcus G. Langseth*, to work in waters less than 25 m (82 ft) depth.

The location of Marine Protected Areas within the survey region (e.g. Point Buchon State Marine Reserve and Conservation areas) also places environmental restrictions on activities in this area (State Law (Pub Res Code § 36719(a); 14 CCR §632)). These restrictions are being addressed as part of the Environmental Impact Report (EIR) process.

PG&E will conduct the 2012 LESS into this region, establishing a survey area that would continue north from the 2010 3D LESS area, northwest of Point Buchon, towards Point Estero. This would provide complimentary high resolution, shallow seismic coverage of the area to be imaged by the HESS in Estero Bay (2.2). In addition to imaging shallow geologic structures in this area, these data will be used to identify possible piercing points for fault slip rate determinations (re: Comments 2.3, 2.6, and 2.10)

Comments regarding the determination of slip rate on the Hosgri, Shoreline, and Los Osos faults in the DCPD area are discussed as a group below.

*IPRP February 2012 Comment 2.3 – Hosgri Slip Rate*

*Because slip rate on the Hosgri fault is one of the most important factors influencing seismic hazard at Diablo Canyon, the IPRP will be reviewing the currently available data and providing comments and recommendations to PG&E regarding further studies to constrain slip rate. The IPRP requests future briefings by PG&E on results of on-shore and low energy off-shore seismic surveys and bathymetric surveys that may help to constrain slip rate on the Hosgri fault as additional data becomes available.*

*IPRP February 2012 Comment 2.6 - Shoreline Fault Slip Rate*

*Data to constrain the slip rate on the Shoreline fault can be developed from marine bathymetric surveys and from seismic surveys of the upper few meters of sediments below the sea floor. High energy seismic surveys will not help constrain this important factor. The IPRP requests future briefings by PG&E on the results of low energy seismic surveys that they have conducted to constrain slip rate on the Shoreline fault. The general outline of surveys conducted in December 2011 was described by PG&E at the meeting on February 21. The IPRP requests detailed reports of the results of those surveys.*

*IPRP February 2012 Comments 2.9 – Los Osos Sense of Slip and 2.10 – Los Osos Slip Rate*

*IRPP September 7, 2012, comment: The IPRP believes that a broader goal of the on-shore seismic surveys should be for PG&E to develop a tectonic model of the Irish Hills that includes defining the locations and slip rates on all faults beneath the hills that can be checked against rates of uplift and surface deformation.*

*IPRP September 2012 comment: The broad goal of developing a tectonic model of the Irish Hills would be enhanced by integrating the results of the off-shore high energy seismic survey with the results of the on land survey. This includes imaging the near-shore area on the south and west margins of the Irish Hills as completely as possible.*

PG&E Response to Comments 2.3, 2.6, 2.9, and 2.10

PG&E intends to brief the IPRP on the results, to date, of onshore and offshore seismic surveys at the June 29, 2012 meeting.

Integration of all available data to construct one or more structural/tectonic models that are consistent and allowable with the available data will be performed as part of the Senior Seismic Hazard Analysis Committee being conducted in response to the March 15, 2012, Nuclear Regulatory Commission 10 CFR 50.54(f) letter request. This will partition the slip rates onto the different faults and, as a result, constrain the slip rates and sense of slip on each fault.

IPRP February 2012 Comment 2.5 – Shoreline Fault Segmentation

*The continuity of the Shoreline fault at depth is currently inferred from seismicity. The high energy seismic survey may provide further constraints on the continuity of the Shoreline fault. The geometry and continuity of the Shoreline fault are the primary targets of one set of survey “racetracks” (“Box 1” on attached map). Imaging the detailed geometry and continuity of the Shoreline fault will be especially sensitive to the quality of data acquisition and processing techniques in the shallow water overlying its trace. Surveys of such “transition zones” are more challenging than purely on-shore or deeper-water off-shore surveys. The IPRP is particularly interested in acquiring expert review of the data acquisition geometry and data processing sequence proposed in this area*

PG&E Response to Comment 2.5

PG&E is actively working with the IPRP subgroup, headed by Dr. Bruce Gibson, and has provided source materials for the HESS data acquisition and processing planning to facilitate a 3rd party review.

