

BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Southern California Edison)
Company to Recover O&M Costs Associated)
with the San Onofre Nuclear Generating)
Station Units Nos. 2 and 3 Ongoing Seismic) Application No. 11-04-006
Program, and New Seismic Research Projects) (Filed April 15, 2011)
and Analyses.)
(U 338 E))

Application of San Diego Gas & Electric)
Company to Recover Certain Costs of Seismic)
and Tsunami Studies for the San Onofre Nuclear) Application No. 11-05-011
Generating Station Unit Nos. 2 and 3.) (Filed May 9, 2011)
(U 902 E))

**ALLIANCE FOR NUCLEAR RESPONSIBILITY'S
COMMENTS ON ALJ BARNETT'S PROPOSED DECISION**

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I. Introduction.

Despite the cold shutdown status of the two units at San Onofre due to problems with the recently installed steam generators, the Alliance for Nuclear Responsibility (A4NR) has read ALJ Barnett's Proposed Decision with the presumption that one or both units will ultimately come back online and that the subject matter of this proceeding remains germane. A4NR believes that some portion of the seismic study program should proceed even if neither unit returns to operation. The continued storage of spent fuel at the site, as well as the long-term nature of the decommissioning process, compels the greatest understanding possible of the seismic hazards at San Onofre.

A4NR finds the Proposed Decision driven by several erroneous factual assumptions to a mistaken conclusion regarding the creation of an Independent Peer Review Panel (IPRP) that is without support anywhere in the record for this proceeding. Specifically, the Proposed Decision is incorrect in its assumptions about

- the California Energy Commission's approval of the scope of Southern California Edison's (SCE's) proposed San Onofre studies.
- the sufficiency of SCE's proposed studies as a response to the United States Nuclear Regulatory Commission's (NRC's) post-Fukushima seismic review requirements.
- the reasonableness of SCE's proposed study scope despite the absence of professional review by any independent seismic experts, and the adequacy of the Proposed Decision's cure for this deficiency (requiring SCE to submit its study plans to the Energy Division Director prior to implementation).

- the experience of the IPRP established for PG&E’s similar seismic studies, and the appropriateness of subjecting the San Onofre studies to a less robust and significantly less transparent peer review in pursuit of “prompt and efficient action.”¹

A4NR believes that correction of these errors will produce a Decision by the Commission that provides the necessary institutional framework to oversee a world-class seismic review at San Onofre. The 2011 experience in Japan clarifies that decisions based on this work might one day prove the most consequential ever made by California state government. In order to earn public confidence in the results of the studies, it is incumbent upon the Commission to demand the highest standards of intellectual rigor, vigorous peer review, and public transparency.

II. The Proposed Decision is mistaken about the Energy Commission’s support of the scope of SCE’s proposed study plan.

Given the role which the California Energy Commission’s (CEC’s) 2008 AB 1632 Report played in triggering this proceeding,² it is understandable that SCE would stretch to show CEC endorsement of the study design. SCE asserts, in language adopted by the Proposed Decision, that the “SONGS 2 & 3 seismic activities are planned to be consistent with the recommendations made by the CEC in its AB 1632 Report.”³ A4NR suggests the phrase “*appear* planned to be consistent” (emphasis added) might be accurate, but could be overly generous without confirmation by expert peer review.

¹ Proposed Decision at p. 12.

² SDG&E-X-4, letter from CPUC President Michael Peevey to SCE President Alan J. Fohrer, June 25, 2009: “It has come to my attention that SCE has not undertaken steps to include a seismic study, nor the other studies recommended in the AB 1632 Report, as part of its SONGS license extension studies for the CPUC. That deficiency prevents the CPUC from properly undertaking its AB 1632 obligations to ensure plant reliability, and in turn to ensure grid reliability, in the event SONGS has a prolonged or permanent outage. SCE is obligated to address the above itemized issues in assessing SCE’s plant relicensing applications for SONGS. This commission will not be able to adequately and appropriately exercise its authority to fund and oversee the SONGS’ license extension without these AB 1632 issues being fully developed and addressed.”

³ Proposed Decision at p. 10.

But the Proposed Decision ventures much further in its proposed Findings of Facts, declaring that SCE's proposed studies "*fulfill* state regulatory objectives ... including the CEC's AB 1632 Report recommendation ..."⁴ (emphasis added) Similarly, the text of the Proposed Decision early on makes the claim, "(t)hese project components *fulfill* the CEC's recommendation that SCE should use three-dimensional seismic reflection mapping, other techniques, and a permanent GPS array for resolving seismic uncertainties for SONGS."⁵ (emphasis added)

This reach to declare the AB 1632 Report's objectives fulfilled – at least in terms of the CEC's interpretation thereof -- collides with the harsher reality presented by the record. SCE's witness Mark Nelson acknowledged that he assumed that the proposed studies satisfy CEC objectives because the CEC has not declared otherwise, also citing an ambiguous e-mail exchange with the CEC's Barbara Byron.⁶

The e-mail correspondence⁷ can, at best, be characterized as unclear. It was initiated by Mr. Nelson to the CEC's Barbara Byron. In the subject line, Mr. Nelson writes: "Hope this is still your email address". In the body of the e-mail, he adds, "If so ... I have a quick seismic question for you" followed by a more detailed sentence in which he says, "...I'm assuming that you think we've got the scope about right, since we've talked a few times since we've filed the application and you've never expressed any concern about the scope ..."

