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Pacific Gas and Electric Company 2021 nuclear decommissioning cost triennial proceeding rebuttal testimony (Public Version)

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PACIFIC GAS AND ELECTRIC COMPANY

2021 NUCLEAR DECOMMISSIONING COST TRIENNIAL PROCEEDING

REBUTTAL TESTIMONY

(PUBLIC VERSION)

PACIFIC GAS AND ELECTRIC COMPANY
2021 NUCLEAR DECOMMISSIONING COST TRIENNIAL PROCEEDING
REBUTTAL TESTIMONY

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CHAPTER 1
REBUTTAL TESTIMONY ON
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A. Introduction

Q 1 Please state your name and title.

A 1 My name is Brian Ketelsen. I am currently the Director of Nuclear Decommissioning at Pacific Gas and Electric Company (PG&E). In that capacity, I am responsible for decommissioning activities and cost estimates for Diablo Canyon Power Plant (DCPP) and Humboldt Bay Power Plant (HBPP), and cost estimates for the associated Independent Spent Fuel Storage Installations (ISFSI).

Q 2 What is the purpose of your rebuttal testimony?

A 2 My rebuttal testimony summarizes and responds to recommendations in the testimony of the Public Advocates Office at the California Public Utilities Commission (Cal Advocates), The Utility Reform Network (TURN), the Alliance for Nuclear Responsibility (A4NR), Women's Energy Matters (WEM) and the County of San Luis Obispo (SLO County) regarding the adequacy of the decommissioning cost estimates (DCE) presented for DCPP, HBPP, and the associated ISFSIs.

B. Summary of Parties' Positions

Q 3 What is your general understanding of the findings and recommendations Cal Advocates and the intervenors have made in their testimony regarding the reasonableness and/or adequacy of the DCPP and HBPP DCEs and HBPP reasonableness review?

A 3 **Cal Advocates** states that it reviewed PG&E's direct and supplemental testimonies and workpapers and conducted discovery.[1] Based on that review, Cal Advocates does not oppose the updated DCEs for DCPP or HBPP, does not oppose PG&E's request that the California Public Utilities

[1] Testimony on 2021 PG&E NDCTP: Diablo Canyon Pre-Shutdown Decommissioning Planning Activities, Decommissioning Cost Estimate; Humboldt Bay Decommissioning Cost Estimate, Completed Project Reasonableness Review (Cal Advocates Testimony), p. 1.

Commission (CPUC or Commission) find reasonable $89 million in costs incurred for HBPP decommissioning, and does not oppose PG&E's proposed hybrid contracting strategy for decommissioning DCPP. Cal Advocates is concerned with the $352 million increase in decommissioning planning costs over the estimate for this category of costs in the 2018 DCPP DCE and recommends that the Commission direct PG&E to submit an annual Advice Letter (AL) including a report of its annual total pre-decommissioning spending and a breakdown of costs.[2] Cal Advocates also recommends that PG&E's spending on pre-shutdown decommissioning planning from pre-2018 through 2024 be subject to reasonableness review in the appropriate Nuclear Decommissioning Cost Triennial Proceeding (NDCTP).[3]

TURN questions PG&E's estimate of $428,614,000 in security costs because PG&E's costs are $168.2 million or 65 percent higher than the security cost estimate included in the DCE for the San Onofre Nuclear Generating Station (SONGS) despite the fact that PG&E's estimates of security staffing are lower than SONGS.[4] TURN recommends the Commission direct PG&E to address this discrepancy in security costs between DCPP and SONGS. Additionally, TURN recommends that the Commission address challenges to assessing the reasonableness of security and other decommissioning costs by engaging a third-party with access to underlying data from the utilities to perform a comparison of the DCEs of DCPP, SONGS, and comparable nuclear facilities.[5] TURN finds the escalation rates PG&E assumed for DCPP and HBPP low level radioactive waste (LLRW) burial and disposal are not appropriate and recommends the Commission adopt alternative escalation rates.[6] Though TURN recognizes that the DCPP DCE presented in this proceeding includes, among other things, a plan to retain the Breakwater and Intake

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2 *Id.*, pp. 2-3.

3 *Id.*, p. 3.

4 Direct Testimony of Matthew Freedman on the 2021 Nuclear Decommissioning Cost Triennial Proceeding of Pacific Gas and Electric (TURN Testimony), pp. 13-15.

5 *Id.*, p. 15.

6 *Id.* pp. 15-18.

Structures and to reuse some clean concrete onsite and reflects a significant savings in transportation costs, TURN assumes in-state disposal would yield increased savings in transportation costs.[7] Finally, TURN recommends that only 50 percent of fees for membership in certain associations be included in the DCPP DCE.[8]

A4NR suggests that the DCPP DCE is inadequate because it assumes the Nuclear Regulatory Commission (NRC) authorized cleanup standard of 25 millirem (mrem) rather than assuming a cleanup standard that achieves the lowest dose-based levels measured by mrem per year previously approved by the NRC in a License Termination Plan (LTP) for a commercial nuclear power plant.[9] A4NR also suggests that the DCPP DCE underestimates spent nuclear fuel (SNF) storage costs by assuming the Department of Energy will pick up the SNF in 2031 rather than extending the pickup date to 2034.[10] Finally, A4NR suggests that the HBPP DCE is inadequate based on an assertion that the HBPP DCE does not reflect an updated tsunami hazard assessment.[11] To address these issues, A4NR recommends that the Commission direct PG&E to update the DCPP DCE assuming a cleanup standard that achieves the lowest dose-based levels measured by mrem per year previously approved by the NRC in a LTP for a commercial nuclear power plant. A4NR's proposed recommendations related to the SNF pickup date and the need for an updated tsunami hazard assessment are addressed in Chapter 2.

WEM expresses concern that no additional site characterization work has been performed at DCPP.[12]

SLO County asserts that the DCPP DCE should be revised to reflect increased costs of SLO County to oversee implementation of mitigation

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7 *Id.*, p. 24

8 TURN Testimony, pp. 27-28.

9 Prepared Testimony of John Geesman on behalf of the Alliance for Nuclear Responsibility (A4NR Testimony (Geesman)), p. 16.

10 *Id.*, p. 18.

11 *Id.*, p. 24.

12 Testimony of Jean Merrigan on behalf of Women's Energy Matters (WEM Testimony), p. 15.

measures and compliance with permit conditions and for the costs of mitigation measures adopted in permits required to implement decommissioning.[13] SLO County also asserts that discrepancies between the decommissioning project description in the DCE and the project description in PG&E's Coastal Development Permit (CDP) application must be remedied.[14]

C. DCPP Decommissioning Planning

Q 4 Cal Advocates recommends PG&E's decommissioning planning spend from pre-2018 through 2024 should be subject to reasonableness review.[15] Do you agree?

A 4 PG&E has already proposed that all planning spending for unassigned milestones through 2024 should be subject to reasonableness review in the 2024 NDCTP as demonstrated by PG&E's Prepared Testimony, Chapter 7, Table 7-2 "Expected DCPP Decommissioning Milestone Reasonableness Review Schedule." In accordance with CPUC Decision 21-09-003, which approved the Milestone Framework, any decommissioning spending to discrete milestones prior to shutdown will be subject to reasonableness review once the completion criteria are achieved for that milestone.

Q 5 What is PG&E's position on submitting an annual AL that includes a report of its annual total of pre-decommissioning spending and a breakdown of costs?

A 5 PG&E agrees that an annual AL for disbursement of funds from the Diablo Canyon Nuclear Decommissioning Trusts is appropriate. PG&E intends to shortly submit an AL to the Commission setting out its proposed procedures and the information PG&E plans to provide.

D. Security Costs

Q 6 What is TURN's position regarding PG&E's forecast of security costs in the DCPP DCE?

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[13] Direct Testimony of Susan Strachan on behalf of the County of San Luis Obispo (SLO County Testimony (Strachan)), p. 4 and p. 8.

[14] SLO County Testimony (Strachan), pp. 4-7.

[15] Cal Advocates Testimony, p. 3.

A 6 TURN challenges whether PG&E has adequately demonstrated the reasonableness of the security cost estimate included in the DCPP DCE because the DCPP security cost estimate is significantly higher than the security cost estimate in the DCE for the SONGS presented in A.22-02-016 despite assuming lower staffing levels during certain decommissioning periods.[16]

Q 7 Did the CPUC approve PG&E's 2018 NDCTP security staffing costs?

A 7 Yes, with the exception that SNF wet storage time (Period 1 + 2) be reduced from 7 years to 4 years or less per the terms of the 2018 NDCTP Settlement (Settlement).

Q 8 Did the 2021 NDCTP meet the requirements set forth in the Settlement?

A 8 Yes, the SNF wet storage time (Period 1 + 2) was reduced to 3.25 years.

Q 9 Are the time frames for all periods noted in the security staffing comparison table the same for DCPP and SONGS?

A 9 There are variations, but the total time is similar. SONGS Period 2 is about 4 years longer, and the SONGS Period 3 time is about 2 years shorter. See Table 1-1 for a comparison of DCPP and SONGS period time frames and required staff.

[16] TURN Testimony, pp. 13-15.

TABLE 1-1
DCPP AND SONGS PERIOD COMPARISON

Line No.	Period	DCPP Staff	Time (years)	Person-years	SONGS Staff	Time (years)	Person-years
1	1a/1b[(a)]	317	1.4	444	216	1.4	302
2	2[(b)]	253	1.8	455	183	5.6	1025
3	3a[(c)]	57	2	114	87	4	348
4	3b[(d)]	29	33	957	34	29	986
5	Total		38	1970		40	2661

(a) Both units shutdown to end of Zirc-Fire window.
(b) End of Zirc-Fire window to all SNF at ISFSI.
(c) ISFSI-Only with 10 Code of Federal Regulations (CFR) 37 material protection.
(d) ISFSI only.

Q 10 The difference in staff between Period 3a and 3b is due to 10 CFR Part 37 security zone protection. Does SONGS use security staffing to fill these 53 positions?

A 10 No, the Decommissioning General Contractor (SONGS Decommissioning Solutions) will staff these positions and costs may not be directly attributed to security staffing.

Q 11 Another way to use the data in the Table 1-1 is to calculate person-years for each period, total them up, and divide this into the total security cost. This would provide an estimated annual cost per person. When doing this, what is the result?

A 11 The DCPP annual cost per person is $217,563, while the SONGS annual cost per person is $97,858. See Table 1-2 for a comparison of total cost and cost per person, per year for DCPP and SONGS security staffing.

TABLE 1-2
DCPP AND SONGS COST PER PERSON COMPARISON

Line No.		DCPP	SONGS
1	Total Cost	$428,600,000	$260,400,000
2	Cost per Person-year	$217,563	$97,858

Q 12 Does the average annual cost of $97,858 through 2052 seem like a realistic number taking into account salary and benefits for an armed security officer?

A 12 No, $97,858 appears to be too low. PG&E does not have insight into SONGS actual staffing numbers or allocation of security costs. Based on these results, the total staffing numbers and costs for DCPP and SONGS may not represent an "apples-to-apples" comparison.

Q 13 TURN suggests that PG&E could have obtained additional details about SONGS security staffing levels and related costs in order to provide the Commission a better understanding of the difference in security staffing cost estimates between DCPP and SONGS.[17] What is your response?

A 13 PG&E has worked with SONGS to validate the staffing numbers but has not compared the cost estimates to understand differences. PG&E commits to working with SONGS to better understand the reason(s) for the cost differences and will provide additional information in its 2024 NDCTP application.

Q 14 TURN also recommends a third-party be engaged to review and compare DCPP, SONGS and other utility DCEs to compare costs. Should the Commission solicit a third-party review to compare DCPP and SONGS security costs and other decommissioning costs?[18]

A 14 That is an interesting proposition. PG&E has no objection to a third-party review and comparison of DCEs for similar nuclear power plants. PG&E is not aware whether this information would be available at the level required to perform an apples-to-apples comparison, what entity might be granted access to the DCEs of multiple decommissioning nuclear power plants, or whether other utilities would be willing to participate in such a comparison.

E. Transportation Costs

Q 15 Has PG&E revised its assumptions regarding how waste will be transported in the 2021 DCPP DCE?

A 15 Yes, the 2021 DCPP DCE assumes that 72 percent of clean waste will be barged, rather than trucked to the Pacific Northwest. The cost to ship the 72 percent of clean waste to the Pacific Northwest by barge on a per intermodal basis provides an approximate 8 percent cost reduction as compared to shipping the waste to an in-state facility by direct truck.

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17 TURN Testimony, p. 15.

18 *Id.*

Q 16 TURN asserts that in-state disposal is cheaper than out-of-state disposal and notes that the DCE still assumes some waste will be trucked for disposal in La Paz, Arizona (AZ) and suggests that additional savings could be achieved by disposing of this waste in California (CA).[19] What are the potential additional cost savings associated with in-state disposal of clean material PG&E assumes will be trucked to La Paz, AZ?

A 16 There are currently no identified Class I landfills in CA willing to accept waste from DCPP. As such, there is no potential additional cost savings. Even assuming there was a Class I landfill in CA willing to accept waste from DCPP, published disposal rates at Class I landfills are comparable between in-state and out-of-state facilities. Any cost savings would be attributable to the difference in transportation costs. PG&E plans to ship 235 direct truck shipments to La Paz, AZ. The total transportation cost for the 235 direct truck shipments in the 2021 DCE is approximately $657,765 (2020$). If a facility was found within a 250-mile radius of DCPP, the hypothetical transportation cost would be approximately $310,200 (2020$). Cost savings from a hypothetical in-state disposal of clean candidate material that is currently planned to be shipped out-of-state by direct truck would be $347,565 (2020$).

F. Low Level Radioactive Waste Escalation Rates

Q 17 TURN recommends the LLRW burial escalation rate for DCPP should be reduced from 4.15 percent (PG&E proposed) to 2.17 percent.[20] Do you agree?

A 17 No. PG&E's 2021 Prepared Testimony proposes the DCPP LLRW burial escalation rate as 4.15 percent based on the average annual change in LLRW burial and disposal costs for pressurized water reactor burial sites and waste vendors published in the NRC publication NUREG-1307.[21] PG&E included the most recent 20 years of data points from disposal sites with historical data points over the entire 20-year period. This approach is reasonable as it incorporates actual industry data over an extended period.

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19 *Id.*, p. 24.

20 *Id.*, p. 18.

21 See https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1307/index.html.

The PG&E proposed DCPP LLRW burial escalation rate of 4.15 percent is less than, but in line with, previous HBPP decommissioning waste burial contracts that included a 5 percent annual increase in pricing structure. These HBPP waste contracts have since expired. Prior to the submittal of the 2024 NDCTP, PG&E expects to execute waste burial contracts for DCPP decommissioning which will provide additional basis for the 2024 LLRW burial escalation rate. Contract negotiations may result in many tradeoffs and the outcome of associated LLRW burial escalation rates cannot be predicted. PG&E proposes to retain the DCPP LLRW burial escalation rate of 4.15 percent in the 2021 NDCTP.

TURN testimony presents four alternative LLRW burial escalation rate scenarios based on data available in NUREG-1307.[22] With the exception of Scenario #2, PG&E deems the alternative scenarios unreasonable as Scenarios #3, #4, and #5 include limited duration data. Scenario #2 produced a burial escalation rate of 3.71 percent, which is consistent with the PG&E analytical method, but it only utilizes 18 years of continuous data instead of 20 years of continuous data. In Scenario #2, TURN excludes data from year 2000, which TURN believes removes an abnormally high increase for the Washington Compact occurring between years 2000 and 2002. PG&E disagrees with TURN's assumption.

Q 18 TURN recommends the LLRW burial escalation rate for HBPP should be reduced from 5 percent (PG&E proposed) to 3 percent.[23] How do you respond?

A 18 PG&E's 2021 Prepared Testimony proposed an HBPP LLRW burial escalation rate of 5 percent based on actual HBPP LLRW burial and disposal contracts. The 2021 proposed escalation rate is unchanged from the escalation rate approved in the 2018 NDCTP, as well as previous NDCTPs. The contracts that form the basis for the 5 percent escalation rate are now expired, and PG&E no longer has any active decommissioning waste disposal contracts. The active waste contracts between PG&E and waste disposal vendors [redacted]

22 TURN Testimony, p. 17.

23 *Id.*, p. 16.

[redacted] are specific to continued operations at the DCPP site, and do not include decommissioning scope or activities performed at or in support of HBPP and do not include pricing terms to reflect larger volumes of LLRW expected to be generated during decommissioning. It is not reasonable to use DCPP operations-specific contracts as the basis for determining the HBPP waste escalation rate.

In response to TURN, PG&E proposes to apply a 4.15 percent LLRW burial escalation rate to HBPP based on the same methodology PG&E utilized to support the DCPP LLRW burial escalation rate of 4.15 percent. This escalation rate is reasonable given the methodology applied to the last 20 years of industry data provided by NUREG-1307. This proposal aligns the HBPP LLRW burial escalation rate with the PG&E proposed DCPP LLRW burial escalation rate.

G. Association Membership Fees

Q 19 TURN suggests that, consistent with treatment in PG&E's General Rate Cases (GRC), customers should be responsible for only 50 percent of association membership fees, including fees for the Nuclear Energy Institute (NEI), Electric Power Research Institute (EPRI), and the Decommissioning Plants Coalition (DPC).[24] Do you agree with TURN?

A 19 PG&E agrees that NEI and DPC do engage in lobbying activities and, therefore, consistent with treatment in the GRC, customers should only be responsible for 50 percent of the membership fees. The 2021 DCPP DCE only contained a 50 percent share of the NEI association fees; however the DPC membership fee was assumed to be recovered at 100 percent. Revising the DCE to incorporate only a 50 percent share of the DPC member fee would result in a reduction of approximately $250,000 (2020$). Unlike NEI and DPC, EPRI does not engage in lobbying activities Therefore, EPRI membership fees are correctly recovered through the decommissioning trust at 100 percent.

[24] TURN Testimony, pp. 26-28.

H. Site Release Criteria

Q 20 A4NR challenges the site release criteria/radiation cleanup standard of 25 mrem assumed in the DCPP DCE.[25] What is PG&E's basis for assuming 25 mrem standard?

A 20 The basis for the cleanup criteria is set forth by the NRC in 10 CFR 20.1402 which provides radiological criteria for unrestricted use of a site. The regulation states that a site can be released for unrestricted use if radioactivity levels are such that an average member of a critical group would not receive radioactive dose in excess of 25 mrem per year, including that from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are As Low As Reasonably Achievable. A Memorandum of Understanding was entered between the NRC and Environmental Protection Agency in 2002 stating the 25 mrem cleanup standard adequately protects the health and safety of the general public.

Q 21 A4NR notes that New York, Massachusetts, Maine, and Vermont all require a 10 mrem cleanup standard and the NRC has approved LTPs containing this stricter release criteria and suggests California should do the same.[26] What is your response?

A 21 The 25 mrem cleanup established by 10 CFR 20.1402 adequately protects the health and safety of the general public. California has not set a more rigorous cleanup standard for the cleanup of commercial nuclear power plants. For example, PG&E's HBPP LTP set a cleanup criteria of 25 mrem.

Q 22 A4NR suggests that embracing the most rigorous cleanup standards established nationally would appear to be more cost-beneficial than the path PG&E is currently on.[27] Do you agree?

A 22 No, as recorded by the House Committee of Appropriations on August 3, 1999 report (101-286):

> Once again, the committee notes that the NRC has and will continue to remediate sites under its jurisdiction to a level that fully protects public health and safety, and believes that any reversal of the long

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25 A4NR Testimony (Geesman), pp. 3-16.

26 *Id.*, p. 3.

27 *Id.*, p. 5.

standing policy of the agency to defer to the NRC for cleanup of NRC's licensed sites is not a good use of public or private funds.

Q 23 A4NR criticizes PG&E for not including public stakeholders in developing the 25 mrem site release criteria assumed in the DCE.[28] Is this valid criticism?

A 23 No. Cleanup standards for NRC-licensed sites is a federally pre-empted activity governed by 10 CFR 20.1402.

Q 24 A4NR suggests that PG&E should use as a benchmark for the DCPP site release criteria the settlement between the California Department of Toxic Substances Control and the Boeing Company for cleanup of the Santa Susana Field Laboratory site.[29] What is your response?

A 24 Santa Susana was a partnership between Boeing and the Federal government which operated up to 10 test reactors on site. One of the reactors on site experienced a reactor accident. None of the reactors had a containment structure similar to a commercial nuclear power plant. Benchmarking of Santa Susana is not appropriate as the Santa Susana Field Laboratory site is not analogous to DCPP.

Q 25 A4NR urges PG&E to promptly commit to specifying in the LTP it eventually files with the NRC a radiation cleanup standard that achieves the lowest dose-based levels, measured by mrem per year, previously approved by the NRC in an LTP for a commercial nuclear power plant.[30] What is your overall response to this recommendation?

A 25 PG&E commits to a cleanup standard of 25 mrem per year based on 10 CFR 20.1402, which provides in pertinent part:

> A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 millirem per year, including that from groundwater sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).

