

BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric)	
Company for Compliance Review of Utility)	
Owned Generation Operations, Electric Energy)	
Resource Recovery Account Entries, Contract)	Application 14-02-008
Administration, Economic Dispatch of Electric)	(Filed February 28, 2014)
Resources, Utility Retained Generation Fuel)	
Procurement, and Other Activities for the Period)	
January 1 through December 31, 2013.)	
(U 39 E))	
_____)	

**ALLIANCE FOR NUCLEAR RESPONSIBILITY'S
OPENING BRIEF**

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I. INTRODUCTION.

Pursuant to Rule 13.11 of the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission” or “CPUC”) and the briefing schedule established by the Scoping Memo and Ruling of Assigned Commissioner Michel Peter Florio,¹ the Alliance for Nuclear Responsibility (“A4NR”) files its Opening Brief in the 2013 Energy Resource Recovery Account Compliance (“ERRA Compliance”) application filed by the Pacific Gas and Electric Company (“PG&E”). A4NR timely filed its Protest objecting to recovery of certain balances recorded in the Diablo Canyon Seismic Studies Balancing Account (“DCSSBA”) for 2013 costs which fail to comply with D.12-09-008 and, consequently, were not reasonably incurred.² A4NR subsequently served testimony, in support of its Protest, which broadened its objection to recovery of these costs to include PG&E’s failure to comply with D.10-08-003.³

A4NR’s testimony, which incorporated the Protest by reference, was admitted into evidence in its entirety. PG&E elected not to cross-examine either of A4NR’s witnesses. Based on PG&E’s prepared testimony concerning the contested 2013 costs recorded in the DCSSBA,⁴ its Reply to A4NR’s Protest,⁵ its Rebuttal Testimony,⁶ and the testimony of PG&E witness Richard Klimczak at the evidentiary hearing,⁷ PG&E has failed to meet its burden of proof that its conduct of the AB 1632 seismic studies in 2013 was consistent with D.12-09-008 and D.10-08-003. Although PG&E’s failure to meet this burden is sufficient alone to prevent recouping

¹ Scoping Memo and Ruling, June 4, 2014, p. 6.

² A4NR Protest, March 31, 2014.

³ A4NR-1, p. 16.

⁴ PG&E-1, chapter 6.

⁵ PG&E Reply to Protests, April 14, 2014.

⁶ PG&E-2, chapter 5.

⁷ Transcript, pp. 125 – 151.

these DCSSBA costs from ratepayers, A4NR has additionally established by a preponderance of the evidence that PG&E's conduct was non-compliant.

II. NO REFUGE FROM A SCOFFLAW REGULATORY CULTURE.

It should probably come as no surprise that the same attributes which have earned PG&E the distinction of being America's only nuclear licensee facing criminal prosecution⁸ from the U.S. Department of Justice would extend to the company's conduct of the AB 1632 seismic studies. But as the only party supporting PG&E's requested funding augmentation – including its controversial offshore high energy component (“HESS”) -- in the proceeding which produced D.12-09-008,⁹ this realization is an especially bitter pill for A4NR to swallow. The evidentiary record in this proceeding shows an unmistakable pattern of conduct in 2013, documented by PG&E emails and other internal documents, which brazenly ignored the Commission's requirements set forth in D.12-09-008 and D.10-08-003 for ongoing engagement and review by the Commission's Independent Peer Review Panel.

With no ambiguity, the Commission specified clear expectations of PG&E when D.12-09-008 was issued in September, 2012:

*The record developed in this proceeding demonstrates that PG&E has been meeting regularly with the IPRP to review the seismic survey plans and has revised those plans in response to IPRP comments. We expect PG&E **to continue to meet** with the IPRP **to***

⁸ While the 27 safety-related felony counts in the federal grand jury indictment are focused on PG&E's gas division, the obstruction of justice felony count which leads the indictment is conspicuously more general: “On or about September 10, 2010, and continuing through on or about September 30, 2011, in the Northern District of California, the defendant, PACIFIC GAS AND ELECTRIC COMPANY, did **corruptly influence, obstruct, and impede**, and did endeavor to influence, obstruct, and impede **the due and proper administration of the law under which a pending proceeding was being had before a department and agency of the United States ...**” (emphasis added) Case 3:14-cr-00175-THE, Superseding Indictment, July 29, 2014, p. 18.

⁹ A.10-01-014.

present and review changes to the seismic study plans, to provide process updates to the IPRP regarding implementation of the studies, and to receive IPRP comments.¹⁰
(emphasis added)

Instead, in what appears to have been an effort to preclude IPRP review and comment on “changes” or “process updates” or “implementation” of the studies, PG&E in 2013 developed a theory that the IPRP was only entitled to receive “finalized”¹¹ results of the studies after PG&E has issued a “final”¹² report to the U.S. Nuclear Regulatory Commission.¹³ Richard Klimczak, Director of PG&E’s Geosciences Department explained,

*... we realized that we weren’t going to be able to provide a draft report [to the IPRP] we needed to do our own review because this report was going to the NRC, has to have a thorough review for impact on the seismic hazard at Diablo Canyon.*¹⁴

Mr. Klimczak did not explain why PG&E believed that skipping IPRP review of a pre-issuance draft would be consistent with “a thorough review for impact on the seismic hazard at Diablo Canyon.”

III. CIRCUMSCRIBING THE IPRP WAS REVIEWED BY SENIOR MANAGEMENT.

A ten-page March 28, 2013 submittal to PG&E’s Executive Project Committee by Senior Vice President and Chief Nuclear Officer Ed Halpin, “Executive Sponsor”; Jeff Summy, “Business

¹⁰ D.12-09-008, p. 16. On cross-examination, the Director of PG&E’s Geosciences Department, Richard Klimczak, acknowledged that this paragraph is a substantive requirement imposed by the Commission “because I believe that meets the intent of the requirements of the decision in 10-08-003 and 12-09-008.” Transcript, p. 147, lns. 21—23.

¹¹ Richard Klimczak, PG&E, Transcript, p. 139, ln. 16; p. 141, ln. 14.

¹² *Id.*, p. 140, ln. 21; p. 141, ln. 22.; p. 142, ln. 7.

¹³ *Id.*, p. 140, ln. 25.

¹⁴ *Id.*, p. 140, lns. 22 – 27.

Owner”;¹⁵ and Richard Klimczak, “Program Manager”; sought approval of a re-scoped “DCPP AB-1632 Seismic Study” to “evaluate the current acquired data to determine the appropriate actions going forward in regards to high energy offshore seismic studies.”¹⁶ The Halpin/Summy/Klimczak document identifies a particular risk from IPRP review, suggests a seemingly reasonable mitigation strategy, and offers a hardball contingency plan just in case. These are found in a table with headings of “Risk Description”; “Mitigation Strategy and Contingency Plan”; and “Impact on Cost”. The potential risk attributed to “IPRP Review” is described as follows:

*IPRP recommends additional processing of data or interpretations after their review of project results. The project results and conclusions are to be provided to the Independent Peer Review Panel (IPRP) as a condition of authorized CPUC funding for this project. They could recommend additional processing methods be applied or other interpretation techniques be utilized. The IPRP make-up does not have members who are experienced in processing and interpretation, but they could seek an independent review by others.*¹⁷

The “Probability of Occurrence” of this risk is graded “M”; the “Difficulty of Timely Detection” is graded “L”; and the “Impact to Scope, Schedule” is graded “H”.¹⁸

The “Mitigation Strategy and Contingency Plan” identified in the Halpin/Summy/Klimczak submittal for the “IPRP Review” risk is as follows:

Mitigation: *When presenting the results to the IPRP PG&E will stress that advanced processing methods and interpretation techniques recommended by industry and academia experts were used. Make processed data available to IPRP before the technical reports are provided for their review.*

¹⁵ On cross-examination, Mr. Klimczak described Mr. Summy as “the Senior Director at Diablo Canyon, and I report to him.” Richard Klimczak, PG&E, Transcript, p. 131, lns. 19 – 20.

¹⁶ A4NR-6, p.2. An unredacted version of this page is included in A4NR-1C, Attachment F.

¹⁷ *Id.*, p. 4. An unredacted version of this page is included in A4NR-1C, Attachment F.

¹⁸ *Id.*

Contingency: *The IPRP’s charter is to review results. PG&E could challenge any recommendation for additional processing or interpretation to be out of their scope.*¹⁹

The “*Impact on Cost*” identified for this risk is graded “**N/A**”.²⁰

IV. HALPIN AND SUMMY: WHEN DO WE DROP THE BIG ONE?

Three weeks before their joint submittal with Mr. Klimczak to the PG&E Executive Project Committee of the “*Mitigation Strategy and Contingency Plan*”, to deal with the “**M**” probability risk that IPRP review could recommend “*additional processing or interpretation*” and trigger an “**H**” “*Impact to Scope, Schedule*”, Mr. Halpin and Mr. Summy engaged in an email exchange with startling implications for the AB 1632 seismic studies and PG&E’s regulatory commitments to the NRC.²¹

As explained in A4NR’s Protest,²² the 2008 discovery of the Shoreline Fault by U.S. Geological Survey (“USGS”) research geophysicist Dr. Jeanne Hardebeck has loomed large in the seismic reassessment of Diablo Canyon. In late 2012, the NRC staff embraced PG&E’s position that the deterministic seismic ground motions associated with the Shoreline Fault are smaller than those for which the plant was previously reviewed, i.e., the Hosgri Earthquake (“HE”) and Long-Term Seismic Program (“LTSP”) ground motion response spectra.²³ Instrumental to this

¹⁹ *Id.*

²⁰ *Id.*

²¹ A4NR-4.