What was the full text of Ms. Byron's response? "Yes, thanks." She did not distinguish whether this was to confirm her address or to convey official CEC support of SCE's study scope.

⁴ Proposed Decision, Finding of Fact 2.

⁵ Proposed Decision at pp. 5 - 6.

⁶ Transcript at pp. 71 – 73.

⁷ SCE-7.

The absence of any written declaration of a more official nature from the CEC, from anyone with more clearly designated authority, has to raise serious questions. Just how plausible is it to conclude that the CEC considers its AB 1632 objectives “fulfilled” by SCE’s proposed studies? Confirmation of such satisfaction on a topic of such significance, involving such complex technical subject matter, would ordinarily seem the province of formal correspondence from the CEC’s Chair – if not action by the full Energy Commission.⁸

Nor should SCE be allowed to infer that the absence of CEC protest necessarily equates to CEC satisfaction. While philosophers can endlessly debate whether silence grants consent, the realities of 2012 California state government suggest a range of explanations for CEC silence -- ranging from inadequate resources to dereliction of duty. A4NR finds it lamentable that the CEC chose not to engage in this proceeding, given the long-term significance to Southern California, but considers it extremely unwise to conclude – as the Proposed Decision does -- that the AB 1632 requirements have been fulfilled simply because the CEC has not declared that they have not been.⁹

Based upon the mistaken assumption that the CEC has signed off on the scope of the proposed San Onofre studies, the Proposed Decision arrives at its erroneous Conclusion of Law 2 that “the SONGS 2 & 3 seismic activities are in the public interest and *fulfill* state regulatory objectives regarding assessing SONGS 2 & 3 seismic conditions ...” (emphasis added) The most

⁸ The CEC’s 2011 Integrated Energy Policy Report -- adopted February 8, 2012 and published in final form on February 15, 2012 – is silent on this topic despite a lengthy chapter on issues confronting SONGS and Diablo Canyon.

⁹ SCE’s Reply Brief at pp. 6 – 8 (citing D.87-12-067, D.04-04-074, and D.07-11-037) acknowledges that the Commission has long distinguished between the Applicant’s burden of proof, and an intervenor’s burden of going forward to produce evidence raising a reasonable doubt about the Applicant’s position and producing evidence explaining the counterpoint position. A4NR’s cross of SCE witness Nelson and the introduction of SCE-7 met this burden.

that can accurately be said, in A4NR's judgment, is that the contemplated activities "are in the public interest and *attempt to respond* to state regulatory objectives ..." (emphasis added)

III. The Proposed Decision is mistaken about the NRC's post-Fukushima seismic review requirements.

The Proposed Decision accepts at face value SCE's assurances¹⁰ and includes in Finding of Fact 2 the deeply flawed observation, "The new seismic research projects should provide sufficient information for SCE to respond to the NRC's requirements for seismic hazard and risk analysis contained in NRC Generic Letter 2011-XX."

The Commission should not embrace the same low-ball estimate, business-as-usual assessment of post-Fukushima requirements put forth by SCE without some greater effort at independent corroboration. The absence of any seismic expert review by either the Commission's Energy Division or its Division of Ratepayer Advocates (DRA) of SCE's proposed studies has deprived the Commission of an evidentiary record by which to do so.

After the evidentiary hearings in this proceeding, President Obama signed into law the Consolidated Appropriations Act, Public Law 112-074, on December 23, 2011.¹¹ Section 402 of the law directs the NRC to "require reactor licensees to re-evaluate the seismic, tsunami, flooding and other external hazards at their sites ... and require each licensee to respond to the Commission that the design basis for each reactor meets the requirements of its license, current applicable Commission requirements and guidance for such license." Section 402 also specifies, "Based upon the evaluations conducted pursuant to this section and other

¹⁰ SCE-3 at pp. 3 - 4.

¹¹ Because appropriations acts are considered non-permanent (i.e., applying only to a single fiscal year), §402 has not been codified.

information it deems relevant, the Commission shall require licensees to update the design basis for each reactor, if necessary.”

The NRC initiated this process¹² in a March 12, 2012 letter to all licensees outlining the information it requires “to verify the compliance with your plant’s design basis and to determine if additional regulatory actions are appropriate.” As the letter observes, “In developing Recommendation 2.1, the NTTF recognized that the state of knowledge of seismic hazard within the United States (U.S.) has evolved and the level of conservatism in the determination of the original seismic design bases should be re-examined.”¹³

The March 12, 2012 NRC letter¹⁴ describes two phases of this seismic hazard re-evaluation:

- Phase 1: Issue 10 CFR 50.54(f) letters to all licensees to re-evaluate the seismic hazard at their sites using updated seismic hazard information and present-day regulatory guidance and methodologies and, if necessary, to perform a risk evaluation.
- Phase 2: If necessary, and based upon the results of Phase 1, determine whether additional regulatory actions are necessary (e.g., update the design basis and SSCs¹⁵ important to safety) to protect against the updated hazards.¹⁶

¹² The March 12, 2012 NRC letter consolidates the information requested pursuant to Section 402 of Public Law 112-074 with that contemplated by the earlier Near-Term Task Force (NTTF) Recommendation 2.1 for Seismic Hazards. A4NR requests that the CPUC take official notice of the March 12, 2012 NRC letter, which can be accessed at <http://pbadupws.nrc.gov/docs/ML1205/ML12053A340.pdf> A4NR requests that the CPUC take official notice of the March 12, 2012 NRC letter.