Q 26 Is it possible that PG&E will achieve a release criteria lower than the 25 mrem NRC standard without additional cost to customers?

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28 *Id.*, p. 9.

29 A4NR Testimony (Geesman), p.13.

30 *Id.*, pp. 15-16.

A 26 Yes and very likely. The historical site assessment indicated low levels of radioactive contamination throughout the plant site. No additional cost to customers is expected and cleanup below 25 mrem is anticipated.

Q 27 WEM asserts that PG&E hasn't performed any additional site characterization work despite Section 9.6 of the Settlement.[31] Did PG&E agree to perform additional site characterization work that it has not performed?

A 27 No. In Section 9.6 of the Settlement, PG&E agreed to continue to characterize and reduce site contamination prior to shut down to the extent feasible and practicable in the context of decommissioning plans. Performing additional site characterization prior to shutdown does not make sense because access to areas and background radiation levels could be biased in some areas if site characterization were to be performed with the power plant in operation. A comprehensive site characterization will be performed and completed following cessation of operations in 2025.

I. County Staffing and Mitigation Costs

Q 28 SLO County requests PG&E to revise the DCPP DCE presented in the 2024 NDCTP to account for County staff that will be required to oversee implementation of mitigation measures and compliance with permit conditions, including the full ranges of necessary County positions.[32] Does PG&E agree?

A 28 Yes, PG&E will account for County staff required to oversee implementation of mitigation measures and compliance with permit conditions in the 2024 NDCTP, provided the County has completed and approved the permitting process.

Q 29 SLO County also raises that the DCE doesn't include the cost of mitigation measures.[33] What is PG&E's response?

A 29 PG&E is required to update its DCE every three years. As such, PG&E will update for the cost of mitigation resulting from the issuance of the various

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31 WEM Testimony, p. 15.

32 SLO County Testimony (Strachan), p. 4.

33 *Id.*, p. 8.

permits required to implement decommissioning in the applicable NDCTP after the permit(s) is approved.

Q 30 SLO County states there are inconsistencies in the DCE and the project description supporting the CDP application and PG&E should submit the final project description as it appears in the Environmental Impact Report (EIR) to the Commission as well as show any updates to the DCE as result.[34] What is PG&E's position on this recommendation?

A 30 PG&E agrees to submit the final project description as it appears in the EIR, along with any required updates to the DCE, in the applicable NDCTP once the EIR is certified.

Q 31 TURN also notes inconsistencies between PG&E's DCPP DCE and permit filings with SLO County.[35] Has PG&E done anything to resolve discrepancies regarding waste transportation between the June 30, 2021, submittal to SLO County and information presented in the 2021 DCE?

A 31 Yes, PG&E noted in a response to a TURN data request, included as Attachment A to this chapter, that updated information had been submitted to SLO County to provide the "as planned" transportation scenarios that are presented in the 2021 DCE. In that response, PG&E provided the updated tables for planned transportation strategies. This information was provided to SLO County in November 2021 via email as part of ongoing communications and coordination efforts to ensure that PG&E provides the most accurate and up-to-date information on DCPP decommissioning. Submittal of the revised transportation trip information resulted in revisions to the Administrative Draft EIR Project Description, Air Quality Impact Assessment, Air Quality Health Risk Assessment, Noise Impact Assessment, and Onshore Transportation Impact Assessment. These documents will also be made public when the draft EIR is issued, which is currently scheduled for November 2022.

J. Conclusion

Q 32 Does this conclude your rebuttal testimony?

A 32 Yes, it does.

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34 *Id.*, p. 7.

35 TURN Testimony, p. 25.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 1

ATTACHMENT A

PG&E'S RESPONSE TO TURN'S FOURTH DATA REQUEST, QUESTION 16

PACIFIC GAS AND ELECTRIC COMPANY
Nuclear Decommissioning Cost Triennial Proceeding 2021
Application 21-12-007
Data Response

PG&E Data Request No.:	TURN_004-Q016		
PG&E File Name:	NuclearDecomCostTri2021_DR_TURN_004-Q016		
Request Date:	May 12, 2022	Requester DR No.:	004
Date Sent:	May 19, 2022	Requesting Party:	The Utility Reform Network
PG&E Witness:	Erik Werner	Requester:	Matthew Freedman

QUESTION 016

PG&E estimates that waste transportation will involve 25,546 separate "originating shipments" from DCPP to Idaho, Utah, Nevada, Arizona, and Texas. (*Diablo Canyon Decommissioning: Air Quality and GHG Impact Assessment Report, Rev 1, June 30, 2021, Appendix 1, Waste Transportation Routes 1 of 1*). These shipments are forecasted to involve 3,005 long-haul truck round trips per year for 8.5 years and involve 338,736 vehicle miles traveled within the state. (*Appendix 1, Highway Shipments 1 of 5*)

a. Has PG&E evaluated the portion of the materials assumed to be included in this total that are expected not to have any detectable radioactive contamination? If so, please provide any such evaluation. If not, can PG&E provide an estimate of the portion of total shipments that are expected to involve uncontaminated materials?

b. Has PG&E assumed that non-radioactive (uncontaminated) materials from DCPP would be taken to a specific out-of-state landfill for disposal? If so, identify which landfill and/or state is assumed to be the final destination.

c. What is the expected cost of truck-based waste transportation on $/ton per mile basis?

d. Has PG&E attempted to calculate the total vehicle miles per year associated with this transportation that would occur outside the state of California in order to reach the assumed destinations? If not, please provide an estimate (based on the information provided in Appendix 1 (Highway Shipments 1 of 5) of total vehicle miles to complete waste transportation that would occur outside of California each year.

e. Has PG&E estimated the reductions in vehicle miles traveled, air emissions and fuel usage that would result from disposal of uncontaminated materials at in-state landfills (assuming that Class I landfills could be used for this purpose)? If not, could PG&E perform such an estimate?

f. Has PG&E evaluated the cost of in-state disposal of non-radioactive (uncontaminated) waste from DCPP at a Class I landfill? If yes, what is the estimated average cost per ton for waste handling, transportation and disposal costs?

ANSWER 016

The report referenced in this question was developed to evaluate bounding scenarios for environmental impacts of different transportation methodologies to be included in the Environmental Impact Report. The bounding scenarios referenced in the report do not represent the "as planned" transportation strategies for DCPP decommissioning. Tables 2.3.20-1 and 2.3.20-2 from the same submittal to the County provide the "as planned" transportation conditions as of 6/30/2021. Versions of the tables that reflect the plans and assumptions presented in the 2021 DCE are provided below for reference, which include DC ISFSI Site Restoration activities.

Table 2.3.20-1. Waste Transportation Trips Per Period

		Number of Trips per Period		
		Phase 1A	Phase 1B	Phase 2
Mode of Transport by Waste Classification	**Destination**	**2024-2029**	**2030-2033**	**2034-2035**
Hazardous/ Regulated Waste via Direct Truck	US Ecology in Nevada	257		20
Class B/C waste via Direct Truck	Waste Control Specialists in Andrews Texas	10		
Various Waste Types via Barge to North West	Potland and Boardman Oregon for offload		54	
Recyclable metals via Direct Truck	Port of Long Beach			42
Class A waste via Direct Truck	Energy Solutions, Clive Utah		4	
Hazardous/ Regulated Waste via Direct Truck	US Ecology in Nevada			
LARW 20.2002 waste via direct truck	US Ecology Idaho			
Recyclable material via direct truck	Port of Long Beach			
Clean debris and soil via direct truck	Republic La Paz Arizona			60
Large Component Class A waste via direct truck or truck to SMVR	Energy Solutions Clive, Utah or Waste Control Specialists Andrews, Texas	20		
Large Component Class A waste via direct specialty transport vehicle or to SMVR	Energy Solutions Clive, Utah or Waste Control Specialists Andrews, Texas	42		
RPV/RVI Class A/B/C Irradiated Metal via Direct Truck	Energy Solutions in Clive Utah or Waste Control Specialists in Andrews Texas	57	1	
RPV/RVI Class A/B/C Irradiated Metal via Heavy Haul to SMVR	DCPP to Local Railyard to Waste Control Specialists in Andrews Texas	37		

Table 2.3.20-2. Waste Transportation Tons Per Period

		Tons of Waste per period		
		Phase 1A	Phase 1B	Phase 2
Mode of Transport by Waste Classification	**Destination**	**2024-2029**	**2030-2033**	**2034-2035**
Hazardous Waste via Direct Truck	US Ecology in Nevada	5,124		
Class B/C via Direct Truck*	Waste Control Specialists in Andrews Texas	1,140 ft^3		
Hazardous Waste via Barge to Boardman	Offloaded in Boardman disposal at US Ecology Idaho		19,594	
Class A Waste via Barge to Boardman	Offloaded in Boardman disposal at Energy Solutions Clive, Utah		103,118	
LARW 20.2002 via Barge to Boardman	Offloaded in Boardman disposal at US Ecology Idaho		256,920	
Recyclable material via Barge	Offloaded in Portland		105,144	
Clean Material via barge to Boardman	Columbia Gorge Landfill		12,223	
Recycleable metal via Direct Truck	Port of Long Beach			823
Class A waste via Direct Truck	Energy Solutions, Clive Utah		74	
Hazardous/ Regulated Waste via Direct Truck	US Ecology in Nevada			395
LARW 20.2002 waste via direct truck	US Ecology Idaho			
Recyclable material via direct truck	Port of Long Beach			
Clean debris and soil via direct truck	Republic La Paz Arizona			1,184
Large Component Class A waste via direct truck or specialty transport vehicle or to SMVR	Energy Solutions Clive, Utah or Waste Control Specialists Andrews, Texas	7,760		
RPV/RVI Class A/B/C Irradiated Metal via Direct Truck	Energy Solutions in Clive Utah or Waste Control Specialists in Andrews Texas	507	10	
RPV/RVI class A/B/C Irradiated Metal via Heavy Haul to SMVR	DCPP to Local Railyard to Waste Control Specialists in Andrews Texas	513		

DC ISFSI Site Restoration Activities

		ISFSI Site Resotration	
		2067-2070	
Mode of Transport by Waste Classification	**Destination**	**Tons**	**Truck Trips**
Hazardous Waste via Direct Truck	US Ecology in Nevada	2,723	137
LARW 20.2002 waste via direct truck	US Ecology Idaho	810	41
Recyclable material via direct truck	Port of Long Beach	6740	338
Clean debris and soil via direct truck	Republic La Paz Arizona	3500	175

a. From the “as planned” tables provided above, there is a total of 4,684 tons of clean, non-radioactive, non-hazardous material shipped via 235 direct truck shipments to La Paz, Arizona, and 12,223 tons (612 intermodals) of clean, non-radioactive, non-hazardous material shipped to Boardman, Oregon as part of the 54 barge conveyances.
b. Yes, PG&E has assumed that non-radioactive (uncontaminated) material from DCPP would be disposed of in Boardman, Oregon and La Paz, Arizona.
c. The rate of $2,799/intermodal per round trip to La Paz, Arizona was used in the 2021 NDCTP. This equates to $0.137/ton per mile.
d. No, PG&E has not previously calculated out of state miles traveled for the 235 direct truck shipments cited in the above tables, . For the truck-based shipments to La Paz, Arizona the identified disposal facility is approximately 54 miles from the California border. Per the tables above, clean waste transportation by truck occurs in two different phases. During Phase 2 (2034-2035) there are 60 trucks sent to La Paz, and during ISFSI restoration (2067-2070) there are 175. The total out of state miles traveled by truck for the two phases are approximately 6,480 and 18,900 respectively.
e. No, PG&E has not performed such an evaluation. The current blended approach of transporting approximately 72% of the clean waste by barge to an out-of-state

facility already reduces the total vehicle miles traveled, total fuel usage and air emissions compared to a direct truck in-state disposal scenario.

f. No, PG&E has not performed any new evaluations for the 2021 NDCTP for in-state disposal. In advance of the 2018 NDCTP filing, PG&E researched and was not able to identify any in-state Class I disposal facilities willing to take any waste from Diablo Canyon. In the 2018 NTCTP PG&E noted that published disposal rates at Class I landfills were comparable between in-state and out-of-state facilities.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

REBUTTAL TESTIMONY ON

SPENT NUCLEAR FUEL

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A. Introduction

Q 1 Please state your name and title.

A 1 My name is Thomas P. Jones. I am the Senior Director, Regulatory, Environmental & Repurposing for Nuclear Generation at Pacific Gas and Electric Company (PG&E). I am responsible for decommissioning licensing and permitting, including all federal, state, and local approvals required to support decommissioning of Diablo Canyon Power Plant (DCPP) Units 1 and 2 and Humboldt Bay Power Plant (HBPP) Unit 3, including the Diablo Canyon (DC) and Humboldt Bay (HB) Independent Spent Fuel Storage Installations (ISFSI). I am also responsible for the Diablo Canyon Land Stewardship Program, the Diablo Canyon Decommissioning Engagement Panel, and potential repurposing of Diablo Canyon facilities and lands.

Q 2 What is the purpose of your rebuttal testimony?

A 2 In this Chapter 2, the purpose of my rebuttal testimony is to respond to recommendations in the testimony of the Alliance for Nuclear Responsibility (A4NR) and The Utility Reform Network (TURN) regarding storage of Spent Nuclear Fuel (SNF) at the DC and HB ISFSIs.

Q 3 Please state your name and title.

A 3 My name is Brian Ketelsen. I am currently the Director of Nuclear Decommissioning at PG&E. In that capacity, I am responsible for decommissioning activities and cost estimates for DCPP and HBPP, and cost estimates for the associated ISFSIs.

Q 4 What is the purpose of your rebuttal testimony?

A 4 In this Chapter 2, the purpose of my testimony is to respond to recommendations of TURN regarding funding pre-shutdown SNF activities from the non-qualified Nuclear Decommissioning Trust (NDT).

B. Summary of Parties' Positions

Q 5 What is your general understanding of the recommendations A4NR and TURN have made regarding storage of SNF at the DC and HB ISFSIs?

A 5 **A4NR** asserts that the DCPP and HBPP Decommissioning Cost Estimates (DCE) underestimate SNF storage costs by assuming the Department of Energy (DOE) will start taking possession of SNF in 2031. A4NR recommends addressing this deficiency by depositing DOE reimbursement of SNF storage costs into the DCPP and HBPP non-qualified NDT.[1] Additionally, A4NR asserts the HBPP DCE is deficient because it does not address what A4NR terms "advances in the scientific understanding of tsunamigenic earthquakes and sea level rise in the Humboldt Bay region."[2]

TURN asserts that the funds deposited in the non-qualified NDT based on the $112.5 million annual revenue requirement TURN agreed to in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP) Settlement approved by the California Public Utilities Commission (Commission) in Decision (D.) 21-09-003 (Settlement)[3] should be returned to customers because the qualified NDT contains more than enough funds to cover the current DCE.[4] Additionally, TURN objects to the expenditure of funds deposited to the non-qualified NDT on SNF storage, asserting that PG&E should find alternate sources of funding for SNF storage costs.[5] Finally, TURN suggests that PG&E's intent to spend funds in the non-qualified NDT on spent fuel storage costs is not consistent with Section 4.1 of the Settlement and that PG&E's failure to produce detailed information regarding assumptions made by other utilities about DOE reimbursement in developing SNF storage cost estimates is not consistent with Section 6.3 of the Settlement.[6]

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1 Testimony of John Geesman on behalf of the A4NR (A4NR Testimony (Geesman)), p. 20.

2 A4NR Testimony (Geesman), p. 20.

3 D.21-09-003, Decision Approving Joint Parties' 2018 NDCTP Settlement.

4 Testimony of Matthew Freedman on 2021 Nuclear Decommissioning Cost Triennial Proceeding of Pacific Gas and Electric (TURN Testimony), p. 7-9.

5 Id., p. 5-7.

6 TURN Testimony, p. 30.

C. Spent Fuel Management Costs and Assumptions

Q 6 How do you respond to TURN's contention that use of funds in the non-qualified NDT to fund the purchase of SNF storage canisters does not comply with the Settlement?

A 6 There is no basis for TURN's assertion. There is no language in the Settlement—nor was there any understanding among the Settling Parties—limiting or specifying the decommissioning activities on which the funds deposited to the non-qualified NDT could be spent. The Settlement provides that any additional NDT contributions approved by the Commission should be contributed to the existing non-qualified NDT for DCPP, a new trust or similar mechanism, and that PG&E agrees to track license termination, spent fuel management, and site restoration costs in separate subaccounts of the existing non-qualified NDT for DCPP, a new trust, or similar mechanism.[7] The Settlement does not limit the timing of, or decommissioning activities on which, the funds deposited to the non-qualified NDT may be spent.

Q 7 TURN argues that PG&E has not justified the need for expenditures on these canisters in 2022 and 2023. Is TURN correct?

A 7 No. PG&E's procurement of the new dry cask storage system was a direct result of the provision in the Settlement requiring PG&E to conduct a solicitation assuming transfer of SNF from the spent fuel pools to the ISFSI within four years. The selected Orano system provides a guaranteed fuel offload date of 23 months after shutdown which requires material procurement and fabrication for Horizontal Storage Modules and Dry Shielded Canisters to begin well ahead of plant shutdown.

Q 8 Why doesn't PG&E use funds from the qualified NDT?

A 8 Prior to plant shutdown, the qualified NDT may only be used to fund decommissioning planning activities, e.g., engineering studies, license amendment requests, detailed decommissioning schedules and work plans, and permitting. The Nuclear Regulatory Commission (NRC) granted PG&E's request for an exemption to increase the amount of money spent on decommissioning planning from the allowable 3 percent to $187.8 million

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7 Settlement Agreement, Section 4.1.

(2017$) and also allowed that funding to cover planning related to SNF. However, procurement and fabrication of the dry cask storage canisters required for SNF storage are not planning activities and, therefore, can't be funded by the qualified NDT at this time. Even if procurement and fabrication of the dry cask storage canisters was considered to be a decommissioning planning activity, the cost was not part of the $187.8 million (2017$) exemption request to the NRC because the need to purchase the canisters early was a result of the agreement in the Settlement to expedite spent fuel offload.

Q 9 Why can't PG&E wait to purchase the dry cask storage system until after shutdown when greater access to the qualified NDT is approved by the NRC?

A 9 It is a multi-year process to procure materials and construct the final dry cask storage components according to requirements that are approved by governing agencies. Procurement of raw materials needs to begin prior to plant shutdown so that the components can be fabricated, delivered to the DCPP site, inspected for compliance, and staged for use after plant shutdown. Components will be made specific to DCPP.

Q 10 What makes the material procurement and fabrication process so long for the dry cask storage system?

A 10 Because the materials and finalized fabricated components are "Important To Safety", they must meet stringent quality, nuclear-grade standards for design, fabrication, and testing as outlined in 10 Code of Federal Regulations Part 72. An overview of the process is briefly described in the following paragraphs.

Raw materials must first be obtained from qualified suppliers and verified as acceptable for the application (e.g., elemental content). Many of these materials have long lead-times to procure. Some materials require further qualification once received, such as the dry cask storage neutron absorber material.

Specialized processes, including various manufacturing techniques, are used during fabrication to ensure the high quality of components; this results in a multi-week fabrication process for each dry cask storage canister. After fabrication is complete, further testing is completed to ensure components

function as-designed. Throughout the procurement, fabrication, testing, and delivery process, stringent quality control checks are conducted to independently verify appropriate requirements are met. All of these considerations, together, lend to the multi-year process as described above.

Q 11 Are the various components of the dry cask storage system subject to escalation in the contract with Orano?

A 11 [redacted]

Q 12 [redacted]

A 12 The request for proposal for the dry cask storage contract was issued in the first quarter of 2020. Since its release, supply chains across many markets and inflation have experienced significant challenges. Two of the largest commodities that make up the dry cask storage system are stainless steel and concrete. Each of these commodities had significant inflation costs in the last two years. Considering the time periods of January 2018 – January 2020 and January 2020 – May 2022, the Producer Price Index (PPI) for Cement and Concrete Product Manufacturing increased by approximately 6.5 percent in total in the first period, whereas it increased by approximately 17.9 percent in the latter. The PPI commodity index for Metals and Metal Products (iron and steel) ended up declining approximately 2.5 percent in the first period and the index was approximately 100 percent higher in the latter.

[redacted]

Q 13 What assumption is made in the 2021 DCPP and HBPP DCEs about the start date for SNF pickup in the nuclear industry and what is PG&E's basis for that assumption?

A 13 PG&E assumes that DOE will start taking possession of SNF in 2031.

A4NR asserts that the 2021 DCEs should reflect a three year extension of the SNF pickup date to 2034 and that not doing so results in an

underestimate of SNF storage costs in the DCEs.[8] While PG&E agrees that no significant progress has been made on a permanent repository for SNF, the assumed pickup date of 2031 is reasonable based on the advances that have been made in the consolidated interim storage arena. PG&E intends to follow developments in both permanent and interim storage and how they may impact the cost and recovery of spent fuel management costs. In accordance with the Settlement, PG&E intends to revisit the ratemaking and recovery associated with spent fuel management in the 2024 NDCTP and could consider an alternative DOE reimbursement strategy similar to the proposal for San Onofre Nuclear Generating Station referenced by A4NR.