²² A4NR Protest, pp. 9 – 11.

²³ “*Confirmatory Analysis of Seismic Hazard at the Diablo Canyon Power Plant from the Shoreline Fault Zone*,” Research Information Letter 12-01, NRC Office of Nuclear Research, September 2012, accessible on the NRC’s website at <http://pbadupws.nrc.gov/docs/ML1212/ML121230035.pdf>

result was the NRC staff's conclusion about the possibility of joint rupture of the Shoreline and Hosgri Faults:

The NRC did not consider a scenario in which an earthquake on the Shoreline fault continues to rupture onto the Hosgri fault. Large earthquakes from simultaneous rupture on the two faults (i.e., those greater than M7) would produce large surface displacement, which are not evident in the geologic record. The NRC concludes that the lack of significant horizontal displacement across the Shoreline fault rules out the possibility of joint rupture.²⁴

Conversely, Dr. Hardebeck has emphasized the potential for such a joint rupture, estimating a moment magnitude of 7.2–7.5 for an earthquake rupturing the Shoreline Fault and the section of the Hosgri Fault north of the Hosgri–Shoreline junction.²⁵ Rather than blindly accept the premise that indications on the surface of the sea floor are determinative of what occurs at seismogenic depth, D.12-09-008 envisioned a process that would illuminate both shallow and deep:

*The low-energy survey provides high-resolution imagery at subsurface depths of approximately ½ kilometer (km). The high-energy survey provides imagery at depths of up to 12 km, but provides poor resolution imagery at shallow depths, so the high- and low-energy technologies complement each other. PG&E plans to perform high- and low-energy 2-D and 3-D surveys to illuminate shallow and deep structures and resolve uncertainties related to the Shoreline, Los Osos, and Hosgri/San Simeon fault zones. **Understanding the geometry of these faults at seismogenic depths**, coupled with slip rate information that PG&E hopes to obtain from the low-energy surveys, **will improve PG&E's ability to define the seismic hazard in the region.**²⁶ (emphasis added and footnotes omitted)*

²⁴ *Id.*, p. 35.

²⁵ "Geometry and Earthquake Potential of the Shoreline Fault, Central California," Jeanne L. Hardebeck, Bulletin of the Seismological Society of America, Vol. 103, No. 1, February 2013, pp. 447 – 462.

²⁶ D.12-09-008, p. 9.

And this prospect was not lost on the NRC staff, either. Simultaneous with the public release of RIL 12-01, its Shoreline Fault Research Information Letter, the NRC staff sent PG&E a letter significantly hedging:

*The NRC staff understands that the seismic evaluations described in the March 12, 2012, request for information are currently in progress at DCP, and PG&E plans to acquire new offshore and onshore two- and three-dimensional seismic reflection data to identify and characterize faults in the vicinity of DCP. If **during the collection of the data**, new faults are discovered or **information is uncovered that would suggest the Shoreline fault is more capable than currently believed**, the staff expects that the licensee will provide the NRC with an interim evaluation that describes actions taken or planned to address the higher seismic hazard relative to the design basis, as appropriate, **prior to completion of the evaluations requested in the NRC's March 12, 2012 request for information**. The staff will use this information to independently assess whether the new fault or new information related to the Shoreline fault challenges or changes the staff's current position that the motions associated with the Shoreline fault are at or below those levels of the HE and LTSP ground motions. (emphasis added)²⁷*

The March 5, 2013 Halpin-Summy exchange comes as Mr. Halpin is apparently reviewing Shoreline Fault talking points prepared by PG&E "media communicator"²⁸ Blair Jones, in response to inquiries from the SLO Tribune and the Santa Barbara Independent about a

²⁷ Letter from Joseph M. Sebrosky, NRC Senior Project Manager for Plant Licensing Branch IV, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation, to Edward D. Halpin, PG&E Senior Vice President and Chief Nuclear Officer, October 12, 2012, p. 4, accessible on the NRC web site at <http://pbadupws.nrc.gov/docs/ML1207/ML120730106.pdf>

PG&E's quarterly financial disclosures, filed less than three weeks later, materially misstated the timing of any potential response to this NRC staff directive: "On October 12, 2012, the NRC notified the Utility that the NRC agreed with the Utility's seismic analysis. The NRC also noted that the Utility was conducting offshore and onshore two- and three-dimensional seismic studies and stated that if, during the collection of the data, new faults are discovered or information is uncovered that would suggest the Shoreline fault is more capable than currently believed, the staff expects that the Utility will provide the NRC with an interim evaluation that describes actions taken or planned to address the higher seismic hazard relative to the design basis, as appropriate, **as part of the evaluations requested in the NRC staff's March 12, 2012 request for information**." (emphasis added) PG&E Form 10-Q, October 29, 2012, p. 59, accessible on PG&E's web site at <http://pge.q4cdn.com/5d3b3faf-7552-45bc-a44c-b651baac4835.pdf?noexit=true>

²⁸ On cross examination, Mr. Klimczak identified Mr. Jones as a "media communicator for PG&E." Richard Klimczak, PG&E, Transcript, p. 131, Ins. 27 – 28.

scientific article published by Dr. Hardebeck which had been referenced by Congresswoman Lois Capps in questioning NRC Chair Allison Macfarlane. The exchange starts with Mr. Halpin writing to Mr. Jones and Mr. Summy:

Excellent points. I like them and I would go with it.

*Jeff, **at what point in our discussion do we tell people we are assuming the faults are all connected?***

*Blair- **even though we are not ready to discuss results, the facts are** that the SSHAC process will assume that the existing faults surrounding the plant within a certain distance of each other (I think 4 K) are connected. One of my talking points perhaps would be, ‘thank you very much for that insight. Our analysis is assuming the faults are connected’.*

At some point we need to start priming the pump in regard to what we will come out with in the middle of the year.....thoughts?

*Ed*²⁹ (emphases added)

Mr. Summy’s reply came several hours later:

Ed,

*The linking of faults will come out via SSHAC process **with our models showing them linked likely in the Spring of 2014. So we are not quite ready to release that info.** I don t [sic] think we have to conclude they are linked to conclude we don t [sic] need 3D HESS data and to move on.*

Thanks

Jeff S

To grasp the full context of Mr. Halpin’s and Mr. Summy’s disingenuousness, it is important to recognize that the Blair Jones talking points which initiated the Halpin-Summy exchange (and elicited Mr. Halpin’s praise: “*Excellent points. I like them and I would go with*

²⁹ A4NR-4, pp. 1 – 2.

it.”³⁰) referenced the utility’s earlier Shoreline Report³¹ for the conclusion that “*the potential for linkage was evaluated and the data indicated that, for geometry of the Hosgri and Shoreline faults, **it is unlikely that they are linked or would rupture together.***”³² (emphasis added)

V. BLOWING OFF THE NRC SHOULDN’T BE TAKEN LIGHTLY.

The ease with which PG&E liberated its AB 1632 studies from ongoing IPRP scrutiny stems from the same contemptuous attitude toward regulatory directives which allowed it to sit on its knowledge of the greater capability of the Shoreline Fault for 18 months after the Halpin-Summy emails discussed above. Not only had the NRC staff clearly communicated that it “*expects*” (the same verb used by D.12-09-008³³) PG&E to provide an interim evaluation describing “*actions taken or planned to address the higher seismic hazard relative to the design basis ...*”³⁴ PG&E had responded with a formal “*regulatory commitment*” as defined by NEI 99-04,³⁵ the operative terms of which repeat the precise wording of the NRC expectation.³⁶

Regarding the appropriate “*design basis*” against which to compare any “*greater capability of*

³⁰ *Id.*, p. 1.

³¹ PG&E Shoreline Fault Zone Report, January 2011, accessible on PG&E’s web site at <http://www.pge.com/en/myhome/edusafety/systemworks/dcpp/shorelinereport/index.page>

³² A4NR-10, p. 2.

³³ “*We expect PG&E **to continue to meet** with the IPRP **to present and review changes** to the seismic study plans, **to provide process updates** to the IPRP **regarding implementation** of the studies, and **to receive IPRP comments.***” (emphasis added) D.12-09-008, p. 16.

³⁴ Letter from Joseph M. Sebrosky, NRC Senior Project Manager for Plant Licensing Branch IV, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation, to Edward D. Halpin, PG&E Senior Vice President and Chief Nuclear Officer, October 12, 2012, p. 4.