¹³ NRC letter, March 12, 2012, Enclosure 1, pp. 1-2. The CEC’s 2011 Integrated Energy Policy Report, published February 15, 2012, at p.187 states: “data that has become available since SONGS was built indicate that the site could experience larger and/or more frequent earthquakes than anticipated in the plant design and the design basis earthquake for the plant may underestimate the seismic risk at the site.” The CEC’s AB 1632 Report, adopted November 20, 2008, reported at p. 7 that “a recent review by the California Coastal Commission in connection with the construction of a proposed spent fuel storage facility at the San Onofre site states, ‘there is credible reason to believe that the design basis earthquake approved by ... NRC at the time of licensing of SONGS 2 and 3 ... may underestimate the seismic risk at the site.’” A4NR requests that the CPUC take official notice of the CEC’s 2011 Integrated Energy Policy Report.

¹⁴ Issued pursuant to 10 CFR §50.54(f).

¹⁵ Structures, systems and components.

¹⁶ NRC letter, March 12, 2012, Enclosure 1, p. 4.

The letter goes on to specify that the four existing nuclear plants¹⁷ in the Western United States are expected to perform a SSHAC Level 3 study in developing their new probabilistic seismic hazard analyses.¹⁸ SSHAC is an acronym for Senior Seismic Hazard Advisory Committee, the entity which in 1997 established the analytic and procedural protocols for “treatment of expert judgment and quantifying uncertainty”¹⁹ for use in probabilistic seismic hazard analysis. A Level 3 study is intended as a particularly rigorous regimen emphasizing robust and transparent peer review, and has previously only been required for the licensing of new nuclear plants.²⁰

SONGS is likely to face considerable challenge in complying with the 3-year deadline specified²¹ in the NRC March 12, 2012 letter because of the paucity of data on the coastal and offshore seismic setting near San Onofre. The scientific context for the seismic re-examination was described at the CEC’s July 26, 2011 workshop²² on California Nuclear Power Plant Issues (with CPUC Commissioners Florio and Sandoval in attendance) by Dr. William Ellsworth, Senior Research Geophysicist with a distinguished 40-year career at USGS:

You’ll notice that there are relatively few earthquakes located in the general region of the southern coast. This is in part because of a lower level of seismicity, but it’s also because of a lack of data... Many stations along the San Jacinto, many stations in the L.A. Basin, but relatively few stations along the coast.

¹⁷ Columbia, Diablo Canyon, Palo Verde, and San Onofre.

¹⁸ NRC letter, March 12, 2012, Enclosure 1, p. 6.

¹⁹ NRC letter, March 12, 2012, Enclosure 1, p. 5. The now famous SSHAC principles, which form the cornerstone of NRC requirements for probabilistic seismic hazard assessments, were originally published in NUREG/CR6372.

²⁰ PG&E has initiated a Level 3 SSHAC process for its Diablo Canyon studies, while A4NR has submitted testimony in A.10-01-014 questioning whether any site in the U.S. is more deserving of a Level 4 analysis. Selection of the appropriate SSHAC level at SONGS is likely to loom large for the CPUC, and NUREG-2117 at p. 95 states: “It is suggested that the choice of the SSHAC study level ... will be made in consultation with the regulator.” A4NR requests that the CPUC take official notice of NUREG-2117.

²¹ NRC letter, March 12, 2012, Enclosure 1, p. 9.

²² A4NR requests that the CPUC take official notice of the transcript of the July 26, 2011 CEC Workshop on California Nuclear Power Plant Issues.

And this really limits our ability to reanalyze the seismic data. The kinds of studies that were done to identify the Shoreline Fault would be very difficult to do without additional information.

The same thing goes for geodetic monitoring. This is the continuous geodetic network in Southern California. It's been -- the L.A. area has been very heavily instrumented to try to understand some of the low rate faults that are located in the center of the urban area, but there are relatively few locations along the coast. And, again, very little offshore, a few stations on the island.

So, a few conclusions I think can be drawn as we make a review of where the data needs are to improve our understanding of hazards along the fault. We need to do a better job of identifying the active faults and there are a number of technologies that are readily available, including high resolution bathymetric surveys, air magnetic, marine, land, gravity surveys, reprocessing of industry seismic data that's now available to us. And then, of course, the augmentation of land-based seismic stations and the potential for ocean bottom stations.