Q 14 If PG&E revised the SNF pickup date to 2034, would that materially increase the 2021 DCE?

A 14 Changes to the assumed pickup date of SNF do have a significant impact on the total cost of SNF storage; however, they do not materially increase the 2021 DCE.

Q 15 A4NR requests that PG&E promptly commit to deposit amounts reimbursed by DOE for SNF storage into the non-qualified NDT for DCPP and HBPP.[9] What is PG&E's position regarding this request?

A 15 Current ratemaking treatment for amounts reimbursed by DOE for DCPP SNF storage is reviewed in PG&E's General Rate Case (GRC). In Section 6.1 of the Settlement, parties agreed that ratemaking for amounts reimbursed by DOE for SNF storage would continue to be addressed in PG&E's GRC until PG&E's 2024 NDCTP application. PG&E has no substantive objection to proposals to revise the ratemaking for DOE reimbursements. Consistent with the Settlement, the Commission should consider these ratemaking proposals in PG&E's 2024 NDCTP.

D. Humboldt Bay ISFSI Tsunami Hazard Assessment

Q 16 Is this NDCTP the appropriate proceeding for A4NR to assert that the safety and environmental analysis supporting the current HB ISFSI Part 72 license is inadequate?

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8 A4NR Testimony (Geesman), p. 18.

9 *Id.*, p. 20.

A 16 No, the NDCTP is not the appropriate proceeding. Jurisdiction of the HB ISFSI is under the NRC for nuclear safety and radiation hazards and the California Coastal Commission (CCC) for conformance with the California Coastal Act. The NRC recently renewed the HB ISFSI Part 72 license and determined the HB ISFSI is safe for continued operations through November 17, 2065, including from a geologic hazard perspective. In addition, the CCC reviewed geologic hazards prior to issuance of the Coastal Development Permit (CDP) E-05-001. The impacts associated with geologic hazards have been fully mitigated per the CDP requirements which assumed "perpetual presence of the ISFSI." In 2019, the CCC reaffirmed PG&E's compliance with the California Coastal Management Program as part of the NRC's renewed HB ISFSI Part 72 license review.

Because both the NRC and CCC jurisdictions do not require new geologic hazard analyses, no such costs are included in the HBPP DCE.

Q 17 A4NR suggests that the HBPP 2021 DCE may be deficient because it assumes the continued ability to use the current site for the HB ISFSI.[10] Is there any existing federal or state requirement or approval requiring PG&E to include in the HBPP DCE the cost of identifying, developing, licensing, constructing, and transporting SNF and Greater than Class C (GTCC) waste currently stored at the HB ISFSI at an alternate location other than a federal repository?

A 17 As discussed above, the NRC and CCC have found the HB ISFSI safe – and environmental impacts fully mitigated – for operations through November 17, 2065. There are no federal or state requirements or approvals that require an evaluation of alternate sites for HBPP SNF and GTCC waste storage.

Q 18 A4NR recommends that PG&E promptly commit to perform and present in the 2024 NDCTP an updated tsunami hazard assessment for the HB ISFSI which incorporates the most recent projections of sea level rise; relies upon state-of-the-art analysis of the Cascadia subduction zone earthquakes and

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10 *Id.*, p. 20.

landslides; and evaluates alternative options for safe storage of the SNF and GTCC waste.[11] What is your general response to this recommendation?

A 18 PG&E has completed sufficient studies and updated analyses to determine that there is no need to update the HB ISFSI analyses or to evaluate alternative sites.

The PG&E tsunami studies have included detailed paleo-tsunami studies between Crescent City and the Eel River, conservative deterministic/empirical analyses, and specific modeling incorporating conservative fault and submarine landslide sources. PG&E 2008 and State 2021 numeric modeling included various Cascadia source rupture scenarios to capture a range of plausible events and include tidal ranges from Mean Lower Low Water to Mean Higher High Water (MHHW). The 2021 State tsunami modeling/maps (performed including post-Fukushima practice and sea level rise) provide an independent check on the 2008 PG&E modeling results and show that PG&E results are more conservative than the most current and independent modeling performed by the State of California (2021). Moreover, the estimated runups from the 1700 tsunami at the North Spit from the 2007 paleo-tsunami investigations is direct evidence of how high this event reached including any unrecognized landslide contributions.

All the analyses show that the HB ISFSI is safe so there is no need to develop alternative options.

Q 19 More specifically, what is your response to A4NR's assertion that PG&E has not updated its evaluation of tsunami hazard at HB ISFSI to reflect advances in the scientific understanding of tsunamigenic earthquakes and sea level rise in the HB region?[12]

A 19 As stated above, PG&E's completed state paleo-tsunami field investigations and mathematical models are in sufficient detail to be confident in the results. Recent advances in the science and engineering are developed and incorporated in the State of California 2021 report, which confirms PG&E results showing no flood waters reaching or over topping the HB ISFSI.

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11 *Id.*, p. 36.

12 A4NR Testimony (Geesman), p. 34.

The NRC's publication, NUREG/CR-7223, "Tsunami Hazard Assessment: Best Modeling Practices and State-of-the Art Technology" (not NUREG/CR-7723 as stated on p. 30, Line 28 of Mr. Geesman's testimony) is specifically applicable to nuclear power plants and does not address tsunami hazards for ISFSIs.[13] This document provides useful information, but the NRC has not issued an order or other directives to PG&E to apply this document to the HB ISFSI.

As stated above, PG&E compared results of the 2021 State of California tsunami hazard model/maps (that incorporate the latest modeling approaches and tsunami source information) with our 2008 modeling results. This comparison indicates that the 2008 PG&E modeling was conservative.

Q 20 What is your response to A4NR's assertion that PG&E underestimates the likelihood of a tsunami overtopping the HB ISFSI?[14]

A 20 A4NR's suggestion that the potential inundation should combine extreme events – Cascadia earthquake, landslides, tectonic subsidence, MHHW, sea level rise, King tides, and the 100-year storm is untenable. The 2008 PG&E and 2021 State tsunami analyses already account for the earthquake, which subtracts the subsidence factor, and includes landslides, MHHW, and sea level rise is below the ISFSI.

Long term tectonic land level changes (subsidence and uplift) in the HB area are not uniform, and Buhne Hill records a relative long term localized uplift of 0.36 millimeters per year recorded by the elevated marine terrace at the Buhne Hill ISFSI site. Recent geodetic data and studies (e.g., Patton, 2017) suggest that tectonic land level changes include interseismic subsidence and coseismic uplift for Buhne Hill. The PG&E-sponsored LCI 2020 study of sea level rise, included as Attachment A to this chapter, includes estimates of both sea level rise and tectonic land level changes to derive estimates of net sea level/land level change impacts for the HB ISFSI pad. Best estimate projections by LCI suggest that Buhne Hill could undergo long term interseismic subsidence of between 3 and 5 feet during a

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13 See https://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr7223/index.html.

14 *Id.*, p. 35.

100-year interseismic period (2020 to 2120) if no large Cascadia events/co-seismic uplift occurs. The best estimate for co-seismic uplift from a large Cascadia event at Buhne Hill is 4 feet. Combining the long term interseismic subsidence and a Cascadia event uplift results in a net result where subsidence is essentially recovered by the coseismic uplift, and sea level relative to the ISFSI pad is approximately unchanged from present conditions. Both the 2008 PG&E and 2021 State tsunami modeling show that a large Cascadia event is the controlling source for a maximum tsunami inundation level at Buhne Hill. Therefore, it is reasonable to assume that coseismic uplift occurs at Buhne Hill for the tsunami inundation modeling results, and tectonic land level changes are not a significant factor.

Q 21 What ongoing activities are PG&E performing to address updated earthquake and tsunami hazards at HB?

A 21 PG&E Geosciences continues to sponsor research with the United States Geological Survey for Global Positioning System (GPS)-geodetic evaluation of tectonic subsidence/uplift in the region. In addition, with respect to the implication of lessons from distant earthquake induced tsunami, PG&E post-earthquake reconnaissance, e.g., reconnaissance after the Sumatra earthquake, provide specific data for comparison to potential tsunami at HB.

Q 22 Is there a risk of erosion of the area around the vaults on Buhne Hill and the casks washing out to sea as hypothesized in A4NR's testimony?[15]

A 22 There is no risk of this hypothetical scenario. Erosion of the 'rock' around the casks was not specifically evaluated. However, the total duration of tsunami surges crossing Buhne hill will be short, probably no more than a couple of hours. The cumulative erosion of several surges, assuming all were high enough to overtop the vault would cause minimal erosion. Since the vault is a reinforced concrete structure completely below ground level, and the vault has negative buoyancy, it is not possible that erosion will allow the vault to wash out to sea. In addition, since each cask is restrained inside the vault by a bolted-on steel and concrete lid, it is not possible for an individual cask to be extracted from the vault and carried out to sea by a

15 *Id.*, p. 22.

tsunami. HB ISFSI Final Safety Analysis Report (FSAR) Figure 3.2-1 provides details of the vault and casks, including the lids.

Q 23 Is there a risk of tsunami debris obstructing the drainage from the vaults as hypothesized in A4NR's testimony?[16]

A 23 There is no risk of this hypothetical scenario. The bolted-on steel and concrete lids over the location of each cask in the vault prevent the entry of tsunami debris that would be sufficiently large to obstruct the drains inside the vault (HB ISFSI FSAR Figure 3.2-1 provides details of the drains). If tsunami debris obstructed the flow of water exiting the vault, where it drains by gravity to the atmosphere (HB ISFSI FSAR Figure 4.1-1 provides the routing of the drain to atmosphere), the clearing of any obstruction from the drain could be performed shortly after the event, without challenging the integrity of the casks.

E. PG&E Compliance with 2018 NDCTP Settlement Agreement

Q 24 TURN contends that PG&E failed to satisfy its obligations under the Settlement related to assumptions made by other utilities regarding DOE reimbursement for spent fuel management costs.[17] Do you agree?

A 24 No. In Section 6.3 of the Settlement, PG&E agreed to report on the extent to which other nuclear plant licensees assume the use of future DOE payments for purposes of determining the adequacy of spent fuel management funding. PG&E's testimony supporting this application concludes that most utilities do assume DOE reimbursement when developing SNF DCEs.[18] PG&E complied with the terms of the Settlement.

F. Conclusion

Q 25 Does this conclude your rebuttal testimony?

A 25 Yes, it does.

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16 *Id.*, p. 21.

17 TURN Testimony, p. 30.

18 PG&E Prepared Testimony, Chapter 5, p. 5-8, lines 3-5.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 2

ATTACHMENT A

LETTIS CONSULTANTS INTERNATIONAL, INC.'S 2020 ANALYSIS OF SEA LEVEL RISE AT HUMBOLDT BAY POWER PLANT

Lettis Consultants International, Inc.
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EARTH SCIENCE CONSULTANTS

Date: March 25, 2020

To: Mr. Jeffrey Bachhuber, Director
Geosciences Department
Pacific Gas & Electric Company
JXBS@pge.com

SUBJECT: Estimated 100-Year Relative Sea-Level Change at Buhne Hill, Humboldt County, California

Dear Mr. Bachhuber,

Lettis Consultants International, Inc. (LCI) is pleased to submit this memorandum that updates an analysis of relative sea-level change at the Humboldt Bay Power Plant's ISFSI site (Buhne Hill) near Eureka, California. In 2005, PG&E addressed a question from the California Coastal Commission with an evaluation of potential relative sea-level changes and coastal erosion near the Humboldt Bay ISFSI site for the next 100, 1000, 10,000, and 100,000 years. In the approximately 15 years since this first study, new information has become available concerning global sea-level change and local land-level change. This new information forms the basis for this updated analysis of possible relative sea-level changes at the Buhne Hill site over the next 100 years. Dr. William Lettis prepared this memorandum under my direction, and Dr. William Page of PG&E Geosciences reviewed an earlier draft this memo; his comments are included in this version.

LCI appreciates the opportunity to provide this analysis to PG&E.

Sincerely,

LETTIS CONSULTANTS INTERNATIONAL, INC.

Stephen C. Thompson, PhD, CEG 2701
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1.0 INTRODUCTION

As requested, Lettis Consultants International, Inc. (LCI) performed an updated analysis of relative sea-level change over the next 100 years (through AD 2120) at the Humboldt Bay Power Plant (HBPP) Independent Spent Fuel Storage Installation (ISFSI) at Buhne Hill (also called Buhne Point), Humboldt Bay, California (Figure 1). For purposes of this analysis, the elevation of the ISFSI is assumed to be 13.4 meters (m) or 44 feet (ft) in the year 2000.

This analysis updates a study by PG&E (2005) for the California Coastal Commission. This earlier report, "Implications of Long-Term Global Warming and Tectonic Displacements at Buhne Hill, Humboldt County, California", evaluated potential relative sea-level changes and coastal erosion near the Humboldt Bay ISFSI site for the next 100, 1,000, 10,000, and 100,000 years. These findings also were summarized in a paper by Thompson, Page, and Witter prepared for a 2006 Friends of the Pleistocene (Pacific Cell) fieldtrip guidebook (Thompson et al., 2006).

Relative sea-level change at Buhne Hill is the combined sum of both global sea-level change, as modified by local ocean dynamics, and vertical land-level change at Buhne Hill. Vertical land-level change at Buhne Hill is the result of interseismic and coseismic tectonic activity that occurs at two different scales. Regionally, tectonic land-level change occurs due to plate motion convergence on the southern Cascadia subduction zone; locally, tectonic land-level change occurs due to slip on the Little Salmon fault. Buhne Hill and the ISFSI are located on the upper plate of the Cascadia subduction zone, and on the upthrown or "hanging wall" side of the Little Salmon fault (Figure 2). As described in greater detail in PG&E (2005), the short-term rates and patterns of interseismic and coseismic deformation at Buhne Hill (as measured in 100s to 1000s of years, or a single earthquake cycle) must over time match the long-term rate of uplift at Buhne Hill based on observed uplifted marine terraces (as measured in tens of thousands of years, or multiple earthquake cycles). In the 15 years since PG&E (2005), important new data have become available concerning global sea-level rise, the frequency and intensity of extreme weather events leading to sea-level surges, and vertical land-level change at Humboldt Bay (e.g., International Panel on Climate Change (IPCC), 2019; Patton et al., 2017). In particular, the new data provide two important updates to the previous study:

1. The estimated rate of global sea-level rise over the next 100 years is higher (IPCC, 2019) than previously thought (IPCC, 2001); the lower rates of IPCC (2001) were the basis for the 2005 analysis;
2. The frequency and intensity of storm-generated sea-level surges are predicted to increase, such that what historically has been a once-in-a-century extreme event is now estimated to occur at a rate of once per decade (IPCC, 2019); and
3. Geodetic data show that the entire Humboldt Bay area, including Buhne Hill, is subsiding, likely due to interseismic subsidence above the southern Cascadia subduction zone (Patton et al., 2017). The model of interseismic subsidence is opposite to the model of interseismic uplift assumed by PG&E (2005).

The following section includes a discussion of relative sea-level change within Humboldt Bay at Buhne Point adjacent to the ISFSI site. The assessment of relative sea-level change within Humboldt Bay includes several variables that operate at different spatial and temporal scales:

(1) long-term global sea-level rise resulting from climate change as documented in the most recent IPCC Report (IPCC, 2019), with regional and local variations from the global average due to ocean dynamics;
(2) long-term interseismic vertical land-level change resulting from regional (Cascadia subduction zone) and local (Little Salmon fault) tectonic forces as documented by many researchers (Burgette et al., 2009, Montillet et al., 2018, and Patton et al., 2017); and
(3) short-term coseismic vertical land-level change from a potential earthquake on the southern Cascadia subduction zone and/or Little Salmon fault.

The interplay of each of these processes influences the projection of relative sea-level change at Buhne Hill over the next 100 years. In addition, global climate change is predicted to result in an increase in the frequency and severity of storms and tidal surges. Superimposed on relative sea-level rise, this will cause higher frequencies and amounts of coastal flooding and erosion of engineered shoreline protection (IPCC, 2019).

2.0 RELATIVE SEA-LEVEL CHANGE AT BUHNE HILL

As described above, relative sea-level change at Buhne Hill is the combined sum of sea-level rise and vertical land-level change. We describe each of these below with a focus on identifying significant updates since the PG&E (2005) report.

2.1 SEA LEVEL RISE

Local sea-level rise at Humboldt Bay is the result of global sea-level rise modified by ocean dynamics within the Pacific Northeast/Gulf of Alaska and along the Northern California coastline. According to IPCC (2019), global mean sea level is rising and accelerating. The dominant sources of global sea-level rise currently are meltwaters from ice sheets and glaciers. Global sea-level rise as measured by tide gauges and altimetry data shows a progressively increasing rate from 1.4 millimeters per year (mm/yr), or 0.05 inches per year (in/yr), over the period 1901–1990, to 2.1 mm/yr (0.07 in/yr) over the period 1970-2015, to 3.2 mm/yr (0.13 in/yr) over the period 1993–2015, to 3.6 mm/yr (0.14 in/yr) over the period 2005–2015. This acceleration (increase in rate) of global sea-level rise is expected to continue over the next 100 years.

Figure 3 shows the preferred, high and low projections of global sea-level rise over the next 100 years under two different greenhouse gas emission scenarios developed by the IPCC. The representative concentration pathway (RCP) 2.6 model is a low-emission scenario that includes dramatic reductions in emissions driven by major policy changes in industrialized countries. The RCP 8.5 emission scenario is a high-emission scenario in which essentially no policies are adopted by industrialized counties to curb the use of fossil fuels, and markets continue to favor

heavy fossil fuel use. These two scenarios—low emission and high emission—are intended to be end-member cases, and neither are considered to be a "most likely" outcome.

Two main operative processes contribute to global sea-level rise: (1) contribution of freshwater from melting continental ice sheets and glaciers; and (2) thermal expansion of oceanic water with increasing atmospheric temperatures (IPCC, 2019). IPCC (2019) concluded that "It is virtually certain that the global ocean has warmed unabated since 1970 and has taken up more than 90% of the excess heat in the climate system. Since 1993, the rate of ocean warming has more than doubled". The increase in ocean warming has led to thermal expansion and sea-level rise. Recent assessments of global climate and the hydrosphere indicate that between 1993 and 2003, thermal expansion of oceanic waters represented the majority contribution to global sea-level rise (Nicholls and Cazenave, 2010). Since 2006, however, thermal expansion has contributed approximately 45% or less to global sea-level rise as melting of glacial ice has increased in relative contribution (IPCC, 2019). For example, mass loss from the Antarctic ice sheet over the period 2007–2016 tripled relative to 1997–2006. For Greenland, ice sheet mass loss doubled over the same period.

Thus, IPCC (2019) concludes that global sea level is rising and is accelerating due primarily to increasing rates of ice loss from the Greenland and Antarctic ice sheets, as well as (to a lesser relative extent) continued alpine glacier mass loss and ocean thermal expansion.

A significant update to the PG&E (2005) report is the recognition that meltwater from the Greenland and West Antarctic ice sheets is beginning to contribute to sea-level rise earlier than anticipated (IPCC, 2019). The IPCC (2001) report had concluded that melting of the Greenland and West Antarctic ice sheets would not likely contribute significantly to sea level rise for the next 100 years. However, recent observations show that melting of these ice sheets has begun sooner than anticipated.

Over the next 100 years, global sea level is predicted to continue rising at or above the current documented rate of 3.6 mm/yr (0.14 in/yr) (IPCC, 2019). Under the high-emission scenario (one in which there is an absence of policies to combat climate change, leading to continued and sustained growth in atmospheric greenhouse gas concentrations), IPCC (2019) predicts a 68% confidence interval range of global sea-level rise between 0.8 and 1.5 m (2.5 and 5 ft) by the year 2120 (Figure 3) and a long-term average rate of between 8 and 15 mm/yr (0.3 and 0.6 in/yr). The rate of global sea-level rise is projected to exceed several centimeters per year at some point in the 22nd century. Alternative model scenarios generated by the U.S. National Oceanic and Atmospheric Administration (NOAA) predict a wider range of global sea-level rise of 0.2 to 2.0 m (0.66 to 6.56 ft) by 2100, which imply an average rate of between 2.4 and 24 mm/yr (0.095 and 0.95 in/yr) (NOAA, 2012). IPCC (2019) concludes that the Greenland and Antarctic ice sheets are projected to lose mass at an increasing rate throughout the 21st century and beyond (with high confidence). The rates and magnitudes of these changes are projected to increase further in the second half of the 21st century in the high greenhouse emission scenario. It should also be noted that processes controlling the timing of future ice-shelf loss and the extent of ice sheet instabilities

could increase Antarctica's contribution to global sea-level rise to values substantially higher than the range described above. Potential global sea-level rise due to unlikely collapse of parts of the Antarctic ice sheet are beyond the scope of this review.