³⁵ NEI 99-04 defines “*regulatory commitment*” as “*an explicit statement to take a specific action agreed to, or volunteered by, a licensee **and** submitted in writing on the docket to the NRC ... A Regulatory Commitment is an intentional undertaking by a licensee to (1) restore compliance with regulatory requirements, or (2) complete a specific action to address an NRC issue or concern (e.g., generic letter, bulletin, order, etc.).*” (emphasis in original) NEI 99-04, p. 6, accessible at <http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2000/secy2000-0045/attachment.pdf>

³⁶ PG&E Letter DCL-12-108, NRC Docket No. 50-275, OL-DPR-80 and Docket No. 50-323, OL-DPR-82, Barry S. Allen, PG&E Site Vice President, October 25, 2012, Enclosure, p. 1., Commitment 4, accessible at <http://pbadupws.nrc.gov/docs/ML1230/ML12300A105.pdf>

the Shoreline Fault”, PG&E committed to use the Double Design Earthquake (“DDE”)³⁷ notwithstanding the controversy which has raged ever since PG&E unsuccessfully sought to remove the DDE from its licensed design basis in 2011³⁸ seven months after the Fukushima catastrophe.

Notably, the same NRC letter which elicited these “*regulatory commitments*” from PG&E was forthright about the Safe Shutdown Earthquake (“SSE”) consequences of applying the DDE to even a Shoreline Fault considered incapable of jointly rupturing with the Hosgri:

*The NRC recognizes that using the DDE as the basis of comparison will most likely result in the Shoreline fault and the Hosgri earthquake being reported as having greater ground motion than the SSE.*³⁹

So, high-ranking Diablo Canyon executives Halpin and Summy exchange emails which demonstrate their unmistakable awareness of the “*greater capability of the Shoreline Fault*” 18 months prior to transmitting PG&E’s so-called “*final*” report on the AB 1632 seismic studies to

³⁷ *Id.*, Commitment 3.

³⁸ The sincerity of PG&E’s erratic embrace of the DDE is open to question. PG&E seismologist Dr. Norman Abrahamson, the chief technical integrator of its SSHAC program, responded to a June 10, 2013 request from media communicator Blair Jones for help with a reporter’s questions: “*The DDE is based on outdated seismic hazard information developed in the 1960s that does not represent the tectonic model for the DCPD region.*” A4NR-17, p. 2. On cross-examination, however, Geosciences Department Director Klimczak, recanted:

Q The sentence that reads, ‘The DDE is based on outdated seismic hazard information developed in the 1960s that does not represent the tectonic model for the DCPD region,’ does that represent PG&E’s position?

A As far – no. Because as far as the licensing basis for Diablo Canyon, we have to design for the DDE earthquake, and that’s unchanged.

Q Didn’t ask you about the licensing requirement. I asked you if PG&E’s position is the DDE is based on outdated seismic hazard information developed in the 1960s that does not represent the tectonic model for the DCPD region?

A Again, that’s not our position because we’re bound by the licensing basis to design to the double design earthquake.

Richard Klimczak, PG&E, Transcript, p. 135.

³⁹ Letter from Joseph M. Sebrosky, NRC Senior Project Manager for Plant Licensing Branch IV, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation, to Edward D. Halpin, PG&E Senior Vice President and Chief Nuclear Officer, October 12, 2012, p. 4.

the NRC.⁴⁰ In the intervening year-and-a-half there is no review of this information by the IPRP, and no submittal of any kind to the NRC, let alone the *“interim evaluation that describes actions taken or planned to address the higher seismic hazard relative to the design basis”* expected by the NRC and required by PG&E’s *“regulatory commitment.”*

Whether PG&E violated its *“regulatory commitment”* to the NRC is not an issue for the CPUC to decide in this proceeding. Whether PG&E’s September 10, 2014 *“final”* AB 1632 seismic studies report is responsive to the NRC expectation and PG&E’s *“regulatory commitment”* is similarly not an issue for this Commission to decide in this proceeding. What is in front of the Commission is whether the information-suppression attitudes manifested in the 2013 email chain contained in A4NR-4 are consistent with the reasonable conduct of the AB 1632 seismic studies. And whether PG&E’s apparent 2013 premise, that a *“greater capability”* combination of linked faults will defer jointly rupturing long enough to conform to PG&E’s self-determined public relations timetable, was reasonable and consistent with D.12-09-008.

VI. PG&E USURPED THE IPRP’S ROLE IN DECIDING THE NEED FOR HESS.

A. COASTAL COMMISSION IS AT THE NUB OF RELICENSING.

In the wake of the California Coastal Commission’s November 14, 2012 unanimous vote to deny PG&E’s permit application for HESS, one of the most significant scientific questions for the IPRP is whether the potential knowledge to be gained from offshore HESS is necessary to

⁴⁰ PG&E Letter DCL-14-081, NRC Docket No. 50-275, OL-DPR-80 and Docket No. 50-323, OL-DPR-82, Edward D. Halpin, Senior Vice President Nuclear Generation and Chief Nuclear Officer, September 10, 2014, accessible at <http://pbadupws.nrc.gov/docs/ML1425/ML14253A491.pdf> The underlying report is accessible at <http://www.pge.com/en/safety/systemworks/dcpp/seismicsafety/report.page>

satisfactorily complete the AB 1632 studies. As D.12-09-008 explained, the expected value of the HESS data relates primarily to fault geometry at seismogenic depths:

The low-energy survey provides high-resolution imagery at subsurface depths of approximately ½ kilometer (km). The high-energy survey provides imagery at depths of up to 12 km, but provides poor resolution imagery at shallow depths, so the high- and low-energy technologies complement each other. PG&E plans to perform high- and low-energy 2-D and 3-D surveys to illuminate shallow and deep structures and resolve uncertainties related to the Shoreline, Los Osos, and Hosgri/San Simeon fault zones. Understanding the geometry of these faults at seismogenic depths, coupled with slip rate information that PG&E hopes to obtain from the low-energy surveys, will improve PG&E's ability to define the seismic hazard in the region. (footnotes omitted)⁴¹

As described in A4NR's Protest,⁴² rather than address the concerns raised by the Coastal Commission staff report about PG&E's inadequate evaluation of data it had already collected (which might reduce the adverse environmental impacts attributed to offshore HESS),⁴³ PG&E

⁴¹ D.12-09-008, p. 9.

⁴² A4NR Protest, pp. 2 – 3.

⁴³ The Coastal Commission staff, in recommending denial, had criticized PG&E's insistence that the high energy surveys commence before year-end 2012:

"In assessing these alternatives, staff determined that there was insufficient information available to the Commission at this time to conclude PG&E's proposed project is the least damaging feasible alternative, due largely to the need to complete ongoing data acquisition and analysis that may allow for a reduced survey or no survey and other deficiencies in available information. Regarding the use of alternative equipment, staff determined that PG&E has not provided sufficient information to show that additional geophones are infeasible or less environmentally damaging. Although PG&E stated that its evaluation showed additional geophones would not reduce the number or length of survey transects, PG&E did not provide that evaluation to staff. Regarding the additional analysis of previously-obtained data, while PG&E has conducted some re-assessment of those data, most of that re-assessment was done at least a decade ago and appears to have covered only part of the available data. Staff therefore believes additional analysis of the full set of available data using updated techniques may result in the opportunity for a smaller or shorter proposed survey.

"Regarding the evaluation of the more recently-acquired data, staff notes that these data were collected as part of a coordinated seismic characterization effort that includes the currently proposed survey. During the past few months, PG&E has already modified its proposed survey in response to evaluating some of this recently-acquired data, and staff believes the currently proposed survey could be further reduced based on completing the full analysis of the recent data. Regarding the use of alternative survey techniques, the proposed project is subject to an investigation funded by the CPUC to independently evaluate the feasibility of alternative streamer and vessel

instead chose to blame the Coastal Commission. The Coastal Commission “*does not appear likely to support high energy seismic research,*” PG&E reported to the NRC’s Atomic Safety and Licensing Board (“ASLB”) convened for the suspended Diablo Canyon relicensing proceeding.⁴⁴

The Coastal Commission plays a pivotal role in the Diablo Canyon relicensing because of its responsibility to determine whether a relicensing would be consistent with the federal Coastal Zone Management Act.⁴⁵ In describing PG&E’s request for delay of the relicensing proceeding in the immediate aftermath of the Fukushima catastrophe, the ASLB had observed,

PG&E noted that NRC’s review includes consideration of whether the license would be consistent with the Coastal Zone Management Act (CZMA) and stated that ‘PG&E has decided it is most prudent to have completed certain seismic studies at DCNPP prior to issuance of the coastal consistency certification.’⁴⁶

The sufficiency of the AB 1632 studies has a self-evident bearing on this CZMA consistency determination by the Coastal Commission.

B. PG&E’S AMBIGUOUS CZMA SCHEDULE.

configurations for conducting the survey. This independent review, which has not yet been completed, may lead to further reductions of the proposed survey extent or duration. However, without the results of this review, staff believes the Commission does not have sufficient information to determine whether the currently proposed survey is the least environmentally damaging alternative.”

Addendum to Staff Report for CDP Application E-12-005 and Consistency Certification CC-027-12, November 13, 2012, p. 12, accessible on the Coastal Commission’s web site at <http://documents.coastal.ca.gov/reports/2012/11/W13b-11-2012.pdf> A more detailed discussion of these Coastal Commission staff objections can be found at pp. 71 – 76.