That identifies the faults but we're not there, yet. We need to understand their seismic potential. To do that we need to do detailed geologic investigations to establish the slip rates of the fault and this can be helped in places by augmenting existing land-based and island GPS stations. And I think we need to seriously look at the possibility of adding ocean floor GPS to the mix.²³

An exchange between Dr. Ellsworth and Energy Commissioner James Boyd at the CEC's workshop further illuminated the effort required to fill this information void:

COMMISSIONER BOYD: Thank you. One last question; as you mentioned, there are only a few seismic monitoring stations in Southern California near SONGS and, as you indicated, detailed studies that led to the discovery of the Shoreline Fault are not possible at present in the SONGS area. And you mentioned the GPS Network appears to only have a few stations near SONGS.

Are there sufficient studies planned or underway to fill this gap or would you recommend that more needs to be done that isn't now anticipated?

MR. ELLSWORTH: Yes, I spoke to the people who run the Southern California Network at -- both at USGS Pasadena and at Caltech and they indicated that they have no plans at this time to add additional stations, there are no resources to do that.

I think that if we want to better characterize the tectonics there, there really is no solution other than making a commitment to long-term seismic studies. These cannot be done in a year or two, they will take a decade to really gather the information that's going to be required.²⁴

SCE has the right instinct in recognizing the required linkage between the studies proposed in this proceeding and its required response to what has become the successor to NRC Generic Letter 2011-XX. The Proposed Decision is equally correct in asserting that new

²³ Transcript, CEC Workshop on California Nuclear Power Plant Issues, July 26, 2011, pp. 37 - 39.

²⁴ Transcript, CEC Workshop on California Nuclear Power Plant Issues, July 26, 2011, pp. 40 - 41.

seismic research projects *should* provide sufficient information to respond to the NRC's requirements. (emphasis added) But the wording of Finding of Fact 2 is either wildly conclusory or deeply misinformed when measured against the March 12, 2012 requirements articulated by the NRC. A more accurate re-phrasing of Finding of Fact 2 would say the A.11-04-006 and A.11-05-011 studies *should be designed to* provide sufficient information to respond to the NRC's requirements. (emphasis added)

SCE and SDG&E customers, confronted with potential electricity disruptions this summer because of the faulty performance of \$671 million of ratepayer-funded equipment, have little reason for confidence in NRC/CPUC coordination.²⁵ And A4NR is confident that all three investor-owned electric utilities will likely insist that California state government keep its distance from any seismic work that can be described as responsive to NRC requirements.²⁶ But it is abundantly clear that seismic re-evaluations cannot be divorced from California's state regulatory interest in the future economic reliability of the plant and the ratepayer cost exposure should seismic hazards prove different than modeled. It is equally clear that economic efficiency and analytic integrity, to say nothing of public confidence in the final

²⁵ Past experience with California electricity matters predicts a missile exchange of recriminations between federal and state regulators if the SONGS outage actually results in blackouts.

²⁶ NUREG-2117, while focused on NRC requirements for probabilistic seismic hazard analyses, is replete with references to "other regulator" and "other regulators". At pp. 17 -18, it describes the "rather unusual process" in the Level 4 assessment of four nuclear sites in Switzerland where the regulator asserted leadership over the peer review process. While indicating "a number of lessons learned and opportunities for improvement" (including, "It is likely that committing more resources to the gathering of site data to characterize site material properties would be more effective than addressing the issue using expert judgment."), NUREG -2117 characterizes the Swiss study as "conducted successfully, accepted by the regulator ... and commended for use in subsequent risk analyses." The CPUC may want to give particular consideration to the Swiss model before approving SCE's proposed approach – especially since the SONGS studies are proposed to be funded entirely by ratepayers. In NUREG-2117 terminology, the CPUC comes very close to being a "sponsor" rather than simply a "regulator" overseeing company expenditures.

results, require a common and integrated approach to addressing the federal and state requirements.

IV. The Proposed Decision mistakenly emasculates peer review of the proposed San Onofre seismic studies.

With no basis in the evidentiary record of this proceeding, the Proposed Decision makes the unwarranted statement, “The IPRP for Diablo Canyon has proved too cumbersome for prompt and efficient action. A modified review panel is needed.”²⁷ Rather than establish an advisory body to the full Commission, with attendant stature and presumed influence, the Proposed Decision deprives the expert input from other state agencies of any formal organizational identity and demotes it to responses to inquiries from the CPUC Energy Division Director. Oddly, as recently as the submittal of briefs in this proceeding, no party had at any point expressed opposition to the creation of an Independent Peer Review Panel (although DRA expressed concerns at the November 9, 2011 hearing that the IPRP had suffered from inadequate transparency²⁸).

Such broad support was registered before A4NR appeared at the IPRP’s January 23, 2012 meeting and insisted that the Bagley-Keene Open Meetings Act²⁹ be properly applied. This demand was repeated by e-mail on January 24, 2012.³⁰ A representative of the Commission’s Legal Division opened the IPRP’s February 6, 2012 meeting with the announcement that the IPRP process going forward would be conducted in compliance with the Bagley-Keene Act.

²⁷ Proposed Decision at p.12.