2.2 Local Sea-Level Rise

Sea-level rise is not globally uniform but varies regionally due to a variety of ocean dynamic processes. IPCC (2019) concludes that regional differences, within ±30% of the global mean sea-level rise, can result from isostatic adjustments due to land-ice loss and variations in ocean warming and circulation. For example, sea-level rise in the northeastern Pacific Ocean adjacent to the Northern California coastline may be influenced by ocean circulation of cooler water from the Gulf of Alaska.

Using tide gauge and leveling survey data from the Pacific Northwest coast, Burgette et al. (2009) estimated a "regional" sea-level rise of 2.28 mm/yr (0.09 in/yr). This value is an average rate mostly using data from the second half of the 20th century. This is approximately comparable to the 2.1 mm/yr (0.07 in/yr) average global rate of sea-level rise measured over the period 1970-2015 (IPCC, 2019). Thus, we conclude that rates of local and global sea-level rise are approximately equal, and we presume that the accelerating rates of global average sea-level rise are likely occurring with comparable values in the northeastern Pacific Ocean adjacent to Humboldt Bay.

2.3 Vertical Land Level Change

Data published since the PG&E (2005) report has resulted in a significant change in estimated rates of vertical land-level change at Buhne Hill. Long-term land-level change at Buhne Hill averaged over the past approximately 100,000 years is dominated by tectonic uplift at a rate of approximately 0.36 mm/yr (1.2 ft per thousand years). This long-term rate is well established based on the age and elevation of a marine terrace at Buhne Hill (PG&E, 2003; 2005). However, superimposed on this long-term rate of uplift are short-term cyclic interseismic and coseismic land-level changes. These short-term land-level changes are produced by elastic strain accumulation (interseismic) and release (via an earthquake; i.e., *coseismic*) on the Cascadia Subduction Zone and/or Little Salmon fault.

In the earlier report, PG&E (2005) assumed a model of interseismic *uplift* followed by seismic *subsidence* or down-dropping at Buhne Hill which was based on the best available information at the time. The estimated rate of interseismic uplift at Buhne Hill was about 4 mm/yr (1.3 ft per hundred years), and abrupt land subsidence during an earthquake was estimated to range up to about 6 ft (1.8 m). A recently published analysis by Patton et al. (2017), however, shows that the entire Humboldt Bay area is undergoing interseismic *subsidence* at rates ranging from approximately 1 to 4 mm/yr (0.04 to 0.16 in/yr) (Figure 4). These rates are computed using a variety of methods and datasets, but most rates are based on tying local tide-gauge data (such as the North Spit tide gauge located at the U.S. Coast Guard Station) and level-line data to longer-

term tide-gauge station data, and then subtracting the rate of local sea-level rise of 2.28 mm/yr (0.09 in/yr) determined by Burgette et al. (2009). The resulting rates of vertical land-level change are calculated from data collected over the second half of the 20th century to recently (Patton et al., 2017).

The rate of vertical land-level change near Buhne Hill is approximately -2 mm/yr (-0.08 in/yr; shown as "-2.09" in Figure 4), which indicates subsidence that fits a broad pattern across Humboldt Bay. The tide gauge station at North Spit shows subsidence at a rate of approximately 2.3 mm/yr (0.09 in/yr; shown as "-2.33" on Figure 4). Geodetic data that span the Little Salmon fault show a differential vertical rate of approximately 2 mm/yr (0.08 in/yr) across the fault zone (i.e., from subsidence of 2 mm/yr at Buhne Hill north of the Little Salmon fault to subsidence of approximately 4 mm/yr south of the Little Salmon fault; Figure 4). Given the observation of interseismic subsidence at Humboldt Bay that includes at Buhne Hill, the earthquake cycle should produce coseismic uplift during a future earthquake on the Cascadia Subduction Zone or Little Salmon fault. Over geologic time, the cumulative net short-term rates of interseismic and coseismic land-level changes must result in the well-documented long-term uplift rate at Buhne Hill of about 0.36 mm/yr (1.2 ft per thousand years) defined by the uplifted marine terrace (PG&E, 2003; 2005).

2.4 Relative Sea-Level Change

Relative sea-level change at any particular location is the net sum of local sea-level change and local vertical land-level change. As described above, the positive rate of local sea-level change (rise) estimated by Burgette et al. (2009), which was used by Patton et al. (2017) to calculate vertical land-level change, is approximately the same as rates of global sea-level rise presented by the IPCC (2019) averaged over a comparable time period. Thus, in our modeled estimate of relative sea-level rise at Buhne Hill over the next 100 years, the global sea-level rise estimates by IPCC (2019) are considered applicable. IPCC (2019) forecasts a global rise in sea-level between approximately 0.3 and 1.5 m (1 and 5 ft) by the year 2120 (Figure 3), and a rate of rise between approximately 8 and 15 mm/yr (0.3 and 0.6 in/yr).

To evaluate future relative sea-level rise at the ISFSI, we construct a relatively simple and conservative model that combines the high-emission scenario (RCP8.5) global sea-level rise forecast with the vertical land-level change data (Figure 5). Figure 5A shows the high emissions climate scenario best estimate, maximum and minimum sea-level rise over the next 100 years as published by IPCC (2019). Panel 5B shows two types of vertical land-level change data: the long-term rate of uplift at Buhne Hill (1.2 ft per thousand years, or 0.36 mm/yr) based on uplifted marine terrace data is indicated by the dashed grey line, and the modern rate of interseismic subsidence near Buhne Hill (-0.08 in/yr, or -2 mm/yr, from Patten et al., 2017) is shown as the solid purple line. As stated in the Introduction, our simple model assumes an ISFSI elevation of 13.41 m (44 ft.) in the year 2000. By the year 2020, interseismic subsidence has lowered the elevation to about 43.9 ft (13.4 m). This explains why the solid purple line in Figure 5B is below the 44 ft elevation line at the left-hand side of the plot.

The discrepancy between the current interseismic subsidence rate and the long-term rate of uplift must be reconciled over time through coseismic uplift during earthquakes on the Cascadia Subduction Zone and/or Little Salmon fault. The analysis shown in Figure 5 presents a scenario forecast without a large earthquake on either source. This is shown both for simplicity and so that the maximum relative sea-level rise can be evaluated. A later analysis (Figure 6) presents a scenario case with a coseismic uplift event in the next 100 years (i.e., a major earthquake occurs on the Cascadia Subduction Zone and/or Little Salmon fault). With no major earthquake in the next 100 years and land subsidence at the current rate of vertical land-level change, the ISFSI elevation in the year 2120 (with elevation defined relative to the year 2000) will be approximately 43.2 ft (13.2 m) (Figure 5B). This indicates a decrease in elevation of approximately 0.8 ft (0.2 m) relative to the year 2000 due to local land-level change alone.

Projected relative sea-level change for the next 100 years is estimated by subtracting the sea-level rise curves from the interseismic vertical land-level change curve (Figure 5C). The combination of a positive global sea-level change (i.e., a rise) and a negative land-level change (i.e., subsidence) results in a negative relative sea-level change, or relative sea-level rise. Given a rate of sea-level rise of 8 to 15 mm/yr (0.3 to 0.6 in/yr), with a preferred rate of 11.5 mm/yr (0.45 in/yr), and an interseismic subsidence rate of 2 mm/yr (0.08 in/yr), the relative sea-level change at Buhne Hill is -1.0 to -1.7 m (-3.2 to -5.6 ft) over the next 100 years (Figure 5C). The resulting relative sea-level curves show the ISFSI site at an elevation between approximately 38.3 and 40.8 ft (11.7 and 12.4 m) by the year 2120, with a best estimate of 39.5 ft (12.05 m).

An important consideration for forecasting relative sea-level change at the ISFSI over the next 100 years is whether or not a large earthquake occurs on the Cascadia Subduction Zone and/or Little Salmon fault. This possibility is explored in Figure 6. The upper panel (A) shows the “no earthquake” scenario as described above; this plot is simply a combination of Figure 5, panels B and C. The lower panel (B) in Figure 6 shows the results of a second analysis whereby a scenario earthquake is presumed to occur in the year 2080. The selection of the exact year is entirely arbitrary; however, the consideration of a scenario earthquake within the next 100 years is reasonable given that the last great earthquake on the Cascadia Subduction Zone was the “megathrust” event of 1700 AD (Satake et al., 1996), and comparable great earthquakes have occurred repeatedly in the past at intervals from about 300 to 700 years (PG&E, 2003; Goldfinger et al., 2012). The earthquake scenario includes an abrupt, coseismic uplift at Buhne Hill of 4 ft (1.2 m) in the year 2080. This amount of coseismic uplift is representative of what may occur and is not intended to represent a precise prediction. Following the earthquake, the scenario in Figure 6B assumes that interseismic subsidence resumes at the modern rate. With the coseismic uplift event interrupting the pattern of relative sea-level rise, the earthquake scenario in Figure 6B shows the ISFSI site at an elevation between approximately 42.3 and 44.8 ft (12.9 and 13.6 m) by the year 2120, with a best estimate of 43.4 ft (13.3 m). This scenario illustrates that, given an earthquake in the next 100 years, relative sea level by the year 2120 may be essentially unchanged from the present day (in 2020) and within uncertainties there may be a relative sea-level fall.

The results described above and shown in Figures 5 and 6 are simplifications, and do not incorporate many of the uncertainties in future climate change, sea-level rise, and coseismic land-level changes. For example, the selection of the forecasted sea-level changes based on the high-emission scenario (RCP8.5) is currently believed to be an unlikely outcome based on economic and policy trends (Hausfather and Peters, 2020). Additionally, climate models predict geographical variability in sea-level change over the 21st century between zero and twice the global average (Gregory et al., 2001). The models agree that sea-level rise is expected to be geographically non-uniform, but they do not agree about the geographical pattern. Thus, the global average of both historic changes in the 20th century and forecasted sea-level change over 21st century should be considered only proxies for sea-level change near Buhne Hill. In other words, a global average forecast of sea-level change does not predict precise sea level at a particular location and time, but should indicate a direction of change.

3.0 CONCLUSIONS

This updated analysis of relative sea-level change at the Humboldt Bay ISFSI site at Buhne Hill, Humboldt County shows that the current rate of relative sea-level rise is generally higher than estimated previously by PG&E (2005). The new analysis, which uses sea-level rise estimates based on a high-emission forecast by the IPCC (2019) and recent vertical land-level data for the Humboldt Bay region (Patton et al., 2017), suggests a maximum decrease in elevation of the ISFSI of approximately 1.0 to 1.7 m (3.2 to 5.7 ft.) relative to the year 2000 by the year 2120. Using a value of 44 ft. for the ISFSI elevation in the year 2000 thus suggests the elevation by 2120 may be 39.5 ± 1.2 ft. If a large earthquake were to occur on the Cascadia Subduction Zone or Little Salmon fault, abrupt, coseismic uplift of the ISFSI is expected and the decrease in elevation by the year 2120 will be much less, or the elevation may be higher than it is currently.

Important updates to the previous report by PG&E (2005) include:

1. A forecasted increase in the rate of global sea-level rise over the next 100 years due primarily to greater melting of the Greenland and West Antarctic ice sheets than previously estimated in IPCC (2001).
2. Geodetic data that provide well-documented evidence of interseismic subsidence of the Humboldt Bay area (Patton et al., 2017) instead of the interseismic uplift assumed by PG&E (2005). In particular, geodetic data from Buhne Hill show a modern subsidence rate of approximately 2 mm/yr (0.08 in/yr). This interseismic subsidence would require coseismic uplift during earthquakes on the Cascadia Subduction Zone and/or Little Salmon fault in order to replicate the observed geologic long-term rate of uplift at Buhne Hill based on marine terrace data (PG&E, 2003; Page, 2005).

In summary, relative sea-level rise is expected to occur over the next 100 years at Buhne Hill, with amounts up to approximately 3 to 5 feet. Lesser amounts of relative sea-level rise may result if global emissions are less than the IPCC (2019) “high emission” scenario, and very little change

(or relative sea-level fall) may occur if there is a local earthquake that produces abrupt uplift at the site.

Currently, the shoreline is protected by a seaward-sloping berm of riprap that has protected Buhne Hill from coastal erosion since it was installed in the 1950s and upgraded in the 1980s (PG&E, 2005). Given the forecast of increasing rates of sea-level rise, and the prediction of an increase in the frequency and intensity of storm-generated sea-level surges, we recommend that the reliability of the riprap berm and/or other shoreline erosion protection measures be evaluated.

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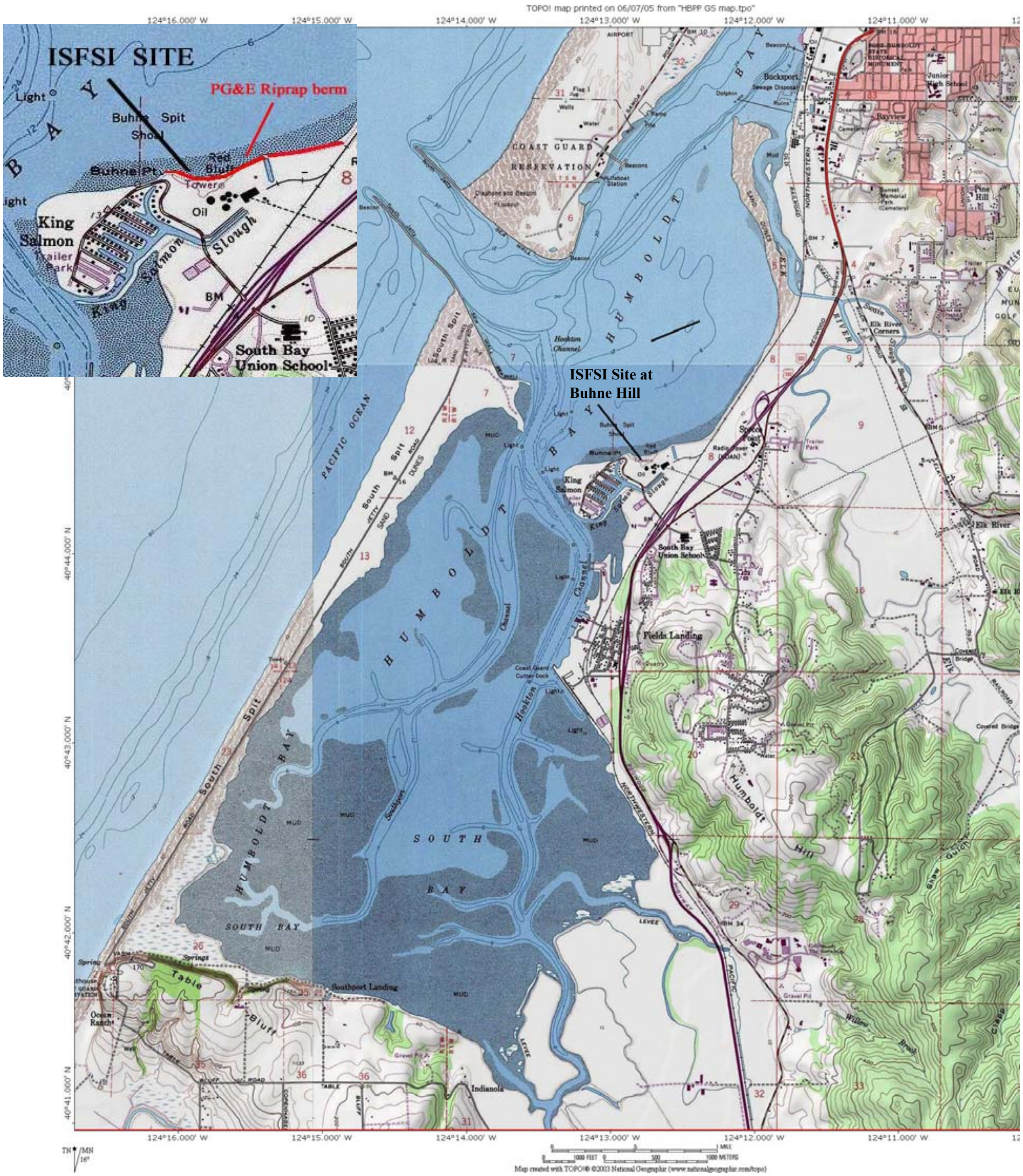

Notes:
- Figure from PG&E (2015)

Location of ISFSI Site at Buhne Hill

POTENTIAL SEA LEVEL CHANGE, HBPP ISFSI

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Lettis Consultants International, Inc.

Figure
1

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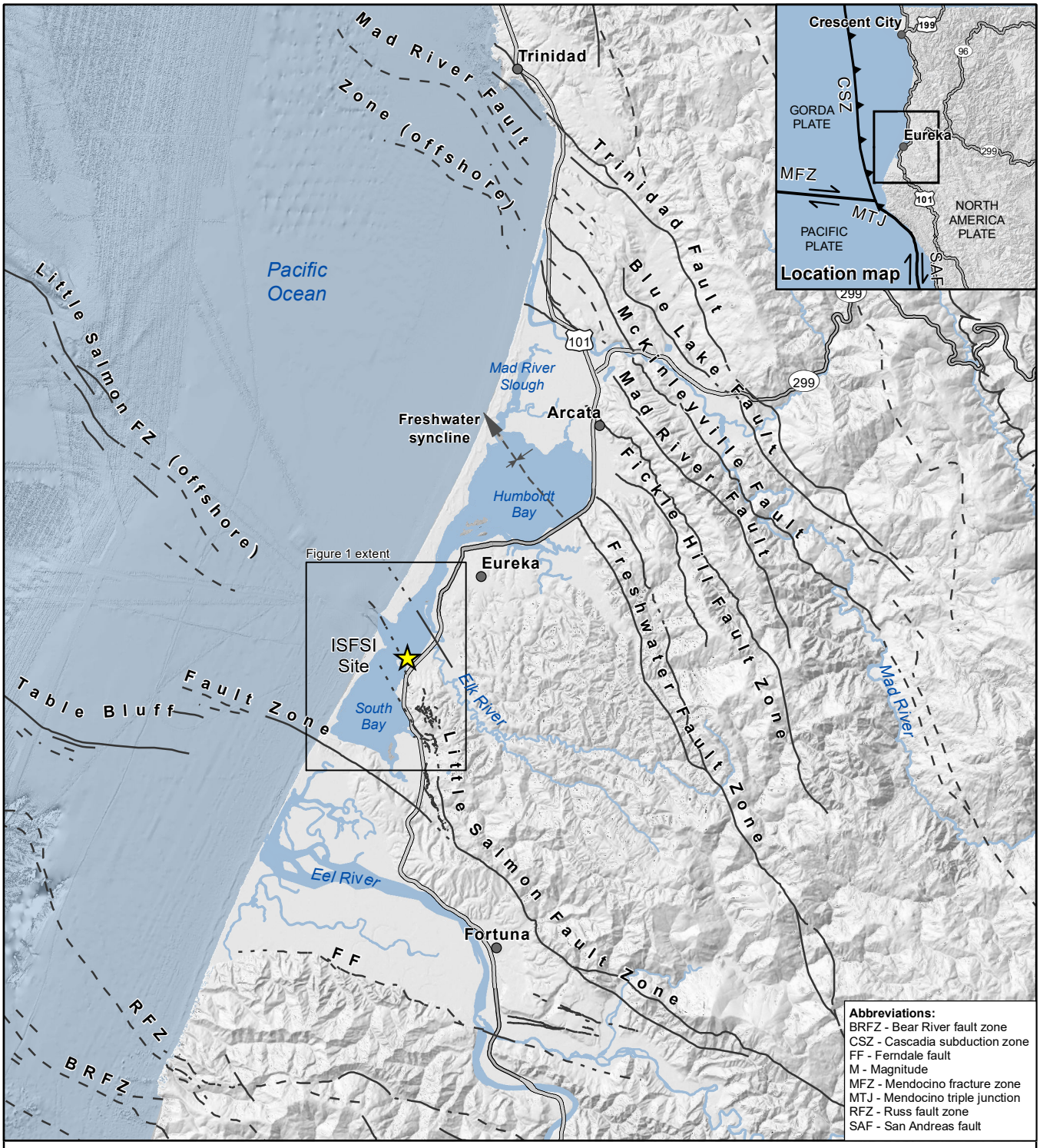

EXPLANATION

- ISFSI Site
- Selected cities
- Syncline
- Fault; solid where well located, dashed where approximate, dotted where concealed.