⁴⁴ PG&E December 2012 Status Report to ASLB on Seismic Studies, December 11, 2012, p. 1, accessible on PG&E’s web site at

<http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/StatusReportDecember2012.pdf>

⁴⁵ 16 USC §§ 1451-1464.

⁴⁶ ASLB Notice of 52-Month Delay and Order Requiring Status Reports, ASLB Docket Nos. 50-275-LR and 50-323-LR, June 7, 2011, p. 1, accessible at <http://pbadupws.nrc.gov/docs/ML1115/ML111580337.pdf>

A June 23, 2014 ruling by the ASLB⁴⁷ added another 11 months to the prior 52-month delay in the relicensing proceeding, and focused its attention (including the “*emphasis added*” notations in the original) on the ambiguity in an earlier letter from Mr. Halpin regarding PG&E’s plans for the CZMA consistency certification:

*The events causing this delay are as follows. On May 2, 2014, the NRC Staff sent a letter to PG&E stating that NRC would need to request additional information (RAI Letter). The RAI Letter stated that, in light of NRC’s 2013 changes to its environmental regulations and PG&E’s imminent (July 2014) seismic report, the ‘staff will need additional information related to both the safety and environmental reviews’ and ‘PG&E will need to update the information contained in the environmental report [ER]’ Id. at 1. The RAI Letter merely asked PG&E to ‘**provide a schedule as to when** PG&E will be able to supply the above information.’ Id. at 2 (*emphasis added*).*

*On June 4, 2014, PG&E responded, stating that it was engaged in an ‘internal decision making process’ regarding PG&E’s license renewal application and that it would ‘address’ the RAI Letter ‘to the extent possible’ in PG&E’s ‘December 2014 license renewal annual update.’ PG&E stated that, after it submits its December 2014 update, ‘PG&E will **discuss** with the NRC staff **a schedule** for providing any additional information. . . .’ Id. at 2 (*emphasis added*).⁴⁸ (footnotes omitted)*

The May 2, 2014 NRC staff inquiry which had triggered the Halpin response pointedly noted that PG&E’s original post-Fukushima request for a delay in the Diablo Canyon relicensing process had centered on the CZMA consistency determination. As the NRC staff observed, separate letters from PG&E and its counsel

... requested the NRC defer issuance of the renewed operating licenses until updated seismic studies are completed and the coastal consistency certification has been provided by the State of California. The NRC cannot issue renewed operating licenses without consideration of the required coastal consistency certification. PG&E is

⁴⁷ ASLB Notice of Additional Eleven-Month Delay in Adjudicatory Proceeding, ASLB Docket Nos. 50-275-LR and 50-323-LR, June 23, 2014, accessible at <http://pbadupws.nrc.gov/docs/ML1417/ML14174A855.pdf>

⁴⁸ *Id.*, pp. 2 – 3.

scheduled to submit the final seismic report in June 2014 and has not indicated when it will submit the required coastal consistency information.⁴⁹

C. CCC: “UPDATED SEISMIC STUDIES ARE NECESSARY.”

One year prior to the Fukushima catastrophe, in early 2010, the California Coastal Commission had clarified to the NRC the information it required to evaluate PG&E’s application for a CZMA consistency certification.⁵⁰

*We are writing to clarify an information requirement for the above-referenced federal consistency certification. We understand the NRC is determining whether PG&E must conduct several seismic studies as part of PG&E’s requested license renewal. Please note that **the Coastal Commission staff has already informed PG&E that results from updated seismic studies are necessary** to complete its federal consistency review for the proposed license renewal.*

*... PG&E submitted a consistency certification to the Commission in December 2009; however, as detailed in the attached December 29, 2009 letter from Commission staff to PG&E, **that certification is incomplete, in part due to the need for results from updated seismic studies**. As stated in that letter, PG&E must provide the following information to allow the Commission to determine whether the project conforms to the CCMP:*

*‘ ... all data and interpretive summaries, such as those conducted by PG&E and USGS under their CRADA agreement and the Long Term Seismic Program of PG&E, characterizing the seismicity and tectonic structure in the vicinity of the plant... ’, ‘**characterization of the Hosgri and Shoreline Faults, including fault geometry, seismicity, and sense of movement**; estimates of maximum credible earthquake (from a deterministic perspective) on these and all other faults; **the ground shaking expected at the site** from such earthquakes; and **the deep crustal structure beneath the plant** (in particular an evaluation of the ‘Namson model’ of thrust ramps beneath the plant) ... ’, and ‘**as recommended by the***

⁴⁹ Letter from John Lubinski, NRC Director, Division of License Renewal, Office of Nuclear Reactor Regulation, to Edward D. Halpin, PG&E Senior Vice President and Chief Nuclear Officer, May 2, 2014, p. 1.

⁵⁰ Letter from Alison J. Dettmer, Deputy Director, Energy, Ocean Resources and Federal Consistency Division, California Coastal Commission, to Kimberly Green, NRC Project Manager – Diablo Canyon License Renewal, March 12, 2010, accessible at <http://a4nr.org/wp-content/uploads/2010/09/12-CCC-NRC-LR-not-complete.pdf>

Technical Advisory Team established pursuant to AB 1632, ... the three-dimensional seismic data ... collected and interpreted as part of this evaluation.

*The Coastal Commission will also need this information to review PG&E's upcoming application for a coastal development permit, which is also required of the project. We anticipate conducting the necessary federal consistency review concurrent with review of the permit application.*⁵¹ (emphases added, footnotes omitted)

Notably, ever since PG&E's February 12, 2013 monthly status report to the ASLB replaced a "September 2013" submittal date to the Coastal Commission with "TBD",⁵² the utility has declined to identify its "Updated Best Estimate Schedule" for the CZMA certification with any greater specificity than "TBD".⁵³

D. PG&E's UNILATERAL DECISION ON HESS.

Stung by the fierce controversy which its premature, ill-considered HESS application had triggered, over the course of 2013 PG&E appears to have become convinced that successful completion of the AB 1632 studies does not require offshore "imagery at depths of up to 12 km ... to illuminate ... deep structures and resolve uncertainties related to ... the geometry of these faults at seismogenic depths"⁵⁴ as contemplated by D.12-09-008. In fits and starts, the utility ultimately persuaded itself that this was a decision it could make on its own. Evidentiary indicators along this tortuous path:

⁵¹ *Id.*, pp. 1 – 2.

⁵² PG&E February 2013 Status Report to ASLB on Seismic Studies, February 12, 2013, unnumbered p. 3, accessible on PG&E's web site at

<http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/StatusReportFebruary2013.pdf>

⁵³ This ambiguity was unchanged in the most recent report, issued one day before PG&E submitted its so-called "final" report on the AB 1632 seismic studies to the NRC. PG&E September 2014 Status Report to ASLB on Seismic Studies, September 9, 2014, unnumbered p. 3, accessible at

<http://pbadupws.nrc.gov/docs/ML1425/ML14252A910.pdf>

⁵⁴ D.12-09-008, p. 9.

- PG&E’s December 11, 2012 report to the ASLB that the Coastal Commission “*does not appear likely to support high energy seismic research.*”⁵⁵ PG&E identifies a new schedule milestone labeled “*Evaluate Adequacy of Seismic Data Acquired*” with estimated completion in “*June, 2013.*”⁵⁶
- In describing a January 13, 2013 editorial in the San Luis Obispo *Tribune* which criticized the California Coastal Commission’s denial of the high energy offshore permit, PG&E media spokesperson Blair Jones reports to an in-house PG&E group by email,

*In advance of the editorial Jearl Strickland, Tom Jones and Tom Cuddy did a good job in addressing questions from the board on the subject of the high-energy study, and set up the fact that in the absence of such data, the models being developed under the NRC’s Fukushima response could account for the potential of the faults being connected and the possibility of an earthquake on one fault resulting in the continued rupture of a nearby fault. This point did not make it into the editorial and is an item I will be following up on with the board.*⁵⁷

- PG&E State Agency Relations Manager Valerie Winn’s February 12, 2013 email reports to her PG&E colleagues of a conversation with CPUC staff Eric Greene about the upcoming February 25, 2013 IPRP meeting:

Eric also wants to hear from Mark Johnson re: any insights on denial of permits by the Coastal Commission. Eric indicated that Ed Randolph is prepared to go to the Governor’s office but he didn’t feel he had a strong enough case from the IPRP/PG&E to move the CCC. [REMAINDER OF PARAGRAPH REDACTED BY PG&E]

Eric thinks we could still do Box 4 in the November/December 2013 timeframe, and could do other 3 zones the following year.

⁵⁵ A4NR Protest, p. 2, citing PG&E December 2012 Status Report to ASLB on Seismic Studies, December 11, 2012, p. 1.

⁵⁶ *Id.*, p. 3.

⁵⁷ A4NR-1, p. 2, citing Attachment A.