²⁸ A.11-04-006, November 9, 2011 Transcript at pp. 195, 205 – 206.

²⁹ California Gov. Code §11120 et seq.

³⁰ E-mail correspondence from John Geesman to CPUC Executive Director Paul Clanon.

What has ensued since the January 23, 2012 IPRP public meeting has been: 1) A4NR's discovery of a consistent pattern of foot dragging by PG&E in responding to information requests by the IPRP³¹; 2) A4NR's discovery of the inexcusably feeble efforts of the CPUC Energy Division to enlist the United States Geological Survey in the IPRP process³²; 3) Commissioner Florio's personal intervention to obtain a rather open-ended offer of assistance from USGS as a substitute for formal membership on the IPRP³³; 4) A4NR's discovery and exposure of PG&E's mischaracterization of action taken by the IPRP at its February 6, 2012 public meeting regarding PG&E's permit applications with the State Lands Commission³⁴; and 5) the March 22, 2012 issuance of draft IPRP Report No. 3, a robustly candid review of PG&E's proposed seismic studies.³⁵

Were one to give credence to the "too cumbersome for prompt and efficient action" critique of the pre-January 23, 2012 IPRP, a plausible explanation might come from draft IPRP Report No. 3 itself:

Previous reports by the IPRP were completed prior to completion of Interagency Agreements between CPUC and IPRP participating agencies in late 2011. Because the structure was not in place, meetings and reports were less formal and rigorous. After the Interagency Agreements were finalized in December 2011, CPUC convened and publicly noticed the first official meeting of the IPRP on January 23, 2012.³⁶

³¹ The low points of this pattern are detailed in A4NR's Opposition to PG&E's Motion for Protective Order, filed March 15, 2012 in A.10-01-014.

³² Written Ex Parte Communication from Rochelle Becker to CPUC President Michael Peevey, with copies to Commissioners Feron, Florio, Sandoval, and Simon, filed February 1, 2012 in A.10-01-014.

³³ March 1, 2012 letter from Tom Brocher, Director of the USGS Earthquake Science Center, to Commissioner Florio, included as an attachment to the March 2, 2012 letter from CPUC Energy Division Director Edward Randolph to Rochelle Becker, both of which were distributed to the service list in A.10-01-014.

³⁴ Testimony of PG&E's Stuart P. Nishenko, p. 6, submitted February 17, 2012 in A.10-01-014, that the IPRP had "concurred with PG&E's seismic survey project description" and "recommended that the SLC proceed to issue a draft Environmental Impact Report". A4NR has alerted both the State Lands Commission and the IPRP to this misstatement, and regards the draft IPRP Report No. 3 as unmistakable corroboration.

³⁵ Draft IPRP Report No. 3, March 22, 2012, http://docs.cpuc.ca.gov/word_pdf/REPORT/162453.pdf.

³⁶ Draft IPRP Report No. 3, March 22, 2012, p. 1.

How the CPUC Energy Division³⁷ could take nearly a year and a half to slow-walk the interagency agreements, which create the state agency cost-recovery³⁸ foundation for the IPRP, and yet be considered a less cumbersome, more efficient and prompt vehicle for independent peer review is mystifying. A4NR believes Energy Division staff to be at least partly culpable for the following sample of constraints on the IPRP's work identified in its first two published reports:

- More detailed descriptions of study plans as they are being developed ... This information will help the IPRP provide meaningful input to PG&E during the planning process in order for ratepayer funding to be best utilized. (IPRP Report No. 1, p. 4)
- The CEC requests clarification on whether this includes or incorporates any review by the USGS. (IPRP Report No. 1, p. 6)
- The CEC requests that should PG&E identify new or significant features during this period that PG&E immediately notify the IPRP and further explore the feature while they have the field crew mobilized. (IPRP Report No. 1, p. 7)
- Without a complete description of the overall scope of the seismic investigation, and sufficiently detailed technical descriptions of each aspect of the investigation that would allow CGS to comment on the type, quality and potential value of the data to be gathered, the CGS does not believe it can offer proper and valuable technical comments. (IPRP Report No. 1, p. 9)
- (T)he CGS does not believe that the panel received sufficient background and context to determine how the data from the studies would be integrated with already existing data ... it is not possible ... to conduct a reasonable analysis of the project based solely on a PowerPoint presentation. (IPRP Report No. 1, p. 9)
- In order for the IPRP to be effective, the CGS notes that it should be provided with the details of the study plans as they are determined, and with the data and interpretations as soon as possible after they are developed. The CGS notes that technical review can

³⁷ A4NR acknowledges that the present Director of the Energy Division has not yet been in his position long enough to bear responsibility for the great majority of the identified concerns with Energy Division staff.