Sources:
- DEM from California Spatial Information Library (2011)
- Faults from PG&E (2017a)
- Syncline from Valentine et al. (2012)

N, W, E, S

0 5 10 mi

0 10 20 km

Map projection and scale: NAD 1983 UTM Zone 10N, 1:350,000

Tectonic Setting of Humboldt Bay, California

POTENTIAL SEA LEVEL CHANGE, HBPP ISFSI

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Figure 2

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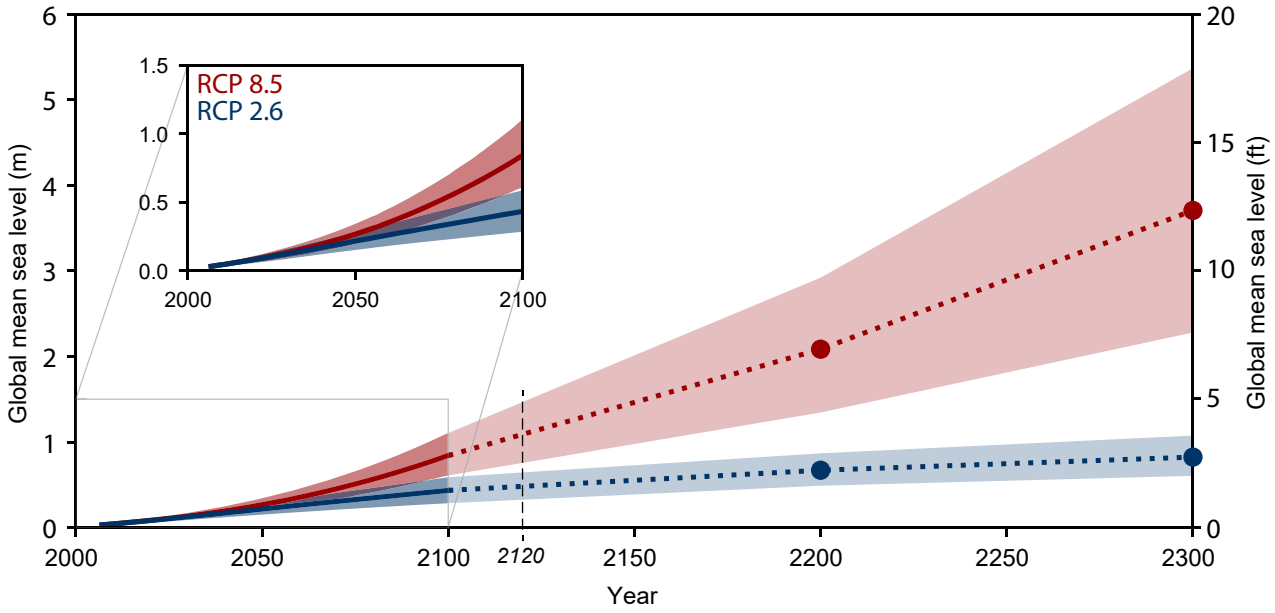

Figure caption (Modified from IPCC, 2019):

Projected sea-level rise until 2300. The inset shows an assessment of the *likely* range of the projections for an optimistic future climate forcing scenario (RCP 2.6, in blue) and a "business as usual" future climate forcing scenario (RCP 8.5, in red) up to 2100. Projections for longer time scales (up to the year 2300) are highly uncertain but a range is provided.

Notes:
- Modified from IPCC (2019), their Figure 4.2
- Year 2120 indicated by vertical dashed line

Predicted Changes in Global Mean Sea Level Through 2100 and 2300 from IPCC (2019)

POTENTIAL SEA LEVEL CHANGE, HBPP ISFSI

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Figure **3**

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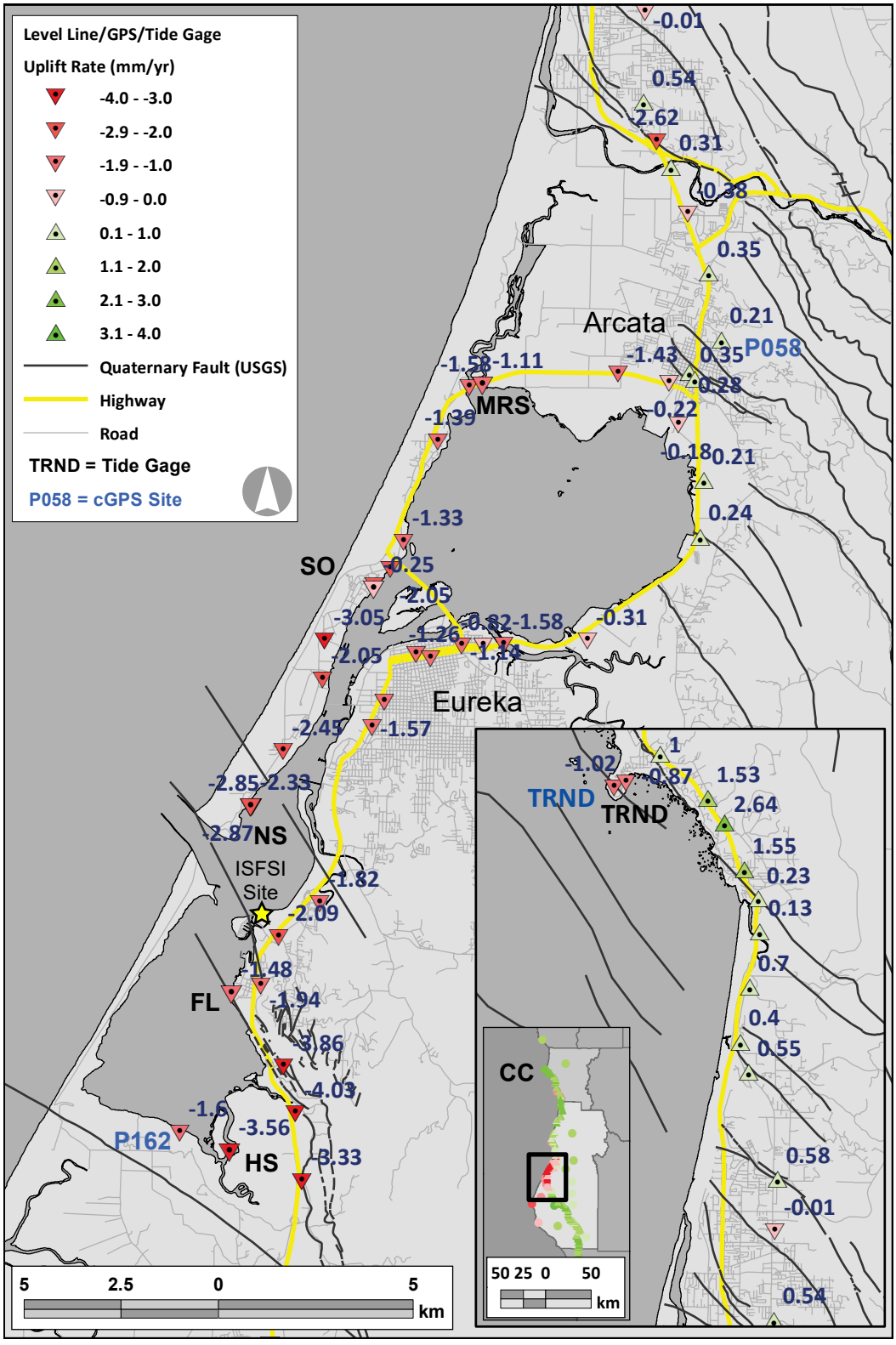

Notes:
- Modified from Patton et al. (2017), their Figure 22
- ISFSI site indicated by the yellow star

Vertical Rates of Land-Level Change between mid-20th century and 2017 in the Humboldt Bay Region

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Figure **4**

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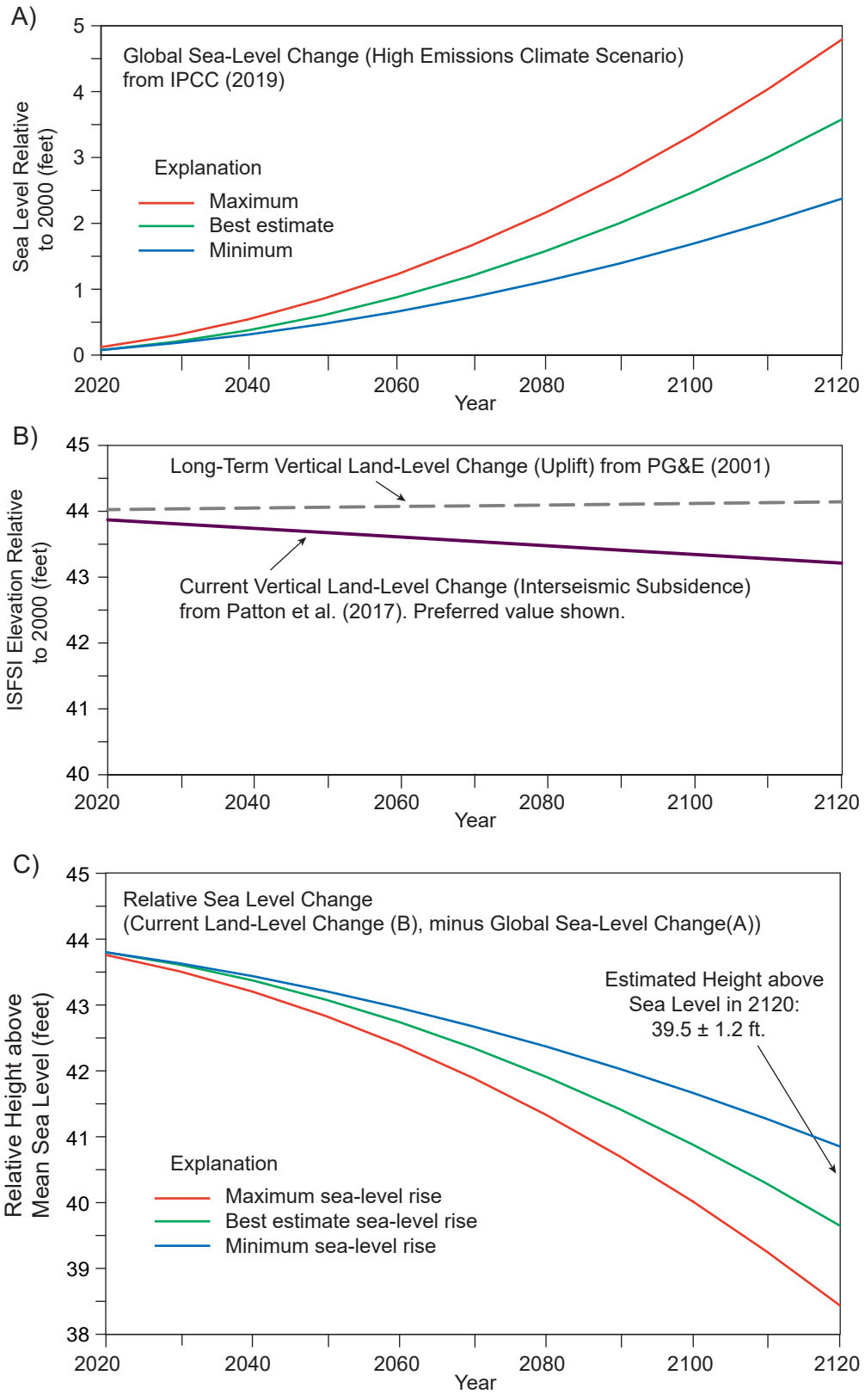

Notes:
- Panel A is from Figure 3
- The High Emissions (RCP8.5) climate scenario is one of several considered in IPCC (2019)

Forecasted Sea-Level, Land-Level, and Relative Sea-Level Change at Buhne Hill, 2020 to 2120, Based on IPCC (2019) and Patton et al. (2017)

POTENTIAL SEA LEVEL CHANGE, HBPP ISFSI

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Figure **5**

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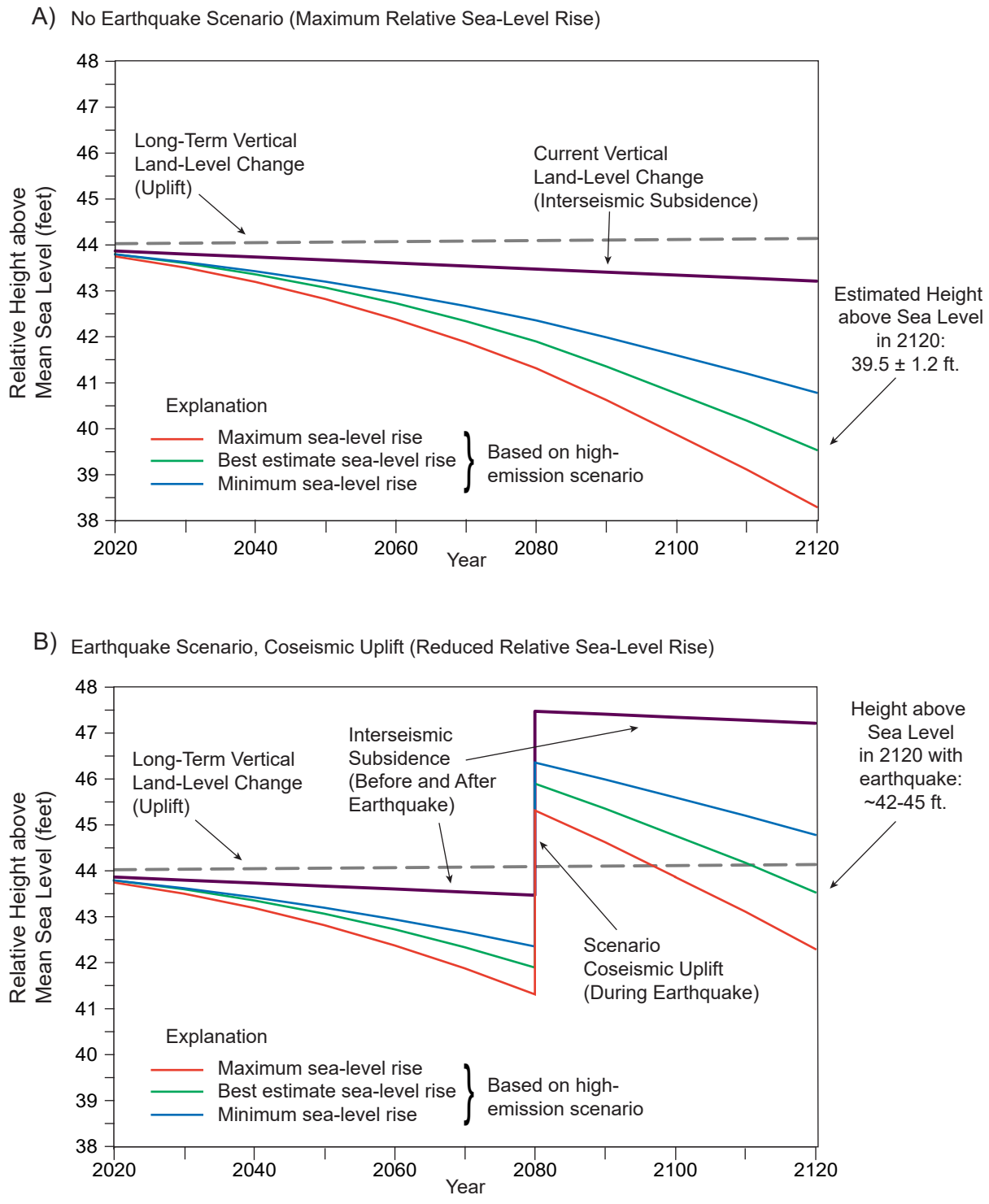

Notes:
- Panel A is from Figure 5b and 5c
- The scenario earthquake shown in panel B is schematic only; the date and amount of abrupt, coseismic uplift are uncertain

Forecasted Sea-Level, Land-Level, and Relative Sea-Level Change at Buhne Hill, 2020 to 2120, Showing Earthquake Scenario

POTENTIAL SEA LEVEL CHANGE, HBPP ISFSI

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Figure **6**

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PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 3

REBUTTAL TESTIMONY ON

DIABLO CANYON POWER PLANT ASSET DISPOSITION AND THE DIABLO CANYON DECOMMISSIONING ENGAGEMENT PANEL

PACIFIC GAS AND ELECTRIC COMPANY
CHAPTER 3
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REBUTTAL TESTIMONY ON
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A. Introduction

Q 1 Please state your name and title.

A 1 My name is Thomas P. Jones. I am the Senior Director, Regulatory, Environmental & Repurposing for Nuclear Generation at Pacific Gas and Electric Company (PG&E or the Utility).

Q 2 What is the purpose of your rebuttal testimony?

A 2 My rebuttal testimony responds to recommendations of the County of San Luis Obispo (SLO County or County), Women's Energy Matters (WEM), the Northern Chumash Tribal Council (NCTC), and The Utility Reform Network (TURN) regarding the disposition of Diablo Canyon Power Plant (DCPP) assets and the recommendations of the Alliance for Nuclear Responsibility (A4NR) and WEM regarding the Diablo Canyon Decommissioning Engagement Panel (DCDEP).

B. Summary of Parties' Positions

Q 3 What is your general understanding of the recommendations of SLO County, WEM, and TURN regarding the disposition of DCPP assets?

A 3 **SLO County** has no specific objections to PG&E's proposed process for land disposition, but asserts that it must have a leading role in discussions related to future uses of the property. The County seeks to ensure that it and the community at large will have opportunities to provide input as proposals go through the screening, evaluation, and implementation process and that the community's goals will be honored.[1] With regard to repurposing facilities, SLO County states that PG&E must continue to explore options for retaining the desalination facility after decommissioning.[2]

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1 Testimony of Susan Strachan on behalf of the County of San Luis Obispo (SLO County Testimony (Strachan)), p. 7.

2 *Id.*, p. 5.

WEM supports repurposing the 230 kilovolt (kV) transmission line, stating that, "the transmission lines running out of Diablo Canyon can be put to good use, sooner rather than later, in parallel with the ongoing work of decommissioning."[3] **NCTC** recommends that PG&E revise the outreach program for its proposed land disposition process to accommodate tribal interest and rights under the California Public Utilities Commission's (CPUC or Commission) Tribal Land Policy to acquire Diablo lands.[4] **TURN** does not make substantive proposals regarding repurposing or asset disposition, but proposes specific ratemaking treatment for asset and land sales of the utility and its affiliates.[5]

Q 4 What is your general understanding of the recommendations of A4NR and WEM regarding the DCDEP?

A 4 **A4NR's** position is that the DCDEP should be disbanded and a new Diablo Canyon Community Advisory Board (DCCAB) should be convened, under the aegis of the CPUC, based on its benchmarking of Community Advisory Boards (CAB) implemented under state authority at multiple decommissioning sites.[6] A4NR includes a detailed proposal addressing membership and procedure for its recommended DCCAB.[7] **WEM** suggests that state-sponsored CABs offer a model for panels that operate independently of the licensee.[8] WEM also recommends that DCDEP members share information and resources with members of the CABs in other states with decommissioning facilities.[9]

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3 Testimony of Jean Merrigan on behalf of Women's Energy Matters (WEM Testimony), p. 18.

4 Testimony of Violet Sage Walker on behalf of the Northern Chumash Tribal Council (NCTC Testimony), p. 7.

5 Testimony of Matthew Freedman on the 2021 Nuclear Decommissioning Cost Triennial Proceeding of Pacific Gas and Electric (TURN Testimony), pp. 19-21.

6 Testimony of Rochelle Becker on behalf of the Alliance for Nuclear Responsibility (A4NR Testimony (Becker)), p. 4.

7 *Id.*, pp. 40-42.

8 WEM Testimony, pp. 14-15.

9 *Id.*, p. 15.

C. DCPP Asset and Land Disposition

Q 5 What is PG&E's position on the requests from SLO County as you described?

A 5 PG&E's proposed outreach plan for Diablo Canyon lands conservation and facilities repurposing includes engagement with SLO County and other stakeholders as detailed in PG&E Prepared Testimony, Volume 2, Section 3, Attachment A, Section 3.5.1.1. The County additionally may play a leadership role in future uses of the Diablo Canyon lands and facilities through the permitting process.

PG&E notes the County's position is inconsistent with the action taken by the San Luis Obispo County Board of Supervisors on May 3 to unanimously vote to endorse the concept of Cal Poly San Luis Obispo taking over the areas on Parcel P for repurposing (Staff report: 141897 (ca.gov). If this occurs, Cal Poly would act as its own California Environmental Quality Act (CEQA) agency and would not be subject to local planning standards, thus terminating the County's review role for any future activities related to Parcel P.

Q 6 What are PG&E's plans for the desalination plant after decommissioning?

A 6 Subject to obtaining required regulatory approvals, PG&E plans to retain the desalination plant to support decommissioning. With regard to continued operation of the desalination facility after decommissioning is complete, PG&E will consider proposals from third parties to repurpose the desalination facility.

Q 7 WEM suggests the transmission lines running out of Diablo Canyon can be put to good use in parallel with the ongoing work of decommissioning.[10] Why did PG&E recommended removal of the 230 kV switchyard in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP), then change the plan to retaining it in 2021 NDCTP?

A 7 In the 2018 NDCTP, PG&E recommended removal of the 230 kV switchyard to allow harvesting of the dirt below the switchyard to use as backfill. However, the 2018 NDCTP also included the need for a separate power supply named the "Baywood Feed" to supply long term power. At the

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10 *Id.*, pp. 17-18.

conclusion of the 2018 NDCTP hearings, PG&E was tasked with finding an alternate, less expensive long term power supply. The 230 kV switchyard is the alternate power source that will provide the power on-site until all spent fuel is removed from the site. In parallel, PG&E identified alternate backfill sources, obviating the need to remove the 230 kV switchyard, resulting in a net savings. The decision to retain the 230 kV switchyard resulted in a savings of over $10 million.