*I'll set up a call this week/next to discuss how we want to approach this. We need to be prepared to finesse this issue at the meeting, **given it is not clear to me our outlook.**⁵⁸ (emphasis added)*

- PG&E's February 13, 2013 report to the ASLB removes entirely the "Evaluate Adequacy of Seismic Data Acquired" milestone previously identified, as well as the previously scheduled April 2013 "Preliminary Report" for the offshore and onshore assessments.⁵⁹
- PG&E State Agency Relations Manager Valerie Winn's February 21, 2013 email reports to her PG&E colleagues about the upcoming February 25, 2013 IPRP meeting:

*On the IPRP question of going back to the CCC for permits, our question is really what insights do the IPRP have that would lead us to believe the Coastal Commission would react differently if we went back. **Any other questions on 3D HESS our response is that 'we have not made a decision as a company on whether we are going to pursue 3D HE work. We will let you know when we make that decision.'** We are pleased with the results from the surveys currently underway. Want to see more processing of data we have been able to collect, then go through what we have found and decide if we have enough information.⁶⁰ (emphasis added)*

- PG&E provides a briefing packet to the February 25, 2013 IPRP meeting with information directly contrary to that submitted in the February 12, 2013 report to the ASLB, omitting any mention to the IPRP of a pending data adequacy evaluation or the deletion of the preliminary reports or the curtailment of future IPRP review.⁶¹
- A day after the IPRP meeting, PG&E Senior Seismologist/Geophysicist Stuart Nishenko emails his PG&E colleagues:

*The meeting went well yesterday, no major surprises. **The IPRP avoided making any demands we do high energy,** instead they characterized it as the 'last tool' in the box to be used when we have exhausted all other options. **So I think we'll be able to avoid the***

⁵⁸ *Id.*, pp. 2 – 3, citing Attachment B.

⁵⁹ A4NR Protest, citing PG&E February 2013 Status Report to ASLB on Seismic Studies, February 12, 2013.

⁶⁰ A4NR-1, pp. 2 – 3, citing Attachment C.

⁶¹ A4NR Protest, p. 4, citing "Central Coastal California Seismic Imaging Project Activities and Schedule 2013," February, 25, 2013, accessible on the CPUC's web site at http://www.cpuc.ca.gov/NR/rdonlyres/F4778D4D-3F52-40C5-94B4-45A42523B3F4/0/2013IPRP_PGEDCPPseismicstudies.pdf

***issue** as we'll consider linking the Hosgri and Shoreline as a 'worst case scenario' in the SSHAC.⁶² (emphasis added)*

- PG&E State Agency Relations Manager Valerie Winn's February 26, 2013 email to her PG&E colleagues summarizes the IPRP discussion of high energy offshore surveys in greater detail:

- Chris Wills noted that since the last IPRP meeting, the Coastal Commission had denied PG&E's application for 3D high energy seismic surveys (HESS). CCC indicated that PG&E had not shown that HESS was worth the impact and that 3D HESS was completely out of the question unless we have an extremely clear purpose and know how it impact [sic] the seismic hazard. **He wanted to verify that others were on the same page and indicated that we should table any discussion on 3D HESS until it was the last tool in the tool kit.**

- Eric Greene noted that he had hoped we'd get some guidance from the CCC on the topic, and he would like to discuss off-line. **Still an issue that needs to be pursued among IPRP.** Eric noted that HESS could only be done in winter months. If permits granted, wouldn't be able to do until Nov/Dec 2013.

- Bruce Gibson agreed with Chris that last thing in the tool box. He did not hear what was intended to be resolved that other studies could not address.

- Chris recognized the logistical challenges noted by Eric and that it would take a while to arrange any future surveys. However **that discussion about whether the surveys would be done would be well into the future, if they were ever needed.**

- **Ed Randolph asked what IPRP views were on value of the marginal data they would get from the 3D HESS versus harm to marine mammals.** Are there other approaches?

- Chris indicated that it would have been helpful to inform the range of parameters for the seismic hazard analysis and that the Hosgri slip rate was an important parameter. **If the low energy surveys were not conclusive, HESS would have some value, but we don't know if you would get to the point where information from the HESS would put you close to the design basis of the plant. Will be better able to evaluate once we see other survey results.**

- Chris noted other studies need to be done on ground motion calculations.

- Bruce asked about conclusions of Hosgri dying out – energy has to go somewhere – where is it going?

⁶² A4NR-1, pp. 3 – 4, citing Attachment D.

- Ed Randolph reiterated that CPUC will be seeking feedback of IPRP – no decision one way or another on what CPUC will want PG&E to do going forward.⁶³ (emphases added)

- Ms. Winn’s February 26, 2013 email account of the IPRP meeting also includes an interaction with a reporter : “JA Savage (CA Currents) asked about whether we would not be pursuing ‘sonic blast’ – Chris Wills indicated that it was pretty clear CCC doesn’t want to hear back from us unless it is the last tool in the kit.”— and Winn’s report concludes with **“Next Steps: - IPRP likely to set up quarterly public meetings. No word on the dates though.”**⁶⁴ (emphasis added)
- The March 28, 2013 Halpin/Summy/Klimczak submittal to the PG&E Executive Project Committee states, **“Pending a review of the already acquired data from the CPUC appointed Independent Peer Review Panel (IPRP) a decision regarding the necessity of high energy studies has not been made.”**⁶⁵ (emphasis added)
- On April 1, 2013 PG&E Senior Seismologist/Geophysicist Stuart Nishenko emails his PG&E colleagues after a private session with the IPRP:
There is still a need to resolve the HESS questions once and for all – though it looks like any final agreement will have to wait until the Technical Reports from both the onshore and offshore studies are released and evaluated.⁶⁶ (emphasis added)
- On May 2, 2013, Jeff Summy, in reviewing a proposed PG&E response to a question posed by Congresswoman Lois Capps, sends an email to Richard Klimczak seeking clarification: “Rich, Looks good and I feel like it’s [sic] a good 1 pager to answer question #1. Most of it I understand. I do have questions ... With respect to AB 1632. I

⁶³ *Id.*, p. 4, citing Attachment E.

⁶⁴ *Id.*

⁶⁵ A4NR-1C, citing Attachment F. A4NR-6, p.3 is a redacted version.

⁶⁶ A4NR-1, citing Attachment G.

know we did LESS⁶⁷ and I believe that is all complete. HESSE we won't [sic] do and I understand why. "⁶⁸

- An undated draft of PG&E's May 19, 2013 response to the California Energy Commission ("CEC") nuclear data requests for the 2013 Independent Energy Policy Report contains the following suggested editorial strikeouts regarding the IPRP's role in the decision regarding the need for offshore HESS:

*In 2012, PG&E applied for the necessary state and federal permits to conduct high-energy 3D seismic studies offshore DCP. PG&E received a Geophysical Survey Permit from the CA State Lands Commission in August 2012, but was denied a Coastal Development Permit by the CA Coastal Commission in November, 2012. As a result, no high-energy marine seismic surveys have been conducted. Final decision whether PG&E needs to, in fact, conduct high-energy 3D marine seismic surveys is pending review of existing data. and consultation with the IPRP.*⁶⁹ (emphasis added)

- Similarly, an undated draft of the seismic portion of PG&E's 2013 application in this proceeding included the following: "Decision as to whether PG&E will attempt to conduct a 3D HESS offshore DCP will be discussed with the IPRP following their review of the CCSIP Final Report in June 2014." with the accompanying comment from a reviewer identified as "KR1": "I would leave this out. We are reporting 2013 costs for recovery in this ERRA document."⁷⁰ (emphasis added)

By 2014, any pretense by PG&E that the IPRP would be consulted further on the HESS decision had been completely abandoned. An exchange between PG&E legal counsel Jennifer Post and the ASLB at the March 19, 2014 prehearing teleconference for the suspended relicensing proceeding makes that conclusion clear, albeit based on "preliminary analysis":

⁶⁷ LESS is an acronym for Low Energy Seismic Survey.

⁶⁸ A4NR-15, p. 1.

⁶⁹ A4NR-1, citing Attachment H.

⁷⁰ A4NR-1, citing Attachment I.

JUDGE ABRAMSON: This is Judge Abramson. Did either of these California agencies that are saying they'd like you guys to do this study have anything to say about the Coastal Commission saying now we can't do it?

MS. POST: Well, the Coastal Commission rejected the permit for just one piece of the seismic study. They actually — we actually were able to undertake a bunch of studies that we did get permitted. The Coastal Commission declined our permit to do offshore three-dimensional seismic studies, but the recommendation from the California Energy Commission was that we perform studies using advanced technologies, including three-dimensional seismic mapping. And we actually did do onshore three dimensional seismic studies, and we also did two dimensional seismic studies, **so they have not weighed in on the Coastal Commission's denial of our permit for the offshore 3D studies. They also have not yet weighed in on whether or not they might suggest additional studies be done.**

JUDGE ABRAMSON: So, you were only partially foiled by one California agency.

MS. POST: Yes, only partially foiled, but not really. **Actually, we weren't ultimately foiled because the data we were able to collect is sufficient, at least under our preliminary analysis** it looks like we were — the data we were able to collect using the studies that we were able to get permitted is sufficient.