³⁸ The Proposed Decision at p. 12 reiterates that D.10-08-003, which created the IPRP, made clear that costs incurred by the IPRP – including the costs of consultants and experts -- are to be reimbursed by PG&E and recovered in the Diablo Canyon Seismic Study Balancing Account.

take time, and constructive review comments cannot be based on brief summary presentations of plans. (IPRP Report No. 1, pp. 9 - 10)

- It should be noted that PG&E has not supplied the IPRP with the details of its probabilistic seismic hazard analysis, i.e., the detailed locations, magnitude, and rate of occurrence on each fault considered in the analysis. (IPRP Report No. 2, p. 3)
- The IPRP notes that on-land seismic surveys ... are identified ... as 'not part of the IPRP tasks,' apparently because they are 'planned under separate funding' ... All of these studies are within the purview of the panel. Therefore, some or all of the on-shore seismic surveys that are within the LTSP, although funded by PG&E's GRC, would need to be reviewed by the IPRP. (IPRP Report No. 2, p. 3)

Perhaps, most significant, however, is the fact that the Energy Division staff has still not been able to provide the IPRP with the expert consultants promised at the IPRP's first meeting August 31, 2010 despite PG&E's obligation to reimburse such cost from the Diablo Canyon Seismic Study Balancing Account. A4NR perceives a pattern of evasion by PG&E of meaningful independent peer review which has been aided and abetted by Energy Division staff indifference.³⁹ The only corrective remedy – and the beginning of a valuable contribution from the IPRP in the form of its draft Report No. 3 – has come from forcing this process into the public eye.

Measured against the demanding standard for independent peer review set by NUREG-2117⁴⁰ or NUREG/CR-6372⁴¹, or a common sense consideration of the public significance of the

³⁹ This look-the-other-way temperament was perhaps best described by CPUC President Peevey's widely reported "culture of complacency" acknowledgment to the California Legislature in its hearings on the San Bruno tragedy.

⁴⁰ NUREG-2117 states at p. 17, "SSHAC Level 3 and 4 processes provide a structured and transparent framework for conducting multiple-expert assessments that effectively capture epistemic uncertainty in hazard analyses." As described at p. 108, the focus on process is aimed at countering the unintentional cognitive biases "inherent in all expert judgments" including

- Overconfidence: overestimating what is known (i.e., underestimating uncertainty).
- Anchoring: focusing on a specific number or model and not adjusting it sufficiently in light of new information.
- Availability: focusing on a specific, dramatic, or recent event; being inclined toward models that one is more familiar with or that one feels an affinity for because of knowing personally or by reputation the authors of a given model (or indeed, by being an author).

SONGS seismic re-evaluation, the Commission would be ill-advised to place reliance on SCE's vague commitment to hire external consultants and endure peer review by a panel of seismic experts.⁴² As the Proposed Decision credulously describes the SCE Seismic Hazards Assessment Program:

The reviews will be conducted internally by SCE's seismic engineers and by external groups, such as the SONGS Seismic Technical Advisory Board (STAB) or through other activities such as seismic source characterization workshops. The STAB, which includes industry experts and academic professionals from the California state universities, will meet at least annually to identify new credible seismic information⁴³, evaluate the conclusions of SONGS's seismic updates and, as necessary, may recommend areas for further seismic investigation.⁴⁴

Before wasting time to ponder the intellectual rigor of the STAB's "at least" annual meetings, or the intensity of reviews "conducted internally", or the composition of unspecified "external groups", the CPUC would do well to first peruse the recommendations from the CEC's recently published 2011 Integrated Energy Policy Report:

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- Coherence/vividness: over-estimating the likelihood of an event because there is a 'good story.'
 - Ignoring conditioning events: these are often unstated assumptions that influence the assessments that experts make.

A4NR believes these should be seminal concerns of the CPUC in demanding a more "structured and transparent" framework for the SONGS seismic studies.

⁴¹ The "New Testament" NUREG-2117 approvingly includes as its Appendix A the Executive Summary from the "Old Testament" NUREG/CR-6372, the final commandment from which is found at p. A-4 of NUREG-2117: "The SSHAC guidance gives special emphasis to the importance of an independent peer review. We distinguish between a participatory peer review and a late-stage peer review, and we also distinguish between a peer review of the process aspects and of the technical aspects for the more complex issues. We strongly recommend a participatory peer review, especially for the process aspects for the more complex issues. This paper details the pitfalls of an inadequate peer review." A4NR believes both NUREG-2117 and NUREG/CR-6372 should be carefully read and fully absorbed by the CPUC before it renders a final decision in this proceeding.

⁴² Proposed Decision at p. 12.

⁴³ NUREG-2117 is emphatic about the priority of data-gathering of the sort contemplated by the AB 1632 Report recommendations adopted in the CEC's 2008 IEPR Update. NUREG-2117 declares at p. 42, "Such new data collection activities are important because the expansion of datasets can reduce uncertainty in an assessment ... Therefore, multiple-expert assessment should never be used as a substitute for data collection. In other words, the experts in a PSHA should never be used to infer or guess values that could reasonably be measured within the time and budget resource constraints of a project. To do so is a misuse of the SSHAC process."

⁴⁴ Proposed Decision at p. 8.