Q 8 Can the 230 kV switchyard and the 500 kV switchyard be used as a connection point for alternative power generators, such as offshore wind power?

A 8 Yes. The possibility of offshore wind power either near DCPP or Morro Bay (both with 230 kV switchyards) has been considered by other entities. Offshore wind power could tie into either the 230 kV switchyard or the 500 kV switchyard. The timing of the potential use of the switchyards is up to the entity building offshore wind power and regulatory agencies.

Q 9 TURN states the full value of all depreciable assets sold should be refunded directly to ratepayers as a credit against generation rates and PG&E should not deposit proceeds into the nuclear decommissioning trusts unless PG&E can demonstrate the nuclear decommissioning trusts are insufficiently funded for future decommissioning needs.[11] What is your response to this recommendation?

A 9 The decommissioning cost estimate (DCE) presented in this proceeding assumes that sales of physical assets (other than land) is a credit against the total cost of decommissioning. During decommissioning, PG&E proposes to credit salvage proceeds against the cost of the Decontamination and Dismantlement contract by way of a provisional credit. Using this process, PG&E can write contract terms which incentivize the contractor to salvage or recycle more materials while also benefiting ratepayers by lowering the total DCE.

Q 10 TURN also recommends the Commission re-examine the appropriate percentage allocation as part of a §851 application if the net

[11] TURN Testimony, p. 20.

gain for land sales exceeds $10 million?[12] What is PG&E's position on this?

A 10 The NDCTP is not the appropriate proceeding for the Commission to review and address such a significant revision to Commission decisions governing gain on sales.

Q 11 Similarly, TURN suggests the Commission should review the reasonableness of PG&E's proposed treatment of sale proceeds in an application pursuant to §851 for land owned by Eureka Energy.[13] Does PG&E agree?

A 11 Decision 20-05-053 Ordering Paragraph 1 directs that: "Any sale or encumbrance of assets of affiliates or subsidiaries over which PG&E or PG&E Corporation has control and that has a value over $5 million requires prior Commission authorization." The Commission has not provided additional direction regarding the issues to be addressed in an application addressing the sale of land owned by Eureka Energy. PG&E notes that net proceeds from the sale of land owned by Eureka Energy should go to shareholders, not customers, because Eureka Energy-owned lands are not and have never been in rate base and utility customers have not contributed.

Q 12 NCTC recommends that, in addition to compliance with the CPUC's Tribal Land Transfer Policy (TLTP), PG&E should incorporate, as part of its outreach program, a separate meeting that is specifically targeted to tribes that are culturally and traditionally affiliated with the Diablo Canyon lands addressing: (1) summary of decommissioning, (2) potential repurposing, and (3) properties expected to be available for acquisition—prior to the formal right of first offer notification called for in the TLTP Guidelines.[14] Is this a reasonable request?

A 12 Yes. PG&E will incorporate the additional meeting proposed by NCTC into its outreach program. PG&E is open to meeting with tribal representation from any tribe. PG&E regularly met with Fred Collins, including travelling

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12 *Id.*

13 I*d.*

14 NCTC Testimony, p. 7.

the property together and engaging in discussions about the future of the land.

Q 13 NCTC interprets the TLTP to require Investor-Owned Utilities (IOU) to take the following steps when disposing of utility owned real property: (1) identify tribes relevant to the territory on which the real property is located, (2) provide written notice to the tribes, (3) a period of time for the tribes to express interest in acquisition of the real property, and (4) a period for tribal due diligence and good faith negotiation if the tribe expresses interest in acquiring the real property. Finally, the TLTP provides tribes the right of first offer on the property before the IOU may put the property on the open market.[15] Do you agree with this interpretation?

A 13 The NDCTP is not the appropriate venue to address the CPUC's implementation of TLTP Guidelines whereas there is an active Rulemaking 22-02-002, *Rulemaking to Implement Resolution E-5076 and Review of Tribal Policies*. Significant information sharing and engagement opportunities have been facilitated through the DCDEP. PG&E Prepared Testimony, Volume 2, Section 3, Attachment A, Table 3-9 "DCDEP Meetings on Lands and Repurposing" identifies numerous DCDEP meetings that have focused on DCPP lands and repurposing. PG&E will continue to engage in public discussions on Diablo Canyon lands and facilities through the DCDEP, which includes a tribal representative.

D. Diablo Canyon Decommissioning Engagement Panel

Q 14 WEM states that the DCDEP has spent the "lion's share" of funding on ad campaigns and focus groups for public relations purposes for PG&E and additional oversight is needed to ensure spending is reasonable and prudent.[16] Is this accurate?

A 14 No, it is not accurate that DCDEP funds are spent on public relations purposes for PG&E. The DCDEP is intended to serve as a forum for the local community to provide direct input to PG&E and regulatory agencies on matters related to DCPP decommissioning. Advertising dollars have been used to solicit DCDEP member applications or, per the panel's request,

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15 *Id.*, pp. 5-6.

16 WEM Testimony, p. 14.

services to promote greater community involvement by building awareness of upcoming DCDEP public meetings. The DCDEP Charter provides the opportunity for committees or similar working groups to be created by the panel, as needed, to carry out the work of the DCDEP. As such, the DCDEP conducted a focus group to ensure the community received clear and concise information related to the highly technical and complex regulatory environment that goes along with decommissioning a nuclear power plant.

Q 15 A4NR asserts various issues with the DCDEP as currently constituted require remedy in the form of a CAB based on more applicable nationwide examples and benchmarking of CABs being implemented under state authority at multiple decommissioning sites.[17] WEM also points to state sponsored CABs which offer a model for panels that operate independent of the licensee.[18] What is PG&E's general response to these parties' concerns and recommendations?

A 15 Community engagement or advisory panels are as varied as the communities they represent. Prior to the establishment of the DCDEP, PG&E performed formal and informal external stakeholder panel benchmarking and extensively analyzed variations in composition, structure, governance, etc. The structure of the DCDEP allows for broad, inclusive representation of community interests and unfettered community input. Multiple other oversight bodies under the authority of the state already exist; the purpose of this group is to hear from local community members.

As the NRC noted in their report entitled Best Practices for Establishment and Operation of Local CABs Associated with Decommissioning Activities at Nuclear Power Plants, "State-sponsored [community advisory boards] CABs are typically established by statute. Other CABs may be established based on a simple outreach procedure created by the licensee or members of the public to outline the general role and functions of the CAB." PG&E took a straightforward approach in supporting the establishment of an engagement panel.

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17 See generally A4NR Testimony (Becker).

18 WEM Testimony, pp. 8-12.

Q 16 Please explain the current structure and Charter of the DCDEP.

A 16 The current DCDEP is comprised of representatives of community interests and concerns to PG&E as they relate to DCPP decommissioning who are charged with the responsibility to share information with their respective interest group(s) to raise awareness and foster community participation in the decommissioning process. The panel includes three types of members: (1) Community, (2) Ex-Officio; (3) and PG&E representative. The DCDEP allows for a minimum of 8 and a maximum of 11 community members, up to 3 Ex-Officio members (which may include elected officials), and a senior representative of PG&E's decommissioning team. Elected officials and current PG&E employees and their immediate family members are not eligible for community membership. Community members are selected or re-appointed through a public application process. PG&E and DCDEP panelists not seeking re-appointment select the new members. Ex-Officio panel members are selected by PG&E with consultation and concurrence from existing panel members.

Q 17 How did PG&E develop and implement the DCDEP? What were the guiding principles PG&E used?

A 17 As discussed above, PG&E performed extensive benchmarking prior to convening the DCDEP to ensure the group would successfully perform its intended purpose of providing community input towards the decommissioning plans for DCPP. PG&E was, and remains, committed to working with the community to help inform the decommissioning strategies and potential future uses of the DCPP site. Formation of the DCDEP included the following desired outcomes:

- Provide formal mechanism for effective 2-way communication with PG&E's external stakeholders on decommissioning matters;
- Create a forum and process to share company information and hear community suggestions, questions, and concerns;
- Create links between business strategy, regulatory requirements, and community feedback;
- Inform post-operational emergency preparedness costs and future land use (per the Joint Proposal);

- Develop informed, 3rd-party voices regarding ongoing operations and decommissioning;
- Input to be incorporated into key regulatory filings for decommissioning; and
- Early engagement opportunities reduce delays in regulatory/permitting processes.

PG&E also considered the following design principles when establishing the DCDEP:

- Authentic Conversations – Meetings should deepen participants' mutual understandings, foster open communication and collaboration;
- Public Access to Meetings – At least four meetings will be held in public venues each year, and will be recorded for posting on a website;
- Education – PG&E will ensure that all panel participants and the public have access to information and subject matter experts (SME), to facilitate understanding of technical information (Pre-reads, Poster sessions or presentations by SMEs); and
- Transparency – The general public will have access to information shared with the panel (Website, Open houses/open meetings).

Q 18 WEM and A4NR point out that the DCDEP is the only CAB that has a facilitator. They suggest this is an unnecessary expense and that it underscores PG&E's control of the DCDEP.[19] Why did PG&E decide to hire a facilitator to coordinate DCDEP activities and meetings? What is his role on the DCDEP?

A 18 According to the International Association of Business Communicators as well as the Public Relations Society of America, the structure, form, and administration of CABs can vary tremendously based on need and intent. As observed in benchmarking, CABs featuring a "chair" or presiding panelist creates an unequal balance of authority and responsibility between the members. Chairs who then work to moderate meeting through contentious issues may be accused of silencing or corrupting the process because they disagree with the perspectives being presented. The model of having an independent third-party facilitator is not unusual among CABs. A significant

19 A4NR Testimony (Becker), p. 19.

amount of administrative work related to the panel's meetings is performed by the facilitator on behalf of the panel, but is paid by PG&E. This arrangement allows the volunteer panel members to focus on the topics of discussion, rather than the administration of panel business.

The independent third-party facilitator hired to work with the DCDEP is (1) a local community member with years of prior experience in convening CABs as a facilitator, and (2) in possession of polling technology to facilitate blind voting preferences (dial testing).

Q 19 Is the role of the DCDEP limited to considering plans to disposition DCPP assets and land after decommissioning is completed?

A 19 No, while PG&E established the DCDEP to comply with the Commission's directive to implement a stakeholder process prior to taking any action regarding Diablo Canyon lands, in response to public feedback, including a letter from A4NR (included as Attachment A to this chapter), the DCDEP quickly expanded its purview to include additional decommissioning issues, e.g., management and storage of spent nuclear fuel, transportation methods used during decommissioning, emergency planning, and community economic impacts and opportunities. The DCDEP has, and continues to, successfully engage in key areas of the decommissioning planning process. It is not necessary to re-invent the wheel as A4NR proposes when the current DCDEP is capable of expanding its purview to address issues that may arise during active decommissioning.

Q 20 What about the fact that other decommissioning plants have state-run CABs?

A 20 The CABs referenced by WEM and A4NR were established by the respective state legislatures for reasons specific to those plants and those states. One of the reasons these states may have chosen to implement CABs by statute and under state direction is that the majority of these plant's utility licensees transferred the NRC operating license and nuclear decommissioning trusts to unregulated private companies for decommissioning. Similar facts do not apply to DCPP or California.

Q 21 Has PG&E assessed the DCDEP against the NRC Staff's Final Report on Best Practices for Establishment and Operation of Local Community Boards

Associated with Decommissioning Nuclear Power Plants, issued on July 1, 2020? If yes, what did you conclude?

A 21 Yes. The NRC encourages the formation of community panels to "foster communication and information exchange between the licensee and members of the community," which is the groundwork of the DCDEP. Additionally, the DCDEP aligns with all of the NRC's list of best practices in formation of CABs:

- Early formation of CABs in the decommissioning process;
- Development of a charter or guiding document to formalize their purpose, organizational structure, and general operations;
- Consideration of local preferences for engagement and CAB meetings should be open to the public whenever possible;
- Diversity in CAB membership;
- CAB meeting frequency and topics for discussion based on the site status, ongoing activities, and level of stakeholder interest;
- Specifically assigned funding sources to support operations and activities; and
- Access to technical experts or specific training to better inform their discussions with the communities they serve.

Q 22 A4NR's proposed DCCAB would be under the aegis of the CPUC, with the Energy Division coordinating and facilitating meetings.[20] A4NR suggests this is necessary in order to ensure the DCCAB is independent of PG&E. Do you agree that the current DCDEP is not independent?

A 22 No. The Panel is comprised of volunteer community members, and the facilitator is also a local community member. Although the DCDEP and PG&E work together to bring community issues and concerns to light, the DCDEP is an independent panel with the sole purpose of representing the local communities which may be impacted by the decommissioning of DCPP. The DCDEP is responsible for setting the agendas and timing of public meetings based on feedback received from the community and receives and responds to community questions submitted directly to the panel. The DCDEP selects presenters for public meetings and workshops,

[20] *Id.*, pp. 40-42.

often times with opposing views to foster a meaningful discussion with diverse perspectives. The DCDEP issued the Strategic Vision Report with subsequent updates which reflects the community's desire for what will occur throughout the decommissioning project and continues to revise, update, and refine the report as the panel holds ongoing public meetings and workshops and receives community input on various decommissioning issues. PG&E has used input from the Strategic Vision Report to help shape it's discretionary permitting and licensing activities, such as the Coastal Development Permit, Conditional Use Permit, and the request for proposal and subsequent licensing actions for the new dry cask storage system to be employed at the Diablo Canyon Independent Spent Fuel Storage Installation. The DCDEP also periodically amends the DCDEP Charter to reflect community feedback and incorporate fresh perspectives provided by new panel members.

Q 23 A4NR is particularly concerned that the DCDEP does not have any elected officials as members, asserting this makes it an outlier among CABs for commercial nuclear power plants.[21] Why did PG&E not include elected officials as members on the DCDEP?

A 23 There are no designated seats for any organization or interest group on the panel. The DCDEP is intended to serve as a volunteer, non-regulatory body created to foster and encourage open communication, public involvement, and education on matters related to DCPP decommissioning. Elected officials are encouraged to participate in the meetings of the DCDEP, however, per the DCDEP Charter, sitting elected officials are ineligible to serve as one of the 8-11 community members of the panel. The primary reason elected officials are not eligible to serve on the panel as community members is that County of San Luis Obispo sought to be and now is the lead CEQA agency. Participation on land use matters as part of the panel can prejudice a county decision maker's role in the regulatory required CEQA proceeding. This was discussed with County leadership and the first Ex-Officio position was created to address this potential conflict of interest. Additionally, the charter was amended to allow for any elected official to serve

[21] A4NR Testimony (Becker), p. 13.

in Ex-Officio capacity. Finally, limiting the elected official role on the panel reduces the likelihood of politicizing apolitical decommissioning issues.

Elected officials observed at San Onofre Nuclear Generating Station would either not show up for contentious meetings or would use the time to push individual political agendas. Additionally, public comments would move away from the meeting topic as constituents would look to address their respective elected officials. However, Ex-Officio members may include elected officials as selected by the DCDEP and PG&E to represent local interests. This allows broad, inclusive representation of community interests and unfettered community input. Per the DCDEP Charter, elected officials and representatives of government agencies will be given priority at the beginning of public comment periods at regularly scheduled panel meetings as courtesy for their representation of public constituencies. Elected officials also have other formal avenues and mechanisms by which they can learn about and affect decisions regarding DCPP decommissioning.

Q 24 Is PG&E considering any changes to the form and function of DCDEP as currently constituted?

A 24 Not at this time; PG&E has received feedback that the DCDEP is seen as a productive, effective community advisory group and strongly advocates that it continues in its current form. PG&E has also seen the effectiveness in the DCDEP as several recommendations from the DCDEP have been incorporated into DCPP decommissioning plans. With that said, the composition of the panel and the nature of the conversations are expected to evolve over time. We are receptive and flexible to the needs of our customers and communities; as such, PG&E remains open to continued discussions with panel members regarding its form and function.

E. Conclusion

Q 25 Does this conclude your rebuttal testimony?

A 25 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY

CHAPTER 3

ATTACHMENT A

OCTOBER 2018 LETTER FROM THE ALLIANCE FOR NUCLEAR RESPONSIBILITY (A4NR)

ALLIANCE FOR NUCLEAR RESPONSIBILITY

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October 24, 2018

ATTN: Diablo Canyon Decommissioning Engagement Panel

c/o Chuck Anders, Facilitator
Diablo Canyon Decommissioning Engagement Panel

RE: Comments of the Alliance For Nuclear Responsibility

Dear Mr. Anders and Members of the Panel:

The Alliance for Nuclear Responsibility provides the following comments relating to both (1) the topics discussed and (2) the composition, organization, selection and funding of the Diablo Canyon Decommissioning Engagement Panel (DCDEP) for its work through October 2018.

We have found the Panel operates collegially and diligently with respect its assigned tasks and responsibilities. What remains less clear to us is who choses and directs the subject matter that panel considers each month, and the order in which these issues are placed before them.

A4NR has attended all but one DCDEP meeting (and watched the other meeting via video playback). We also have closely following the San Onofre Engagement Panel (SONGS CEP) and found that the focus of the analogous SONGS CEP and its constituent make-up greatly differ from the DCDEP. For this reason we recommended that its chairman, Dr. David Victor, come and share his insight into decommissioning with the Diablo community. To address A4NR's concern, we sent Dr. Victor a list of questions to clarify the SONGS panel's focus and membership. He replied, and a copy of our questions and his answers are presented here as "Attachment A." We will be using material from that correspondence as part of these comments.

I. DCDEP SHOULD FOCUS ON DECOMMISSIONING ISSUES

A. DISPOSITION OF 12,500 ACRES OF PG&E/EUREKA ENERGY LANDS IS NOT A DECOMMISSIONING ISSUE AND SHOULD BE HANDLED BY A SEPARATE ENTITY OR PROCESS

We are concerned that the DCDEP has devoted a preponderance (though by no means exclusive) amount of time and energy to issues involving disposition of lands around the *entire* 12,500 plus acres of PG&E/Eureka Energy property. Further, many of these "lands" are outside the boundaries of PG&E's Part 50 NRC license (an overview and detail map from PG&E is

presented here as "Attachments B and C"), which demarks the areas that must be decommissioned and remediated under federal law. Some of those areas also include breakwaters and coastal zones that are subject to regulation under the California Coastal Commission and State Lands Commission. However, of *that* area (which is a minimal subset of the overall site), an even smaller subset of comprises the actual radiological decontamination areas that are of greatest concern at the federal level.

We are concerned that the focus on the future of outlying Diablo lands lacks timely relevance in PG&E's upcoming decommissioning filing, while issues that *are* clearly within the Part 50 decommissioning parameters will not undergo the same scrutiny.

At the DCDEP, public questions and concerns seem predominantly oriented more towards land re-use and future stewardship or sale of adjacent lands. That the public is engaged with *these* land issues may be a reflection of the way they have been placed in the chronology of concerns by PG&E.

Over the past summer (2018), land use issues (writ large; not limited to the Part 50 areas) were not only the subject of monthly meetings, but also *additional* community workshops.

The Alliance believes adjacent land reuse issues need not be the priority for the DCDEP at this time, with the exception of those land/marine concerns within the Part 50 footprint (including breakwater, marina, auxiliary buildings). And even then, issues that could affect the decommissioning cost estimate (such as removal—or not—of the breakwater infrastructure) were considered, in Dr. Victor's estimation, "early days for those discussions" with regard to similar infrastructure removal issues at the SONGS CEP.

In the interest of refocusing and reprioritizing the role and agenda of the DCDEP, the Alliance believes it wise to remove land use issues outside the Part 50 footprint from the priorities of the DCDEP. Those issues that involve county zoning and long-term land use planning belong in a separate proceeding—one that could commence before the closure and decommissioning of the Diablo Canyon Nuclear Plant. Disposition of extraneous properties (Wild Cherry Canyon, etc.) and external agents (e.g., Eureka Energy, Home Fed) and those who have financial, cultural or recreational interests in these lands should enter into their own negotiations in accordance with county land use and zoning regulations and proceedings. These activities are not under the jurisdiction of the NRC or CPUC that involve the work to be completed in the Part 50 zone. As part of the Joint Proposal to retire Diablo Canyon, and the subsequent CPUC Decision in that matter, PG&E did agree to not make any final decisions on disposition of land under their ownership without public input. However, *that* disposition can be either sooner or later; actual decommissioning activities as will be detailed in the NDCTP involve demolition and decontamination within the Part 50 area, and must occur on a specific, regulated timeline.

It is the Alliance's belief that this shift will—if it is not too late—free up time for a more detailed discussion of the technical waste and decontamination issues that the real experiences of the SONGS CEP has brought to the foreground.

B. DCDEP SHOULD FOCUS ON THE KEY DECOMMISSIONING ISSUES OF EMERGENCY PLANNING AND SPENT FUEL MANAGEMENT

The Alliance believes that the DCDEP should focus its efforts on decommissioning issues with a direct nexus to the immediate areas of radiological decontamination. Two such issues are scheduled for October (Emergency Planning) and November (Spent Fuel Storage). The late scheduling of these issues is problematic because they are complex, technical issues and yet are compressed much closer to PG&E's deadline for filing their NDCTP with the CPUC by the start of 2019.