JUDGE KARLIN: I suspect that will be an issue that might be, you know — there might be an issue on that, but certainly we understand that that's the position of PG&E.⁷¹
(emphases added)

Consequently, it can come as no surprise that PG&E's so-called "final" report on the AB 1632 seismic studies, submitted to the NRC the week after the evidentiary hearing in this proceeding -- and with the IPRP's quarterly public sessions remaining unconvened since July 11, 2013 – prominently proclaims, "PG&E has concluded that the offshore 3D HESS study is not necessary because other geophysical and seismicity data and analytical assumptions were used

⁷¹ A4NR-1, p. 8, citing Attachment K. Six weeks later, PG&E insisted the HESS question remained undecided:

A4NR's first discovery question: 'Has PG&E decided that it will not perform high-energy seismic surveys offshore Diablo Canyon?' PG&E's May 5, 2014 response: 'No. PG&E is still finalizing the results of the seismic studies that were performed **and has not made a determination whether additional advanced seismic studies are necessary.**' (emphasis added) A4NR-1, pp. 7 – 8, citing Attachment J.

to address the objectives of the offshore 3D HESS studies.⁷² Among the questions PG&E's peremptory conclusion does not address: Where that leaves

- the Coastal Commission's earlier CZMA-related demand for *"the three dimensional seismic data" "as recommended by the Technical Advisory Team established pursuant to AB 1632";*⁷³
- or CPUC President Peevey's February 19, 2014 enumeration of prerequisites to ratepayer funding of a relicensing application, the very first of which was reporting the findings and conclusions of the *"enhanced seismic studies, including the 2-D and 3-D surveys ... This Commission would not be able to adequately and appropriately exercise its authority ... without these issues being fully developed.";*⁷⁴
- or CPUC Energy Division Director Edward Randolph's admonition *"that CPUC will be seeking feedback of IPRP – no decision one way or another on what CPUC will want PG&E to do going forward."*⁷⁵

A4NR is under no illusion that the offshore HESS topic has escaped a certain tar baby quality in the wake of PG&E's blundering,⁷⁶ premature, and non-credible pursuit of Coastal Commission permits in 2012. PG&E left the indelible impression that, far from being an objective scientific reassessment of the Diablo Canyon's tectonic setting, the entire effort was

⁷² PG&E's Central Coastal California Seismic Imaging Project Report, Executive Summary, p. 1, accessible on PG&E's website at http://www.pge.com/includes/docs/pdfs/safety/systemworks/dcpp/report/Executive_Summary.pdf

⁷³ Letter from Alison J. Dettmer, Deputy Director, Energy, Ocean Resources and Federal Consistency Division, California Coastal Commission, to Kimberly Green, NRC Project Manager – Diablo Canyon License Renewal, March 12, 2010, p. 1.

⁷⁴ Letter from CPUC President Michael Peevey to PG&E President Christopher Johns, February 19, 2014, pp. 1 -- 2.

⁷⁵ A4NR-1, p. 4, citing Attachment E.

⁷⁶ As the Coastal Commission staff observed, *"We note that PG&E has modified the survey at least six times in roughly the past six months, with modifications as recently as October 2012, even before completing the processing and evaluation of the recently acquired data."* Addendum to Staff Report for CDP Application E-12-005 and Consistency Certification CC-027-12, November 13, 2012, p. 75.

simply another revalidation of the conclusions that the utility had reached in the plant's original licensing process. Pressing for an up or down vote by the Coastal Commission, PG&E presented an orphaned proposal⁷⁷ which it framed as likely to yield predictable results. The pre-ordained insignificance of any HESS scientific findings, and the dubious resultant value of risking serious environmental harm to the marine environment, was vividly captured in the ex parte reports of two Coastal Commissioners of pre-meeting discussions they had with PG&E.

Coastal Commissioner Dayna Bochco reported to the meeting a discussion she'd had with PG&E two days earlier:

*I wanted to be sure why PG&E felt that they needed to do this test. And **they said that they felt pressured by the PUC and AB 1632 to do the test even though they had run so many models** based on all of their other testing, that they had quite a bit of confidence in their results. In fact, the testing so far that they have done, the 2-D and lower intensity 3-D, has shown that **their predictions of the past were too conservative, the plant actually is safer than what they thought** it might be. I asked if the worst case scenario of the 3-D study was added onto other studies that they have, and assuming the worst case that the Hosgri Fault did dip down towards the plant and hooked up with the other faults and then had a step-over where the earthquake, you know, affected these other faults – **I said did it, would it affect the plant's safety as they know it? And they said it would be highly unlikely.**⁷⁸ (emphasis added)*

Coastal Commissioner Jana Zimmer gave a similar report:

I was concerned, asked that, assuming they conclude that there really is a potential for an 8.5 or higher magnitude quake, and we know that the plant is only designed to

⁷⁷ **"We're here because we were directed to be here,"** in the memorable words of the presentation to the assembled Coastal Commission by PG&E government affairs representative Mark Krausse. "Initially, when the Energy Commission was considering the recommendation to do this enhanced imaging, PG&E opposed it, tried to get that out of the recommendations, saying 'We've got adequate technology here, we feel we have the right technology.' And we really resisted that. It was at a point when the cacophony of voices said that 'You need to do this, and you need to do this before you proceed with license renewal,' [that] we realized it wasn't our position to tell the people in the Central Coast that our technology was good enough." (emphasis added) Videotape of California Coastal Commission meeting of November 14, 2012, beginning at 2:12:50, accessible at [http://www.cal-span.org/media.php?folder\[\]=CCC](http://www.cal-span.org/media.php?folder[]=CCC)

⁷⁸ Videotape of California Coastal Commission meeting of November 14, 2012, beginning at 1:33:58.

*withstand a 7.5, are there design features or technologies available to retrofit the plant now to withstand any potential higher ground shaking? And **their answer to that was that their position would be that we can't assume that if they changed the magnitude of the quake from potentially 7.5 to 8.5 that they would look at changes to the plant at that point**; that they would then go to the NRC-sanctioned process, the Senior Seismic Hazard Advisory Committee, as SSHAC scientists, and that **they would integrate the findings into probabilistic analysis that would be applied to an 8.5 to 9 Richter scale and that they might actually conclude that it's safer than we think.**⁷⁹ (emphasis added)*

Ultimately, the scientific merit of further pursuing offshore HESS studies seems precisely the type of question for which the IPRP was established. A4NR has lost confidence that PG&E is capable of objectively and professionally conducting such studies in a manner which would provide scientific value, and any such effort in the future would require significantly greater independent oversight (and perhaps independent execution) than PG&E's prior proposal. Accepting the "last tool in the kit" viewpoint attributable to IPRP members Chris Wills and Bruce Gibson at the February 25, 2013 IPRP meeting as a pragmatic approach to HESS, A4NR strongly doubts that many Californians would condone PG&E's unilateral, unreviewed abandonment of that tool.

VII. PG&E HAS SHUNNED THE IPRP SINCE IPRP REPORT #6.

A. REPORT #6 CHALLENGED PG&E'S CORE ASSUMPTIONS.

While clearly prepared for confrontation, as contemplated by the Halpin/Summy/Klimczak "Contingency Plan" described at pp. 3 – 5 above, PG&E severed contact entirely – except for one tersely worded letter to the CPUC – after the IPRP closely examined its core ground motion assumptions. PG&E's last public meeting with the IPRP, held

⁷⁹ Videotape of California Coastal Commission meeting of November 14, 2012, beginning at 1:39:12.

on July 11, 2013,⁸⁰ was devoted entirely to an unsolicited – and clearly unwelcome -- critique by the California Geological Survey of PG&E’s ground motion modeling at Diablo Canyon. This analysis was subsequently published as “IPRP Report No. 6, August 12, 2013”⁸¹ and casts doubt upon the very cornerstone of PG&E’s seismic assessment of the Diablo Canyon site. A brief overview of its most salient points:

- To prioritize the main targets of the AB 1632 onshore and offshore geophysical studies, the IPRP earlier asked PG&E for sensitivity analyses of the probabilistic hazards. PG&E’s 2011 response ranked uncertainty in the slip rate of the Hosgri Fault as clearly the most significant, with a *“calculated ground motion hazard that varies by a factor of nearly 2.”*⁸²
- Changing PG&E’s base case ground motion characterization of V_{S30} of 1200 m/s to a generic site with a V_{S30} of 760 m/s (*“more consistent with other soft rock sites in California”*⁸³) *“increases the hazard by more than a factor of 3”*⁸⁴ and changing PG&E’s assumed site condition to a generic site with a V_{S30} of 1000 m/s *“increases hazard by a factor of 2.”*⁸⁵
- *“Compared to traditional approaches, the PG&E method resulted in lower ground motion hazard estimates, particularly in the spectral period range important to [Diablo Canyon] ... “ In contrast, “(a) lower V_{S30} brings the estimated ground motion hazards beyond the original design level when used in typical, state-of-the-practice seismic hazard analysis...”*⁸⁶
- The IPRP questioned whether PG&E’s approach adequately captured shear wave velocities at different depths beneath the plant: *“With only three profiles, it is unlikely that one of them represents the lowest velocity material underlying the plant. Some of the variability seen in the 1978 data may reflect poor quality of the V_s measurements made 35 years ago. Interpretations of that data, however, appear to include unconservative assumptions of velocity in boreholes where no velocity was recorded...”*⁸⁷

⁸⁰ After A4NR’s Protest was filed in this proceeding, PG&E met privately with the IPRP in May, 2014.