- The CPUC should establish a SONGS IPRP, comparable to Diablo Canyon’s IPRP, to review SONGS’ seismic hazard study plans and findings as recommended in the 2008 IEPR Update. SCE should provide in a timely manner to the Energy Commission, the CPUC, and the IPRP the technical details and any significant updates to their proposed seismic hazard study plans and findings for SONGS. SCE should include the IPRP’s evaluations, findings, and recommendations in its seismic hazard analyses and submittals to the NRC. California’s IPRPs for PG&E’s and SCE’s seismic studies for Diablo Canyon and SONGS should coordinate their seismic hazard evaluations.
- SCE should include greater representation on its SONGS’ Seismic Advisory Board of independent seismic experts with no current or prior professional affiliation with utilities, including SCE or PG&E, or their consultants. The composition of SCE’s SONGS’ Seismic Advisory Board of independent seismic experts should exclude those with a continuing affiliation with SCE.⁴⁵

V. Conclusion.

A4NR is hopeful that, when the Commission reflects upon the public interest in assuring that the San Onofre seismic studies are conducted with the world-class rigor associated with California’s advanced perspective on earthquake hazards, and when it considers the documents identified in A4NR’s filed Request to Take Official Notice, the Proposed Decision will be modified as suggested in the following Appendix: Proposed Revisions to ALJ Barnett’s Proposed Decision.

Respectfully submitted,

By: /s/ John L. Geesman

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Date: April 5, 2012

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ALLIANCE FOR NUCLEAR RESPONSIBILITY

⁴⁵ CEC 2011 Integrated Energy Policy Report, February 20, 2012, pp. 203 – 204.

Appendix: Proposed Revisions to ALJ Barnett's Proposed Decision

Findings of Fact

1. SCE should proceed with the SONGS 2 and 3 seismic activities described in A.11-04-006, as recommended by the CEC in its AB 1632 Report and directed by the Commission. they are approved prior to implementation by the Independent Peer Review Panel (IPRP) established by this Decision.
2. The SONGS 2 & 3 seismic activities ~~fulfill~~ attempt to respond to state regulatory objectives regarding assessing SONGS 2 & 3 seismic conditions, including the CEC's AB 1632 Report recommendation and direction from the Commission. The new seismic research projects should be designed to also provide sufficient information for SCE to respond to the NRC's requirements for seismic hazard and risk analysis contained in the NRC Generic Letter 2011-XX 10 CFR 50.54(f) letter dated March 12, 2012.
3. ~~SCE's cost estimate of \$64.0 million (nominal \$, 100% level) for the SONGS 2 & 3 seismic activities described in A.11-04-006 is reasonable and should be adopted for ratemaking purposes.~~
4. ~~3.~~ The costs of the SONGS 2 & 3 seismic activities are O&M expenses incurred in the ordinary and prudent course of business for the owners of SONGS 2 & 3.
5. ~~4.~~ The ratemaking mechanisms, balancing accounts and memorandum accounts proposed by SCE and SDG&E address the uncertainties associated with the scope of work and costs of the SONGS 2 & 3 ongoing seismic program and proposed seismic and tsunami studies and risk assessment.

~~6.~~ 5. It is reasonably foreseeable that the costs for SONGS 2 & 3 seismic activities may exceed the current estimates of \$64 million. The Tier 3 advice letter process for seeking recovery of additional funding for the SONGS 2 & 3 seismic activities requires notice to the public and interested parties, and is reasonable.

~~7.~~ 6. The annual estimates of expense (100% level) for the SONGS 2 & 3 seismic activities are:

2011	\$3.1 million
2012	\$19.4 million
2013	\$21.2 million
2014	\$15.8 million
2015	\$4.5 million
Total	\$64.0 million

Conclusions of Law

- ~~1. The planned scope for the SONGS 2 & 3 seismic activities described in A.11-04-006 is in the public interest and is reasonable.~~ *It is reasonable to provide for independent peer review of the study plans and of the findings/results of the seismic studies 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.*
2. SCE should proceed with the SONGS 2 & 3 seismic activities described in A.11-04-006, as *they are approved prior to implementation by the IPRP established by this Decision.* *The* the SONGS 2 & 3 seismic activities are in the public interest and fulfill *attempt to*

respond to state regulatory objectives regarding assessing SONGS 2 & 3 seismic conditions, including the CEC's AB 1632 Report recommendation and direction from the Commission.

3. SCE's cost estimate of \$64.0 million (nominal \$, 100% level) for the SONGS 2 & 3 seismic activities described in A.11-04-006 is reasonable and should be adopted for ratemaking purposes. The Energy Division should periodically audit these expenditures and report to the Commission.

4. SCE should be authorized to recover in rates, its respective share of the actual reasonable costs associated with the SONGS 2 & 3 seismic activities, as ~~described in A.11-04-006~~

approved prior to implementation by the IPRP.

5. SDG&E should be authorized to recover in rates, its respective share of the actual reasonable costs associated with the SONGS 2 & 3 seismic activities as ~~described in A.11-04-006~~ approved prior to implementation by the IPRP.

6. SCE's ratemaking proposal for recovery in rates its share of the costs of the SONGS 2 & 3 seismic activities is reasonable.

7. SDG&E's ratemaking proposal for recovery in rates its share of the costs of the SONGS 2 & 3 seismic activities is reasonable.