To our knowledge, no "additional workshops" are scheduled for Emergency Planning and Spent Fuel concerns, as had been convened regarding land disposition. The experience at the SONGS CEP (as evidenced by their video recordings and meeting notes) demonstrates that these issues have elicited broad public concern and comment.

A4NR has read filings by other reactor communities and closely monitored the SONGS CEP. And, as Dr. Victor's responses indicate, at SONGS—where an active decommissioning is taking place—the most frequent concerns of stakeholders are: the integrity and type of waste storage; trust (or lack thereof) in the NRC safety and state regulators; and issues about the ultimate disposal of the waste in terms of expedience and risk to the California coast—and its inter-relation with activities on national level. Had spent fuel and emergency planning been placed earlier in the cue, more public input (as experienced at SONGS) might have arisen. The SONGS CEP has had more public debate—including technical presentations—on the spent fuel issue than the DCDEP will have had time to hold before PG&E files its NDCTP at the CPUC. And yet issues involving the costs, duration of storage time, durability and longevity of the waste systems will impact the costs projected in the NDCTP. Had the issue of long-term storage of spent fuel been made more prominent, the public may have become more engaged in the macro-national issues of permanent waste storage that will have greater effects and impacts on the high-level waste that remains on our seismically active, San Luis Obispo coastline.

II. COMPOSITION, ORGANIZATION, AND SELECTION OF DCDEP

A. COMPOSITION OF DCDEP

The Alliance believes that it may be necessary to modify the composition of the DCDEP so that it is better able to ventilate and review the key decommissioning issues.

1. TECHNICAL EXPERTS

The DCDEP should consider whether the addition (or replacement) of existing members with specific technical experts is needed to insure that a robust discussion. As Dr. Victor noted regarding the role of technical experts on the SONGS CEP:

> These experts are invaluable—not just in meetings but also outside the meetings for two reasons. First, they can help organize and understand the range of stakeholder opinion. That has been very important on the topic of conduit removal, for example. Second, at times topics arise that have high technical content and it is really important for the CEP to be able to rely on its own members to wade through the details and help it formulate an opinion. An advantage of a larger panel (we have 18 members) is that we can represent the

> wide array of local communities and also allow for cross-cutting and technical expertise.

The SONGS CEP issue of "conduit removal" could be considered analogous to the intake and breakwater issues that are involved at Diablo. Yet, the DCDEP is absent the marine science membership (or the Coastal Commission experience representative) that might inform those discussions.

2. ELECTED OFFICIALS

The Alliance suggests that the DCDEP would be stronger and more effective if it included a significant number of elected officials. The SONGS CEP is composed of numerous elected officials, and, while it has had to grapple with difficult and controversial issues, it has functioned quite well. Dr. Victor states that these elected officials are a "vital resource" to the SONGS CEP. He also felt that local elected officials that serve on the SONGS CEP provide a valuable depth of knowledge. Of the SONGS CEP, Dr. Victor wrote:

> [m]ost members are elected officials. The elected officials are a vital resource—perhaps the most important because they are immersed into local politics, which gives them special insight into what is feasible and also judgement [sic] about where/how to focus.

Another benefit to having elected officials on the DCDEP in their official capacity is that they have institutional resources available that can help them perform their work on the Panel. This is what happens at SONGS CEP. As it is now, the DCDEP is composed entirely of citizen volunteers (some with full time jobs doing something else) whose time, resources, and sustainable commitment to the project varies and may be limited. This is a concern. The DCDEP has a lot of work to do and the decommissioning will take many decades, and it is uncertain how long and whether the DCDEP members can sustain this effort. Meanwhile, elected officials, have an automatic, long term, and sustainable commitment to help the community cope with the decommissioning of Diablo Canyon.

The attached copy of the roster of the SONGS CEP (attachment "D") shows its strong representation of elected officials and some individuals with technical expertise.

B. ORGANIZATION OF DCDEP

The Alliance believes that the DCDEP would function more independently and effectively if it had some internal organizational structure such as a chairperson and executive committee. Thus far, it appears that the topics, agendas, timetables and written work products of the DCDEP are dominated by PG&E and Chuck Anders (the facilitator chosen by PG&E). For example, the public meetings focus on topics of interest to PG&E, the agendas for those meetings are drafted by PG&E and the time slots for each item on the agenda often leave inadequate time for the Panel Members to adequately discuss or investigate a matter.

In contrast, the SONGS CEP has a chair and an executive committee. Dr. Victor has stated that their Executive Committee has been a key element to the success of the SONGS CEP and that it has provided the leadership and carried much of the workload.

C. SELECTION OF DCDEP MEMBERS

The Alliance believes that the actual and perceived independence of the DCDEP would be significantly enhanced if the members of the DCDEP were selected by appropriate State and Local governmental entities, rather than by PG&E. For example, the members of the DCISC are selected by three relevant governmental agencies (Governor, Attorney General, and California Energy Commission) via a selection process conducted by the California Public Utilities Commission. This is an example of a better, more transparent approach.

A. FUNDING FOR DCDEP

The Alliance submits that the funding for the support of the DCDEP should be further investigated and refined if necessary. Currently, PG&E funds the DCDEP and can terminate funding (and thus essentially terminate the DCDEP) whenever PG&E deems the DCDEP no longer warranted or useful. The longevity, function and goals of the DCDEP and its funding should be the subject of separate and ongoing discussion.

CONCLUSION:

The Alliance appreciates this opportunity to bring these comments before you. As the agenda for the October 24th meeting includes the subject of ongoing offsite emergency planning, we are attaching both PG&E's previous written commitments (Attachment "E") from the Joint Proposal, and the commitment from Southern California Edison (Attachment "F"). We look forward to the October 24th meeting and to Dr. Victor's presentation in San Luis Obispo.

Please feel free to contact me with any questions or comments.

In Peace,

/s/

Rochelle Becker,
Executive Director

Attachments:

a) Correspondence of David Victor to A4NR
b) Map of Part 50 area
c) Map of entire Diablo Canyon/PGE/Eureka property
d) Membership roster of SONGS CEP
e) PG&E Commitment to maintenance of offsite emergency service per Joint Proposal
f) Southern California Edison plan to maintain support for offsite emergency service (from SCE NDCTP filing)

Dr. David Victor, Chairman
c/o SONGS Community Engagement Panel

VIA EMAIL: david.victor@ucsd.edu

Dear David:

We are very grateful that you will have the time to visit San Luis Obispo later in October, and to share your experiences involving decommissioning and community engagement with both the Diablo Canyon Independent Safety Committee and the Diablo Canyon Decommissioning Engagement Panel.

In respect for your limited time and busy schedule when in San Luis Obispo, we'd like to send a few of our concerns and questions in advance:

1. Among the stakeholders who make general public comment, what has emerged as their greatest issues of concern (by topic)?

2. What do you consider the three key accomplishments of the SONGS CEP to date?

3. Why has the CEP so strongly supported SCE's desire to remove SNF from the spent fuel pools? From a community-relations standpoint, do you think it important to transfer the SNF to dry casks as soon as that can be safely accomplished?

4. What is the "make-up" of the SONGS CEP membership, based on their occupation or community affiliation? Seeing where that panel is at today with regard to progress and process, do you feel this has been a successful compositional basis for its membership? To what achievements might you attribute the expertise of the local elected officials on the CEP?

5. Do you see an advantage to initiating a decommissioning engagement panel 2-5 years before the plant closes? If so, what are those advantages?
6. How much did the Engagement panel rely on using SCE's PSDAR filed at the NRC in September 2014 as a resource and guide?

7. How much did the Engagement panel rely on using SCE's *Joint Application of Southern California Edison Company ("SCE") and San Diego Gas and Electric Company ("SDG&E") for 2014 SONGS Units 2 and 3 Decommissioning Cost Estimate and Related Decommissioning Issues* filed at the CPUC at the end of 2014 as a resource and guide?

8. You had previously expressed satisfaction at the level technical, scientific and coastal environmental expertise on the SONGS CEP; would you recommend that PG&E include equivalent levels of expertise in its panel? What value do you ascribe to having individuals with this knowledge on the CEP?

Once again, we appreciate your time and experience with this undertaking, and look forward to your responses. Please feel free to contact us promptly if you need additional information or seek any clarification of our questions.

Thank you.

Yours truly,

/s/

Rochelle Becker,
Executive Director

---------- Forwarded message ---------
From: **David G. Victor** <david.victor@ucsd.edu>
Date: Wed, Oct 10, 2018 at 8:38 AM
Subject: Re: Thank you and a few questions
To: Rochelle Becker <rochellea4nr@gmail.com>, Info@DCISC.org <info@dcisc.org>
Cc: PER PETERSON <perfpeterson@me.com>, Jerry Kern <jkern@ci.oceanside.ca.us>, Dan Stetson <dan.stetson@nicholas-endowment.org>, Manuel Camargo <manuel.camargo@sce.com>, Steve Carlson <s2carlson@ucsd.edu>

Dear Rochelle

Thanks for your note with the questions you are keen to explore when I visit the Diablo Committee later this month, which I attach. I copy Bob Rathie and Per for their awareness, with the hope that Bob can share your letter and these replies with the larger group. I also copy Jerry Kern and Dan Stetson—leadership of the SONGS CEP along with me—and ask Manuel Camargo to include our letter/email thread in the next circular of correspondence with the CEP.

Some of your questions entrain politically sensitive or complex issues that can't be fully outlined in a letter, but below are some initial replies for each that can help start the conversation.

1: I have not done a statistical analysis of the questions raised during general public comment. That said, my impression is that the number one topic raised has been, in various ways, the integrity of the spent fuel canisters. Some of this is, in my view, the result of an active misinformation campaign by some folks who have been advocating impractical and unwise alternatives, but it has generated lots of comments. Second, most common are comments about low levels of trust in institutions—the operator and the NRC (and a long list of other institutions, including me and the CEP). There is a longer history prior to decommissioning involving a debacle with steam generator replacements and the aftermath of Fukushima that really soured relations for many in the local community. After that, we have had lots of comments on how to

get the spent fuel away from the site. The focus of comments varies a lot with what's in the news.

2: I think we have at least three major accomplishments. First, the CEP has become the central institution for engaging the public—even when criticized, the CEP is a regular, central fixture in the decommissioning process. Second, we have helped to shift the debate and focus attention on building political support for moving the spent fuel to interim storage. When the CEP began the outlook for moving the spent fuel was seemingly hopeless. Today it isn't—for lots of reasons, of course, but the CEP has put massive attention and energy into focusing that debate. A lot more work still needed to build the coalition required for a change in federal law. Third, I think we have played a central role in framing the "defense in depth" discussions for an ISFSI-only site. We helped reframe the debate around the choice of stainless canisters and helped get the debate focused on long-term stewardship of the ISFSI, including research and demonstration of key technologies.

3: The CEP is not a decision-making body, so we can't formally "strongly support" actions by Edison or anyone else. That said, nearly all CEP members and most CEP discussions are highly supportive of the safest, rapid offloading of the spent fuel from the pools. That's based on lots of discussions about a) what is safest; b) the benefit from shrinking the size of the site; and c) the benefit from having spent fuel ready and in line—ready to ship.

4: The CEP membership is a mix, but most members are elected officials. The elected officials are a vital resource—perhaps the most important because they are immersed into local politics, which gives them special insight into what is feasible and also judgement about where/how to focus. Also helpful to have representatives from environmental groups and at least a few people (or one) who has technical knowledge relevant to decommissioning.

5: I don't have a comment on this—since I have not observed a pre-decommissioning CEP. I can see advantages, mostly, but also the disadvantage that the CEP needs to have a clear vision for what it wants to do. Having meetings without clear action items might undermine confidence and also generate skepticism.

6: We did not rely much on the PSDAR. It was discussed periodically and we have regular update briefings from SCE management (in public) that draw on the same information that goes into the PSDAR, but the CEP has drawn on a much wider array of information and analysis.

7: We discussed the DCE a couple times, and there has been some attention in particular to the question of how "saved" money (e.g., from avoiding removal of ocean conduits) should be shared with local communities or devoted to earmarked projects (e.g., reef restoration). Still early days for those discussions.

8: See response to question 4. These experts are invaluable—not just in meetings but also outside the meetings for two reasons. First, they can help organize and understand the range of stakeholder opinion. That has been very important on the topic of conduit removal, for example. Second, at times topics arise that have high technical content and it is really important for the CEP to be able to rely on its own members to wade through the details and help it

formulate an opinion. An advantage of a larger panel (we have 18 members) is that we can represent the wide array of local communities and also allow for cross-cutting and technical expertise.

I very much look forward to our discussions and to follow-up on these replies and other questions that may arise.

All best

David

DCPP 10 CFR 50 Site Boundary

Potential Radiological Areas

APN 076-011-030
LD 2231-10-0060
(PARCEL 1)
S.B.E. 135-40-025C-1

APN 076-031-007
LD 2231-10-0060
(PARCELS 4 & 6)
S.B.E. 135-40-025C-4

APN 076-032-017
LD 2231-10-0035 (1 & 2)
LD 2231-11-0036
LD 2231-11-0039
S.B.E. 135-40-024-1

APN 076-021-010
LD 2231-10-0060
(por. of PCL 3; PCL 5)
S.B.E. 135-40-025C-5

APN 076-021-023
LD 2231-10-0060
(por. of PCL 3)
S.B.E. 135-40-025C-9

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TRACT 11,
LOT 43

LOT 1

LOT
38

LOT
44

APN 076-091-002
LD 2231-10-0060
(PCL 2; por. of PCL. 3)
S.B.E. 135-40-025C-6

APN 076-011-031
LD 2231-10-0060
(PARCEL 1)
S.B.E. 135-40-025C-2

APN 076-091-015
LD 2231-10-0062
(PARCEL 2)
S.B.E. 135-40-025C-7

APN 076-091-005
LD 2231-10-0060
(por. of PCL 3)
S.B.E. 135-40-025C-10

LD 2231-10-0062 (PARCEL 3)
PARCEL A (6 PM 88)

S.B.E. 135-40-025C-3

APN 076-011-032
LD 2231-10-0062
(PARCEL 1)

APN 076-091-016
S.B.E. 135-40-025C-8

LD 2231-10-0061
PARCEL 1 (18 ROS 14)

LD 2231-10-0024

APN 076-151-009
LD 2231-10-0072
(PARCEL 1)
S.B.E. 135-40-023B-2

APN 076-091-010
LD 2231-11-0043
S.B.E. 135-40-024-3

APN 076-011-018
LD 2231-10-0072
(PARCEL 1)
S.B.E. 135-40-023B-1

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APN 076-151-013
LD 2231-10-0072
(PARCEL 1)
S.B.E. 135-40-023B-4

⑩ ⑪ ⑫
⑬ ⑭ ⑮
⑯

APN 076-161-006

APN 076-161-005

APN 076-161-001
LD 2231-10-0072
(PARCEL 2)

APN 076-161-002
LD 2231-10-0072
(PARCEL 2)

APN 076-161-008
LD 2231-10-0072
(PARCEL 2)

⑦ ⑧ ⑨

APN 076-151-012
LD 2231-10-0072
(PARCEL 1)
S.B.E. 135-40-023B-3

LD 2231-10-0045
Boundary Agreement

APN 076-171-025
LD 2231-10-0072
(PARCEL 2)
S.B.E. 135-40-023B-5

APN 076-171-017
LD 2231-10-0072
(PARCEL 2)

APN 076-171-026
LD 2231-10-0072
(PARCEL 2)

APN 076-172-018

APN 076-172-020

APN 076-172-016

APN 076-171-016
LD 2231-10-0072
(PARCEL 2)
S.B.E. 135-40-023B-3

APN 076-171-019
LD 2231-10-0072
(PARCEL 2)

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Cabrillo Hwy

0 2000' 4000' 6000'
1 INCH = 2000 FEET

PG&E Fee and Leasehold Interests
Diablo Canyon Power Plant
San Luis Obispo County

- PG&E Fee Parcels
- Eureka Energy Company Fee Parcels
- Leased to PG&E
- Leased to HomeFed

REFERENCE TABLE

①	LD 2231-10-0081	GTE Mobilnet (Verizon) Site License Agreement for telecommunication equipment
②	LD 2231-10-0091	GTE Mobilnet (Verizon) Site License Agreement for telecommunication equipment
③	LD 2231-11-0089	PG&E Lease (access & siren)
④	LD 2231-10-0048	PG&E Lease (tide and submerged lands)
⑤	LD 2231-10-0071	PG&E Lease (tide and submerged lands)
⑥	LD 2231-10-0044	PG&E Lease (tide and submerged lands)
⑦	LD 2231-10-0032	PG&E subleases area for electric generator (Parcel P), Gas Transmission (Parcel T) and road r/w (Parcel R)
⑧	LD 2231-10-0022	PG&E subleases area for electric generator (Parcel P), Gas Transmission (Parcel T) and road r/w (Parcel R)
⑨	LD 2231-11-0119	PG&E subleases area for electric generator (Parcel P), Gas Transmission (Parcel T) and road r/w (Parcel R)
⑩	LD 2231-11-0122	Menlo License (grazing)
⑪	LD 2231-11-0121	Menlo License (grazing)
⑫	LD 2231-11-0101	Menlo License (grazing)
⑬	LD 2231-11-0100	Menlo License (grazing)
⑭	LD 2231-11-0091	Menlo License (grazing)
⑮	LD 2231-11-0019	Menlo License (grazing)
⑯	LD 2231-11-0006	Menlo License (grazing)
⑰	LD 2231-11-0089	Port San Luis Harbor District Lease
⑱	LD 2231-10-0077	PG&E License (Pecho Coast Trail)
⑲	LD 2231-10-0086	Blanchard License for cattle grazing
⑳	LD 2231-10-0082	Blanchard License for cattle grazing
㉑	LD 2231-10-0070	Blanchard License for cattle grazing
㉒	LD 2231-10-0066	Blanchard License for cattle grazing
㉓	LD 2231-10-0068	Blanchard License for cattle grazing

Community Engagement Panel

Members of the San Onofre Community Engagement Panel

The Community Engagement Panel holds public meetings at least four times per year.

Chairman

- **Dr. David G. Victor** (University of California, San Diego)

Vice Chairman

- The Nicholas Endowment (**Dan Stetson**)

Secretary

- City of Oceanside (**Council Member Jerome M. "Jerry" Kern**)

Members

- American Nuclear Society, San Diego Chapter (**Edward "Ted" Quinn**)
- California State Parks (**Rich Haydon**)
- Camp Pendleton (**Tom Caughlan**)
- Capistrano Unified School District Board of Trustees (**President Martha McNicholas**)
- City of Dana Point (Mayor Pro Tem Paul Wyatt)
- City of San Clemente (Council Member Steve Swartz)
- City of San Juan Capistrano (Mayor Sergio Farias)
- Laborers International Union of North America Local 89 (Valentine "Val" Macedo)
- Orange County Board of Supervisors (**Supervisor Lisa Bartlett**)
- Orange County Coastkeeper (**Garry Brown**)
- Orange County Sheriff's Department (**Donna Boston**)
- San Diego County Board of Supervisors (**Supervisor Bill Horn**)
- San Luis Rey Band of Mission Indians (Captain Mel Vernon)
- Sierra Club (**Marni Magda**)
- South Orange County Economic Coalition (**Jim Leach**)

JOINT PROPOSAL OF
PACIFIC GAS AND ELECTRIC COMPANY, FRIENDS OF THE EARTH, NATURAL RESOURCES DEFENSE COUNCIL, ENVIRONMENT CALIFORNIA, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 1245, COALITION OF CALIFORNIA UTILITY EMPLOYEES AND ALLIANCE FOR NUCLEAR RESPONSIBILITY TO RETIRE DIABLO CANYON NUCLEAR POWER PLANT AT EXPIRATION OF THE CURRENT OPERATING LICENSES AND REPLACE IT WITH A PORTFOLIO OF GHG FREE RESOURCES

Pacific Gas and Electric Company ("PG&E") Friends of the Earth ("FOE), Natural Resources Defense Council ("NRDC"), Environment California, International Brotherhood of Electrical Workers Local 1245 ("IBEW Local 1245"), Coalition of California Utility Employees ("CUE") and Alliance for Nuclear Responsibility ("A4NR") (collectively, the "Parties") enter into this Joint Proposal governing the closure of Diablo Canyon Nuclear Power Plant ("Diablo Canyon") at the expiration of its existing Nuclear Regulatory Commission ("NRC") operating licenses and orderly replacement of Diablo Canyon with a greenhouse gas ("GHG") free portfolio of energy efficiency, renewables and energy storage that includes a 55 percent Renewable Portfolio Standard commitment by 2031.