⁸¹ Accessible on the CPUC web site at <http://www.cpuc.ca.gov/NR/rdonlyres/B882E69C-758D-476E-A62D-6FCEC63BD277/0/IPRPReportno6.pdf>

⁸² IPRP Report No. 6, p. 17.

⁸³ *Id.*, p. 3.

⁸⁴ *Id.*, p. 18.

⁸⁵ *Id.*

⁸⁶ *Id.*, p. 3.

⁸⁷ *Id.*, p. 6.

- Nor was newer data from the ISFSI⁸⁸ site without problem: *“these two profiles do not give consistent V_S measurements at given depths. Considerable variability exists at some depth ranges ... they do not help constrain the lower bound or range of velocity at the plant site.”*⁸⁹
- *“A complete consideration of site conditions across the plant footprint requires additional V_S measurements using modern technology to constrain the uncertainty and yield more reliable site V_S values.”*⁹⁰

A series of emails between IPRP Chair Chris Wills, Supervising Engineering Geologist at the California Geological Survey, and Norman Abrahamson shows Mr. Wills’ repeatedly unsuccessful efforts to obtain PG&E’s documentation of its V_S measurements. Finally, after some six months of trying, Mr. Wills sought the intervention of Mr. Klimczak and obtained the report 17 days later.⁹¹ When cross-examined, Mr. Klimczak said he did not know why Mr. Abrahamson had not provided the requested information.⁹²

B. LAUNCHING PG&E’S IPRP CONTAINMENT STRATEGY.

In the aftermath of publication of IPRP Report No. 6, PG&E appears to have put the Halpin/Summy/Klimczak *“Contingency Plan”* into effect. As PG&E Regulatory Relations Director Erik Jacobson reported his efforts to his PG&E colleagues:

From: Jacobson, Erik B (RegRel)

Sent: Monday, September 16, 2013 11:26 AM

⁸⁸ “ISFSI” is an acronym for Independent Spent Fuel Storage Installation.

⁸⁹ IPRP Report No. 6, pp. 6 – 7.

⁹⁰ *Id.*, p. 6.

⁹¹ A4NR-5.

⁹² Richard Klimczak, PG&E, Transcript, p. 131, ln. 4.

To: Winn, Valerie J

Cc: Nishenko, Stuart; Klimczak, Richard; Abrahamson, Norman; Post, Jennifer (Law); Krausse, Mark; Strickland, L Jearl

Subject: RE: Act by 9/9, COB: PG&E response to IPRP Report 6

I talked to [CPUC staff members] Gurbux Kahlon, Don LaFrenz and Eric Green today about the IPRP process. They agreed that the IPRP should not do their own studies and that the scope of IPRP's role is to review and comment on PG&E's studies. In light of this conversation, I don't think we should risk rocking the boat by sending a letter or pressing this issue further at this time. If the IPRP starts to go too far in expanding its scope of work, we can try to rein them in at that point [REMAINDER OF SENTENCE REDACTED BY PG&E] I recommend that we continue with our current strategy of cooperating with the IPRP, monitor their activities and follow up with the CPUC if we see some major conflicts on the horizon.⁹³

To which Mr. Krausse responded, with snark:

From: Krausse, Mark

Sent: Monday, September 16, 2013 11:40 AM

To: Jacobson, Erik B (RegRel); Winn, Valerie J

Cc: Nishenko, Stuart; Klimczak, Richard; Abrahamson, Norman; Post, Jennifer (Law); Strickland, L Jearl

Subject: RE: Act by 9/9, COB: PG&E response to IPRP Report 6

Erik—

When PG&E submits its final findings on its enhanced imaging (by May of 2014), do you believe we could get the IPRP "decommissioned?"⁹⁴

And Mr. Klimczak drily clarified:

From: Klimczak, Richard

⁹³ A4NR-1, p. 9 citing Attachment L, p. 3.

⁹⁴ *Id.*

Sent: Monday, September 16, 2013 11:48 AM

To: Krausse, Mark; Jacobson, Erik B (RegRel); Winn, Valerie J

Cc: Nishenko, Stuart; Abrahamson, Norman; Post, Jennifer (Law); Strickland, L Jearl

Subject: RE: Act by 9/9 COB: PG&E response to IPRP Report 6

Mark,

The final report is scheduled for June 2014

Rich⁹⁵

C. PG&E's UNREPENTANT RESPONSE TO REPORT #6.

PG&E did not respond to IPRP Report No. 6, published August 12, 2013, until October 10, 2013. The available evidence does not suggest a reason for this delay, but does suggest some internal debate regarding the content of the response. On October 9, 2013 Mr. Klimczak expressed concern with a "short letter"⁹⁶ previously drafted by Ms. Winn:

Privileged and Confidential

Stu and Norm,

I have edited Valerie's response letter to the subject IPRP report. I am concerned with the 'general agreement with respect to the scientific findings and recommendations' statement. I believe we agreed to the further studies and I am assuming they will address their recommendations, am I correct? If I am correct, do you agree with my edits to the response letter?⁹⁷

Mr. Klimczak went on to highlight four recommendations from the paragraphs on pages 20 – 21 of IPRP Report No. 6:

⁹⁵ *Id.*

⁹⁶ A4NR-1, p. 12, citing Attachment L, p. 3.

⁹⁷ *Id.*, p. 1.

PG&E should demonstrate that the low site amplification seen at the DCPD site is due to site effects, not specific to the azimuths and distances traveled by the recorded ground motions at the site from the two earthquakes used.

PG&E should also justify the adequacy of using only two earthquakes to characterize site amplification, particularly because these two earthquakes cover only a small range of the azimuths that seismic waves can travel toward the DCPD site.

Near surface V_s data at the DCPD site indicate significant variability/uncertainty (V_{S30} ranging from 696 m/s to 1,646m/s). PG&E should evaluate whether and how this site-specific variability/uncertainty is captured adequately by its approach that quantifies uncertainty in site amplification based on site-to-site uncertainty (not a site specific parameter) in the single station sigma method.

PG&E's approach in κ estimation is different from approaches that are commonly applied. Usually, κ is estimated from the Fourier spectra of recorded ground motions or from subsurface material properties. We would appreciate justifications/explanations to the PG&E's approach.⁹⁸ [UNDERLINING IN ORIGINAL]

PG&E's October 10, 2013 written response to IPRP Report No. 6, a letter addressed to CPUC staff Eric Greene, stated "PG&E understands the scientific findings and will conduct the further studies noted on Page 21 of the Report. PG&E would like to clarify the scope of Studies 2 and 3 as follows ..." ⁹⁹ IPRP Report No. 6 had introduced its description of three studies with the preamble, "In a public meeting held on July 11, 2013, PG&E indicated that they plan to conduct further studies to improve the quantification of site amplification:" and A4NR has used boldfaced type, strikeouts and underlines to show the adjustments PG&E's clarification made to the italicized IPRP language:

Study 2. PG&E will analyze broad band ground motion data from the region to evaluate the method previously used by PG&E to rule out remove path effects from the two earthquakes used for in the current site-specific amplification terms. Additionally, the ground motions from small earthquakes recorded at the Diablo Canyon Power Plant (e.g., the Deer Canyon earthquake) will also be used to evaluate the site effects. Since

⁹⁸ A4NR-1, p. 13, citing Attachment L, p. 2.

⁹⁹ A4NR-1, p. 13, citing Attachment Q.

~~data from two earthquakes are not sufficient to demonstrate that the amplification factors include only modifications of the shaking due to site effects, recorded motion from other earthquakes, particularly In particular, earthquakes from the south and west, may help rule out would provide different path effects and lead to reduced uncertainty in the resulting average site amplification terms.~~

Study 3. ~~PG&E will evaluate site amplification using analytical approaches, such as those used by the Nuclear Regulatory Commission (NRC) in its independent evaluation, in which seismic waves are propagated through a velocity model. This approach is commonly used at facilities that do not have site-specific recordings from earthquakes. The results from this modeling –based approach will be compared to the site-specific approach data for evaluating the average value and uncertainty in more typical of state of the practice for critical facilities and will provide a comparison to the ground shaking evaluation using the site-specific amplification factors.~~

One month earlier, on September 9, 2013, Dr. Abrahamson had reported to Mr.