8. It is reasonable to allow SCE and SDG&E to file a Tier 3 advice letter to seek the recovery of costs for SONGS 2 & 3 seismic activities which may exceed the current estimate of \$64.0 million.

9. It is reasonable to leverage the existing expertise of state agencies 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 ~~Energy Division Director~~

Commission will ~~coordinate with~~ assemble an IPRP comprised of the CEC, the California Geologic Survey, the California Coastal Commission, the California Emergency Management Agency, and the California Seismic Safety Commission, as well as ~~outside experts~~ a representative from the County of Orange, 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.

10. The scope and authority of the ~~Energy Division Director's peer review group~~ IPRP is to review and comment on the plans for the new seismic research projects ~~approved and~~ funded through this decision prior to implementation of those projects, and to review and comment on the findings and/or results of the new seismic research projects ~~approved and~~ funded through this decision.

O R D E R

IT IS ORDERED that:

1. Southern California Edison Company (SCE) is authorized to record and recover its actual costs of implementing the SONGS 2 & 3 seismic activities in the existing generation sub-account of the Base Revenue Requirement Balancing Account up to \$50.1 million (nominal\$, SCE share).

2. Costs recorded to the Base Revenue Requirement Balancing Account shall include costs for the activities which reflect Southern California Edison Company's (SCE) implementation of the California Energy Commission's Assembly Bill 1632 Report recommendations ~~that SCE perform additional seismic studies using off-shore seismic imaging.~~

3. Southern California Edison Company (SCE) is authorized to file a Tier 3 advice letter to obtain Commission authorization to record in the Base Revenue Requirement Balancing Account any additional operation and maintenance costs that are in excess of \$64.0 million and to reopen this application when it believes the costs for the seismic activities authorized by this decision will exceed \$64 million. The Tier 3 advice letter should be served on the service list for this proceeding and SCE shall be required to provide notice of a potential rate increase to customers.

4. Costs recorded to the Base Revenue Requirement Balancing Account (BRRBA) shall be recovered in Southern California Edison Company's (SCE) annual Energy Resource Recovery Account Compliance proceedings, where SCE will provide support for the amounts actually incurred and recorded in the BRRBA and consistent with SCE's request in this application and any subsequent Tier 3 advice letters.

5. San Diego Gas & Electric Company (SDG&E) is authorized to establish a San Onofre Nuclear Generating Station Seismic Research Balancing Account and to record and recover the costs of the seismic and tsunami studies allocated and billed to SDG&E by Southern California Edison Company (SCE) pursuant to the Second Amended San Onofre Operating Agreement executed by SCE and SDG&E, including those certain overheads charged to SDG&E by SCE pursuant to that agreement and as previously authorized by the Commission, provided that SDG&E shall record and recover such costs in its existing SONGS Operations and Maintenance (O&M) Balancing Account until the earlier of the expiration date of the SONGS O&M Balancing Account or the completion of the studies, up to an amount equal to \$12.8 million plus any amounts related to the costs associated with the Independent Peer Review Panel.

6. San Diego Gas & Electric Company (SDG&E) is authorized to establish a San Onofre Nuclear Generating Station (SONGS) Seismic Research Memorandum Account in which it may record any and all costs allocated and billed by Southern California Edison Company (SCE) to SDG&E related to (a) the studies approved by this order, and (b) any additional studies and activities reasonably and directly related to these studies exceeding \$13.3 million, plus (c) any amounts related to the costs associated with the ~~Energy Division Director's peer review group~~ IPRP. SDG&E may seek authority from the Commission to recover the amounts recorded in the SONGS Seismic Research Memorandum Account at its discretion, but no later than six months following the completion of the studies being performed by SCE. In seeking such authority, SDG&E shall demonstrate that such costs recorded in the SONGS Seismic Research Memorandum Account are reasonable and prudent.

7. Southern California Edison Company (SCE) shall provide the ~~Energy Division Director's peer review group~~ IPRP with its plans for new seismic research projects. The peer review group shall review and provide SCE written comments on the study plans within 30 days of receipt. ~~The failure of the peer review group to provide its written comments within 30 days shall not delay SCE in implementing its plans.~~

8. Southern California Edison Company (SCE) shall provide the Energy Division Director's peer review group the findings and/or results associated with the new seismic research projects upon finalizing those findings and/or results. The peer review group shall review and provide SCE written comments on those findings and/or results within 30 days of receipt. ~~The failure of the peer review group to provide its written comments within 30 days shall not delay SCE in implementing its findings and/or results.~~

9. Southern California Edison Company (SCE) is authorized to establish an ~~Energy Division Director's peer review~~ IPRP group memorandum account to record its share of the costs of the ~~peer review group~~ IPRP that are billed to SCE.

10. Costs recorded to the ~~Energy Division Director's peer review group~~ IPRP memorandum account shall be recovered in Southern California Edison Company's (SCE) annual Energy Resource Recovery Account Compliance proceedings, where SCE will provide support for the amounts actually incurred and recorded in the ~~peer review group~~ IPRP memorandum account and consistent with SCE's request in this application and any subsequent Tier 3 advice letters.

11. Application 11-04-006 is closed.

12. Application 11-05-011 is closed.