IPRP February 2012 Comment 2.7 – Southeast End of the Shoreline Fault Zone

*PG&E reports that acquisition of low energy seismic surveys of the southeast end of the Shoreline fault have recently been completed. The general outline of surveys conducted in December 2011 was described by PG&E at the meeting on February 21. The IPRP requests that PG&E provide detailed reports of the results of those surveys. The high energy seismic survey proposal does not appear to be designed to collect additional data about the southeast end of the Shoreline fault and could potentially be extended somewhat in that direction. The data acquisition geometry and processing sequence in*

*the shallow water of this area should receive expert review, as seismic imaging in such "transition zones" is particularly challenging*

#### PG&E Response to Comment 2.7

As currently proposed in the CSLC Draft EIR, the HESS program does not extend into San Luis Bay, which is consistent with the findings in the August 8, 2011, *Response to IPRP Request for Hazard Sensitivity*, that extending the southern end of the Shoreline fault has a negligible effect on the total hazard at DCP. The 2011 LESS study in San Luis Bay does, however, provides constraints on the southern extension of the Shoreline fault in this area. Preliminary results will be discussed at the June 29, 2012 meeting.

#### IPRP Authority and Review Process

*The IPRP expects that:*

- PG&E will provide its study plans prior to initiating the study and provide draft completed study findings to the IPRP for review and comment. These studies are summarized in CPUC Decision 10-08-003 including off-shore, on-shore, and ocean bottom studies, and seismic studies recommended in the AB 1632 Report.*
- The IPRP, coordinated by the California Geological Survey (CGS), will review and provide comments on PG&E's study plans. The goal will be, if possible, to provide comments on the proposed plans within 30 days of receipt.*
- The IPRP, coordinated by the CGS, will review and provide comments on PG&E's draft completed study findings presented to the CPUC. The goal will be to provide comments as promptly as possible.*
- PG&E will review and, if possible, within 30 days incorporate the IPRP's recommendations and comments in PG&E's revised study plans and revised completed study findings and prepare for the IPRP a "Response to Comments" for the IPRP to document scientifically why PG&E accepted or rejected the IPRP's comments.*
- PG&E and the IPRP will participate in quarterly meetings/briefings to review the status of PG&E's seismic studies, all changes in the study plans, and all preliminary study findings.*
- PG&E and the IPRP will prepare a master schedule incorporating the major milestones for the IPRP's review process and PG&E will include these milestones in their monthly progress reports and their schedule to the NRC and the Atomic Safety and Licensing Board.*
- The CPUC and CEC will address any major scientific or technical issues that have not been resolved informally between the IPRP and PG&E. CPUC Decision 10-08-003 states that, "Should a dispute arise it should be resolved informally but if that is not attainable the Commission has authority to halt the associated rate recovery." In addition, the CEC may report on any seismic issues and updates through its IEPR process. However, we anticipate that any*

*major scientific or technical issue that may arise can be addressed and resolved informally.*

#### PG&E Response to Authority and Review Process

Decision 10-08-003 explicitly defines the scope and authority of the IPRP. The Commission found:

*It is reasonable to provide for independent peer review of the study plans and of the findings/results of the seismic studies approved and funded through this decision. Therefore, the Commission will convene its own IPRP to conduct a review and provide written comments on the study plans prior to implementation and to conduct a review and provide written comments on the findings and/or results of the studies.*

*The scope and authority of the IPRP is limited to review and comment on the study plans for the seismic studies approved and funded through this decision prior to implementation of those studies and to review and comment on the findings and/or results of the seismic studies approved and funded through this decision.*

*The Commission ordered:*

*Pacific Gas and Electric Company shall provide the [IPRP] with its seismic study plans prior to implementation of the seismic studies. The [IPRP] shall review and provide Pacific Gas and Electric Company written comments on the study plans within 30 days of receipt.*

*Pacific Gas and Electric Company shall provide the [IPRP] the findings and/or results associated with the seismic studies upon finalizing those findings and/or results. The [IPRP] shall review and provide Pacific Gas and Electric Company written comments on the findings and/or results within 30 days of receipt. The Commission also stated in the decision that PG&E and the IPRP should resolve disputes informally, but if that is not attainable, the Commission has authority to halt the associated rate recovery.*

PG&E will meet the IPRP requests and expectations that are consistent with the explicit language contained in the Commission's findings, orders and statements establishing the IPRP.