Klimczak a greater affinity with the IPRP-recommended studies: *“The recommended tasks described in the conclusion are reasonable and we plan to address them as part of our own updated site response evaluation.”*¹⁰⁰

VIII. THE IPRP REPEATEDLY STATED CLEAR PROCESS EXPECTATIONS.

The best indicator of the impossibility of any PG&E claim of surprise or confusion about IPRP expectations came in IPRP Report No. 2, issued September 7, 2011, some 11 months after D.10-08-003 established the IPRP:

IPRP Authority and Review Process

In 2006, AB 1632 (Blakeslee) was enacted requiring the California Energy Commission (CEC) to conduct a comprehensive study of the seismic vulnerability of Diablo Canyon and directed the CEC to perform subsequent updates in the IEPR as new data or new understanding of potential seismic hazards emerge. In 2008, the CEC published its AB 1632 Report, which recommended that PG&E complete several seismic studies including that PG&E should use three-dimensional geophysical reflection

¹⁰⁰ A4NR-1, p. 14, citing Attachment R.

mapping and other advanced techniques to explore fault zones near Diablo Canyon. The California Public Utilities Commission in 2009 and 2010 directed PG&E to complete the advanced seismic studies recommended in the CEC's AB 1632 Report and have an Independent Peer Review Panel review these seismic studies (CPUC letter to PG&E on June 25, 2009 and CPUC Decision 10-08-003).

The IPRP expects that:

- PG&E will provide its study plans and draft completed study findings to the IPRP for review. These include studies 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 within 30 days of receipt.*
- The IPRP, coordinated by the CGS, will review and provide comments on PG&E's draft completed study findings 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, any changes in the study plans, and any preliminary study findings.*
- PG&E and the IPRP will prepare a master schedule incorporating the major milestones for the IPRP's review process and will include these milestones in PG&E's monthly progress reports and 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.*

*The quarterly briefings/meetings mentioned above will allow PG&E to report on its progress and help facilitate a productive informal exchange of scientific viewpoints. The IPRP would like to schedule another briefing in October.*¹⁰¹

The IPRP included an identical section in its Report No. 3, issued April 6, 2012, replacing only the final sentence's reference to "another briefing in October" with "the next briefing in the near future."¹⁰²

IX. DR. GIBSON SMELLS A PR EFFORT.

PG&E submitted its so-called "final" report on the AB 1632 studies to the NRC on September 10, 2014. The only IPRP member residing in the local vicinity of the plant, retired geophysicist and San Luis Obispo County Supervisor Dr. Bruce Gibson, immediately questioned PG&E's motivation for bypassing the IPRP:

Establishing any level of trust will depend on a careful independent review of all the technical data. The Diablo Canyon Independent Peer Review Panel (IPRP) established by the California Public Utilities Commission is central to this important effort.

*Unfortunately, this important public process has not started with a positive step: **PG&E chose to finalize its entire report and release it to the public before it sought any comment from — or even contacted — the peer review panel. It appears to me that PG&E's public relations staff advised them to get their story to the public before any detailed questions might be asked.** So, we have a front-page story and Ed Halpin's simultaneous opinion piece assuring us that all is well.*

Important questions need to be posed and answered before we accept any of these conclusions. For instance, Halpin tells us that PG&E conducted these studies with 'state-of-the-art mapping technologies.' Recall, however, that in designing the high-energy offshore 3-D surveys (which were ultimately rejected by the Coastal Commission), PG&E's approach was far from state-of-the-art, and driven in large part by cost and schedule.

¹⁰¹ IPRP Report No. 2, September 7, 2011, pp. 8 – 9, included in A4NR-1 as Attachment S.

¹⁰² A4NR-1, p. 15.

I have no opinions — pro or con — regarding PG&E’s conclusions. My IPRP colleagues and I do have some work to do. My copy of the report (standing a foot tall and weighing 32 pounds) arrived just after the story and opinion pieces appeared in The Tribune.

I expect the result of the IPRP review to be thorough and that PG&E will respect the IPRP role. The results of our review of PG&E’s techniques and conclusions need to be explained clearly to the public.¹⁰³ (emphasis added)

X. CPUC: “NO IN-HOUSE EXPERTS IN GEOLOGY AND SEISMIC ANALYSIS.”

This Commission need look no further than its 2011-12 Budget Change Proposal #1, submitted to the Governor’s Department of Finance, to recall the indispensability it attached to the IPRP’s role in D.10-08-003. Seeking reimbursable budget authority for “*an independent review panel (IPRP) to guide and evaluate these studies,*” the Commission emphasized that it “*currently has no in-house scientific or technical expertise to review seismic studies or perform analyses on its own.*”¹⁰⁴ Nor did the Commission’s submittal contemplate the highly restrictive role for the IPRP suggested by the Halpin/Summy/Klimczak “*Contingency Plan.*” Specifically referencing its need “*to satisfy the Commission’s requirements in D.10-08-003,*” the Commission’s submittal explained:

Outside help is needed to ensure that the enhanced seismic studies are scoped out properly at the front end and reviewed properly during the course of the studies pursuant to the recommendations in AB 1632.¹⁰⁵ (emphasis in original)

¹⁰³ Dr. Bruce Gibson, “*Community Deserves Discussion on Diablo Canyon,*” San Luis Obispo Tribune, September 16, 2014, accessible at http://www.sanluisobispo.com/2014/09/16/3247694_community-deserves-discussion.html?sp=/99/181/&rh=1

¹⁰⁴ CPUC BCP #1, Fiscal Year 2011-12, Diablo Canyon Seismic Study Peer Review Panel, p. I-1.

¹⁰⁵ *Id.*, p. II-3.

The Commission submittal also emphasized the role to be played on the IPRP by the California Geological Survey (“CGS”), specifically including the subject of ground motion analyses which prompted IPRP Report No. 6 and the PG&E’s resultant launch of the Halpin/Summy/Klimczak containment strategy:

*The CGS will play the key role on this project. The CGS will review engineering geologic, geotechnical, **and earthquake ground shaking analysis reports** prepared by PG&E describing the geology and potential seismic hazards in the region surrounding the Diablo Canyon Power Plant. CGS will furnish subject matter experts so that geologic aspects of the reports are reviewed by CGS staff with expertise in geology of the region, seismic source characterization is reviewed by CGS staff with expertise in seismic source characterization, **and earthquake ground motion analysis is reviewed by CGS staff with expertise in ground motion analysis**, etc.¹⁰⁶ (emphasis added)*

The Commission’s submittal observed that “(t)he CPUC is accountable to the legislature and the governor’s office to ensure all provisions of enacted legislation, rules, regulations, and decisions are fully complied with and implemented.”¹⁰⁷ Among the beneficial outcomes attributed to approval of the BCP:

- *Increase in the technical and scientific level of input and fuller participation by the other State agencies and the CPUC to the IPRP.*
- *Added technical and scientific review and analyses of PG&E’s seismic studies for DCPP, which would increase the knowledge regarding seismic hazards affecting the safe operation of DCPP.*
- *Increases the State’s ability to **properly review the enhanced seismic studies at DCPP in compliance with decision D.10-08-003** in A.10-01-014.*¹⁰⁸ (emphasis added)

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*, p. II-4.

¹⁰⁸ *Id.*

And the result envisioned by the Commission submittal if the IPRP was not properly funded:

*“The CPUC and the CEC alone **will not be able to properly review the enhanced seismic studies** at the DCP, as both of these agencies lack the full expertise needed for this purpose.”¹⁰⁹*

(emphasis added)

XI. CONCLUSION.

PG&E has failed to meet its burden of proving that its conduct of the AB 1632 seismic studies in 2013 was consistent with D.12-09-008 and D.10-08-003. A4NR recommends that the Commission apply the same 50-50 shareholder/ratepayer split to 2013 DCSSBA recorded costs that was applied in D.14-08-032 to fund PG&E’s Nuclear Energy Institute fees, its *Currents* website, and its *Next 100* blog. Each of these activities is recognized by the Commission as motivated by a significant public relations or advocacy objective. Sadly, PG&E’s 2013 conduct of the AB 1632 studies suggests the same.

Alternatively, 50% of the 2013 DCSSBA recorded costs should be disallowed because PG&E ceased contact with the IPRP after mid-year, and its brief October 10, 2013 letter to CPUC staff Eric Greene should not be seen to the contrary.

Because PG&E has now issued its so-called “final” report on the AB 1632 seismic studies, a determination of whether it properly addresses the concerns of Dr. Douglas Hamilton as required by D.12-09-008 must await the 2014 ERRA Compliance proceeding. A4NR will defer the issues raised in A4NR-2 until then.

¹⁰⁹ *Id.*, p. II-5

The incorrigible quality of PG&E's efforts to evade regulatory compliance, and the culture rot that pervades so many of its interactions with the Commission,¹¹⁰ should give all Californians pause. Is this the type of institution which an advanced civilization entrusts with mankind's single most dangerous non-military activity? Adequate evaluation of the seismic hazard at Diablo Canyon requires the robust engagement of the IPRP, and the Commission's decision in this proceeding should reflect that commitment.

Respectfully submitted,

By: /s/ John L. Geesman

JOHN L. GEESMAN
DICKSON GEESMAN LLP

Date: October 3, 2014

Attorney for
ALLIANCE FOR NUCLEAR RESPONSIBILITY

¹¹⁰ Former Commissioner Mark Ferron, recommending a \$17.25 million fine in late 2013 against an especially misleading filing, framed the Commission's challenge in regulating PG&E best: "*We simply cannot allow such deliberate and calculated dishonesty.*" R.11-02-009, Alternate Proposed Decision, p. 11.