PREAMBLE

A. Diablo Canyon Units 1 and 2 began commercial operation in May 1985 and March 1986, respectively, and are licensed by the NRC for operation until November 2, 2024 and August 26, 2025. Each year Diablo Canyon generates about 20 percent of the annual electricity production in PG&E's service territory and nine percent of California's annual production. Diablo Canyon has been operated by a committed and dedicated group of employees throughout its 31 years of operations. In 2009, PG&E filed at the NRC to continue Diablo Canyon's operations for an additional twenty years.

state and federal regulatory review in order to preserve all options, including license renewal, during a period of resource planning uncertainty that resulted in the decision reflected in the Joint Proposal. In the Joint Proposal Application, PG&E will request cost recovery of the license renewal costs. The Parties, with the exception of A4NR, support PG&E's request for full recovery of license renewal costs. A4NR reserves the right to contest recovery of the License Renewal Costs in the Joint Proposal Application.

5.3. Seismic Study Process and Costs: PG&E has been continually engaged in the evaluation of seismic conditions at Diablo Canyon since the start of operations. The decision not to proceed with license renewal does not affect this on-going commitment. Nothing in this agreement shall constrain the Parties from advocacy on issues related to seismic studies. PG&E acknowledges the substantial influence and contribution of A4NR's work in reaching the positions reflected in the Joint Proposal. Because of PG&E's decision not to proceed with license renewal, A4NR agrees to withdraw its pending objections and recommendations regarding PG&E's recovery of costs in the Diablo Canyon Seismic Studies Balancing Account in PG&E's 2013 and 2014 ERRA proceedings.

5.4. Nuclear Decommissioning: PG&E submitted a revised Diablo Canyon decommissioning study on March 1, 2016 in the CPUC Nuclear Decommissioning Triennial Proceeding ("NDCTP"). (CPUC Application 16-03-006) In the 2015 NDCTP, PG&E estimated the cost to decommission Diablo Canyon at $3.779 billion (2014 $). The 2015 NDCTP estimate is based on a financial model prepared by TLG Services, Inc. and does not reflect the results of an actual site-specific decommissioning study.

5.4.1. PG&E will prepare a Diablo Canyon site-specific decommissioning study and submit it to the CPUC in an application for approval no later than the date when the

2018 NDCTP will be filed. PG&E will seek authorization from the CPUC in the Joint Proposal Application to disburse funds from the Diablo Canyon decommissioning trust to fund the site specific decommissioning study. The site-specific decommissioning study will update the 2015 NDCTP forecast and incorporate the costs of (i) the Employee Program described in Section 5.3, (ii) the Community Impacts Mitigation Program in Section 4.1, (iii) a plan for expedited post-shut-down transfer of spent fuel to Dry Cask Storage as promptly as is technically feasible using the transfer schedules implemented at the San Onofre Nuclear Generating Station as a benchmark for comparison, and provided PG&E will also provide the plan to the CEC, collaborate with the CEC, and evaluate the CEC's comments and input; and (iv) a plan to continue existing emergency planning activities, including maintenance of the public warning sirens and funding of community and state wide emergency planning functions until the termination of Diablo Canyon's 10 CFR Part 50 license, subject to CPUC approval and funding in decommissioning rates. The Parties will support CPUC approval and funding of these elements of PG&E's revised Diablo Canyon decommissioning study.

5.4.2. The Parties support CPUC approval of PG&E's 2015 NDCTP decommissioning forecast and establishment of the proposed revenue requirement until such time as the CPUC reviews, approves and authorizes cost recovery for the Diablo Canyon site specific decommissioning study. A4NR reserves the right to contest PG&E's forecast and assumptions regarding spent fuel transfer to dry cask storage in the 2015 NDCTP proceeding.

6. Actions at Other Governmental Agencies

6.1. State Lands Commission ("SLC"): PG&E requested that SLC issue new

Application No.: 18-03-XXX
Exhibit No.: SCE-03
Witnesses: Jose L. Perez
Nicholas Capik

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

(U 338-E)

Testimony On The 2017 Decommissioning Cost Estimate for SONGS 2&3

PUBLIC VERSION

Before the

Public Utilities Commission of the State of California

Rosemead, California
March 15, 2018

- Site Lease and Easement Expenses – SCE will be required to make annual easement and lease payments to the Navy for the onshore plant site and SONGS Mesa facility and to the CSLC for the SONGS 2&3 offshore conduits until the easement and lease agreements are terminated.
- Severance – Under the Decommissioning Act, SCE is required to provide severance benefits to SCE employees at SONGS whose jobs are eliminated as a result of the permanent retirement of SONGS.
- Energy – SCE must purchase electrical energy at retail rates to power the SONGS site.
- Loading Spent Fuel & GTCC Waste to DOE – Under the DOE Standard Contract, SCE is responsible for the cost to transfer spent fuel canisters from the ISFSI and loading them into DOE shipping containers on-site, and then onto the DOE's transportation device.
- Information Technology – SCE will be required to incur software and network licenses, pay network service providers, and provide internal technical support to site personnel at levels commensurate with site staffing until decommissioning is completed.
- Third Party Legal – SCE retains outside counsel as necessary to handle legal matters that require specific expertise or additional resources.
- Emergency Preparedness Fees – SCE provides funding to local jurisdictional authorities for their radiological emergency preparedness, and will continue to do so until all spent fuel has been removed from SONGS, under a memorandum of understanding.
- NRC Fees – As holder of the NRC licenses for SONGS, SCE will be required to pay 10 C.F.R. Part 171 annual license fees and 10 C.F.R. Part 170 inspection fees until the NRC licenses are terminated.

on-site, and then onto the DOE's transportation device, will be $30.6 million[72] (100% share, 2014 $). The 2014 DCE did not include a line item for this cost.

- Information Technology – In the 2017 DCE, SCE estimates $31.9 million[73] (100% share, 2014 $) for IT costs, compared with $6.6 million (100% share, 2014 $) in the 2014 DCE. This resulted in an increase of $25.3 million. The increased cost is due in part to some one-time payments to network service providers in 2018. After payment of these costs, SCE expects that ongoing support costs will be reduced after 2019.
- Third Party Legal – In the 2017 DCE, SCE estimates $23.8 million[74] (100% share, 2014 $) for third party legal expenses. This variance occurred because the 2014 DCE did not forecast these services as direct costs, but instead assumed that the costs were a part of overheads.[75] The services provided by outside legal counsel are required to perform normal business functions as well as tasks required by the NRC, and state and local agencies.
- Emergency Preparedness Fees – In the 2017 DCE, SCE estimates $48.3 million[76] (100% share, 2014 $) for emergency preparedness fees, compared with $25.8million (100% share, 2014 $) in the 2014 DCE. This resulted in an increase of $22.5 million. In the 2017 DCE, SCE anticipates that it will continue to incur emergency preparedness fees pursuant to a Memorandum of Understanding with local jurisdictional authorities until all spent fuel is removed from the SONGS site versus the assumption in the 2014 DCE that such payments would terminate when the spent fuel was removed from the pools.

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72 *See* 2017 DCE, Appendix C, Table 2, line 361.

73 *See* 2017 DCE, Appendix C, Table 2, line 325.

74 *See* 2017 DCE, Appendix C, Table 2, line 336.

75 Corporate support is provided by SCE from organizations other than SONGS (e.g., legal, treasurer's, finance, IT, supply chain).

76 *See* 2017 DCE, Appendix C, Table 2, line 303.

TABLE 8 UNDISTRIBUTED COST ESTIMATE
(NOMINAL/2017$ IN THOUSANDS)

	Description	Period 1 Initial Activities (Nominal $)	Period 2 Transition and Pool Storage (2017$)	Period 3 D&D and Pool Storage (2017$)	Period 4 D&D and Dry Storage (2017$)	Period 5 Dry Storage (2017$)	Period 6 Civil Works Project (2017$)	Period 7 ISFSI Demolition & Final Site Restoration (2017$)	Total (Nominal/ 2017$)
1	Start	6/7/2013	1/1/2017	1/1/2019	6/1/2019	1/1/2029	1/1/2046	1/1/2050	
2	End	12/31/2016	12/31/2018	5/31/2019	12/31/2028	12/31/2045	12/31/2049	12/31/2051	
3	Duration (Years)	3 6	2 0	0 4	9 6	17 0	4 0	2 0	
4	**Undistributed Activities**								
5	**Labor-Staffing**								
6	Site Management & Administration		$ 19,393	$ 3,379	$ 71,195	$ 16,666	$ 13,265	$ 1,901	
7	Plant Management		46,774	8,140	46,085	85,274	20,799	2,340	
8	Decommissioning Oversight		14,417	4,916	136,266	13,417	27,121	8,919	
9	**Utility Staff Subtotal**	**$ 245,555**	**$ 80,583**	**$ 16,436**	**$ 253,546**	**$ 115,356**	**$ 61,185**	**$ 13,159**	**$ 785,820**
10	Security Force	91,073	45,231	6,518	31,254	57,448	14,012	1,576	247,112
11	**Labor-Staffing Subtotal**	**$ 336,628**	**$ 125,814**	**$ 22,954**	**$ 284,800**	**$ 172,804**	**$ 75,196**	**$ 14,735**	**$ 1,032,932**
12									
13	**Non-Labor**								
14	Aging Management	$ -	$ -	$ 48	$ 4,209	$ 10,018	$ 1,955	$ -	$ 16,230
15	Association Fees and Expenses	817	1,332	251	3,910	1,958	478	215	8,961
16	Community Engagement Panel	2,304	1,640	279	5,482	2,405	566	283	12,958
17	Contracted Services	67,641	33,556	3,957	59,073	50,430	16,086	4,349	235,092
18	DAW Disposal	-	32	-	-	-	-	-	32
19	Decommissioning Advisor	2,515	1,231	278	6,392	-	-	-	10,416
20	DGC Executive Oversight Committee	-	508	144	3,306	-	-	-	3,958
21	Emergency Preparedness Fees	9,099	3,792	864	15,081	16,998	4,146	-	49,980
22	Energy	16,964	7,571	2,241	45,194	10,983	4,117	526	87,596
23	Environmental Permits and Fees	3,081	662	14	328	1,064	1,154	576	6,879
24	Ground Water Monitoring	-	-	-	-	391	92	46	529
25	Information Technology	12,886	5,248	479	7,494	2,486	3,033	1,365	32,991
26	Insurance	13,824	4,778	977	15,947	22,029	5,688	2,479	65,722
27	Third Party Legal	4,336	2,579	479	7,571	7,648	2,300	230	25,142
28	NRC Fees	4,566	2,836	248	9,169	10,369	2,455	2,646	32,291
29	Office Space	-	-	-	1,173	391	92	92	1,748
30	Security Related Expenses	1,552	1,209	422	1,017	5,461	2,192	526	12,378
31	Severance	89,594	9,135	6,001	9,782	2,367	-	6,165	123,044
32	Site Lease and Easement Expenses	8,049	5,710	1,039	21,040	47,825	11,552	5,930	101,145
33	Loading Spent Fuel & GTCC Waste To DOE	-	-	-	-	17,940	14,628	-	32,568
34	Tools and Equipment	49	-	-	-	-	-	-	49
35	Water	1,663	1,224	184	4,243	7,261	1,771	797	17,143
36	Utility Staff Health Physics Supplies	2,163	979	9	198	352	83	41	3,825
37	**Non-Labor Subtotal**	**$ 241,104**	**$ 84,020**	**$ 17,913**	**$ 220,608**	**$ 218,376**	**$ 72,388**	**$ 26,266**	**$ 880,676**
38									
39	Service Level Agreements	10,647	27,510	4,518	83,094	20,521	22,210	9,143	177,643
40	DGC Staffing	[redacted]							
41	**Undistributed Activities Subtotal**								
42									
43	**Distributed Projects**								
44									
45	**Total**								**$ 4,702,264**

- **D&D Complete** – Many of the contracted services costs in the Decommissioning Oversight and Site Management & Administration divisions will not be needed after SDS completes its work and the SONGS programs are reduced.

e. Decommissioning Advisor

The Decommissioning Advisor provides subject matter expertise and assistance on various matters, including regulatory issues, spent fuel storage, and project management. Decommissioning Advisor costs are estimated through Period 4 (D&D).

f. DGC Executive Oversight Committee

The SDS D&D contract requires an Executive Oversight Committee composed of five individuals charged with resolving contractual issues. The committee includes one person each from SCE and SDS, and three independent third-party members. SCE and SDS share the costs of the third-party positions.

g. Emergency Preparedness Fees

SCE provides funding to local jurisdictions for the management of radiological emergency preparedness, including planning, response, and recovery activities. Currently, SCE pays fees in accordance with a December 2015 Memorandum of Understanding (MOU) covering a period through 2020. The Emergency Preparedness fees are assumed to be paid annually until all spent fuel has been removed from SONGS.

h. Energy

SCE must purchase energy from the grid to power the site, including loads required for decommissioning work. The energy costs are based on historical retail electricity rates and on projected usage. The projected usage was prepared by SCE Engineering and reflects the major activities in each decommissioning period.

i. Environmental Permits And Fees

SONGS must comply with a variety of environmental regulations and maintain numerous permits, which involve the payment of fees. These permits and associated fees include: (1) the State Water Resource Control Board National Pollutant Discharge Elimination System (NPDES) permit fees and Stormwater Pollution Prevention Plan (SWPPP) fees; (2) State of California Board of Equalization mixed waste fees; (3) fees for the California Department of Environmental Health Permit, which includes the permit for Underground Storage Tanks; (4) Air Pollution Control District Permit (APCD) fees; (5) Diesel Generator permit fees; (6) California Coastal

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CHAPTER 4

REBUTTAL TESTIMONY ON DIABLO CANYON POWER PLANT DECOMMISSIONING CONTRACTING STRATEGY

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REBUTTAL TESTIMONY ON DIABLO CANYON POWER PLANT DECOMMISSIONING CONTRACTING STRATEGY

A. Introduction

Q 1 Please state your name and title.

A 1 My name is Thomas P. Jones. I am the Senior Director, Regulatory, Environmental & Repurposing for Nuclear Generation at Pacific Gas and Electric Company (PG&E).

Q 2 What is the purpose of your rebuttal testimony?

A 2 In this Chapter 4, the purpose of my rebuttal testimony is to respond to findings and recommendations made by the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) and The Utility Reform Network (TURN) regarding PG&E's selection of the hybrid contracting strategy for Diablo Canyon Power Plant (DCPP) decommissioning.

B. Summary of Parties' Positions

Q 3 What is your general understanding of the recommendations Cal Advocates and TURN have made regarding PG&E's proposed decommissioning contracting strategy?

A 3 **Cal Advocates** reviewed and analyzed supporting documentation regarding the hybrid contracting strategy and does not oppose because PG&E is expected to manage and control costs, which should benefit ratepayers.[1]

TURN likewise does not oppose pursuing a hybrid contracting strategy, noting that the results from PG&E's Request for Information suggest that material savings are likely to result of PG&E's intent to contract with third parties to perform over half of the decommissioning work.[2] Nonetheless,

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[1] Testimony on 2021 PG&E Nuclear Decommissioning Cost Triennial Proceeding (NDCTP): Diablo Canyon Pre-Shutdown Decommissioning Planning Activities, Decommissioning Cost Estimate; Humboldt Bay Decommissioning Cost Estimate, Completed Project Reasonableness Review (Cal Advocates Testimony), p. 4.

[2] Testimony of Matthew Freedman on the 2021 NDCTP of PG&E (TURN Testimony), p. 10.

TURN urges PG&E to prioritize costs savings to customers in its analysis of bids submitted in response to upcoming requests for proposal, including remaining open to other contracting strategies.[3] TURN also provides guidance to PG&E in taking the next steps to implement the decommissioning contracting strategies, mainly described as actions to avoid issues TURN asserts have arisen in connection with decommissioning of the San Onofre Nuclear Generating Station.[4]

C. Hybrid Contracting Strategy

Q 4 TURN urges PG&E to be open to contracting strategies other than the hybrid model selected by PG&E. What is your response to this request?

A 4 PG&E intends to issue a Request for Proposal (RFP) which will request that bidder proposals reflect the hybrid model as discussed in PG&E Prepared Testimony, Volume 1, Chapter 4. However, PG&E will allow and consider alternative bidder-proposed approaches and contracting strategy models received as part of the RFP process.

Q 5 TURN urges PG&E to prioritize cost savings as part of any comparison of alternative bidder-proposed approaches and contracting strategy models. How do you respond to this request?

A 5 PG&E will consider many factors as part of any comparison of alternative bidder-proposed approaches and contracting strategy models for the decommissioning of DCPP, including potential savings to ratepayers. However, safe and error free performance of the work remains the highest priority for PG&E.

Q 6 TURN requests PG&E pursue an approach that minimizes duplication of work by PG&E and contractor staff, and to optimize overall staffing of the project. How do you respond to this request?

A 6 PG&E recognizes the potential for duplication of efforts on a project of this magnitude and sets forth that this issue supports PG&E's selection of the hybrid model. The hybrid model allows flexibility in that PG&E will perform the scopes of work within its core competencies, and the remainder of work will be performed by contractors that specialize in those scopes. Through

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3 TURN Testimony, p. 11.

4 *Id.*, pp. 11-12.

execution of the project, PG&E will seek to minimize duplication of work consistent with PG&E's ongoing obligations as the licensee as well as its required oversight role for the decommissioning project.

Q 7 TURN includes testimony discouraging PG&E from limiting the liability of a contractor due to contractor nonperformance or damages. TURN additionally encourages PG&E to ensure the contracted scope of work is well defined to reduce potential post-execution contract amendments. These issues are characterized as guidance to PG&E for evaluating and implementing the contracting strategy for the decommissioning project. What are your thoughts on their guidance?

A 7 PG&E appreciates the guidance provided by TURN and will keep the issues of liability limits and a clearly defined scope of work at top of mind while developing the RFP and when negotiating contracts terms with vendors.

D. Conclusion

Q 8 Does this conclude your rebuttal testimony?

A 8 Yes, it does.

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CHAPTER 5

REBUTTAL TESTIMONY ON

NUCLEAR DECOMMISSIONING TRUSTS

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A. Introduction

Q 1 Please state your name and title.

A 1 My name is Ashley Mawhorter. I am the Director of the Investments and Benefit Finance at Pacific Gas and Electric Company (PG&E). My responsibilities include, among other things, oversight of PG&E Nuclear Decommissioning Trust (NDT) investments.

Q 2 What is the purpose of your rebuttal testimony?

A 2 The purpose of my rebuttal testimony is to respond to the recommendations made by The Utility Reform Network (TURN) regarding the Diablo Canyon Power Plant (DCPP) qualified and non-qualified NDTs.

B. Summary of TURN's Position

Q 3 What is your understanding of the recommendations TURN makes in its testimony?

A 3 **TURN** asserts that the revenue requirement collected from customers in 2022 and 2023 to fund the NDTs should be refunded to customers, and that PG&E should be prohibited from collecting decommissioning revenues from customers no later than January 2023.[1] TURN also appears to suggest the California Public Utilities Commission (Commission) should consider requiring PG&E to refund to customers "excess" funds in the qualified NDT.[2]

C. Nuclear Decommissioning Trust Balance and Performance

Q 4 Do you agree with TURN's recommendation that the revenue requirement collected from customers in 2022 and 2023 should be refunded?

A 4 No. The revenue requirement in place for 2022 was authorized by the Commission in Decision 21-09-003, which adopted an annual revenue requirement of $112.5 million. The Commission subsequently approved

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1 Testimony of Matthew Freedman on the 2021 Nuclear Decommissioning Cost Triennial Proceeding of Pacific Gas and Electric (TURN Testimony), p. 1.

2 *Id.*, p. 8.

Advice Letter 6361-E, incorporating that revenue requirement commencing January 1, 2022. I note that this amount was established in the Settlement Agreement filed in the 2018 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP), and that TURN was a settling party to that proceeding. In the current proceeding, the Commission is addressing the record period of 2023-2026, not revisiting the previously agreed upon and authorized revenue requirement for 2022.

With respect to 2023, PG&E is not proposing any customer revenue requirement. PG&E does not make contributions to the NDT during the pendency of an NDCTP; NDT contributions are only made after a final Commission decision, and therefore PG&E will not be making any NDT contribution for 2023.

Q 5 How do you respond to TURN's suggestion that the DCPP qualified NDT is estimated to have a significant surplus in 2077, when decommissioning is assumed to be complete?

A 5 The projections for future NDT balances are only a snapshot in time. Future predictions will be affected by many variables, including new decommissioning cost estimates, NDT performance, and actual decommissioning schedule. For example, given the recent market volatility, the qualified NDT balance has dropped significantly. Given the lower asset values as of April 30, 2022, an updated forecast of the 2077 balance results in an approximate $300 million deficit.

It would be imprudent to remove funds from the NDT with no certainty of the ultimate cost of decommissioning. The NDCTP is intended to ensure that the funds in the NDTs are sufficient to cover the decommissioning of nuclear facilities, and therefore provides the periodic opportunity for the Commission to review updated assumptions. If funds in the NDT were removed, and the NDT is inadequately funded, future customers would be responsible for any shortfall. The issue is whether current customers will provide contributions that will accumulate and earn interest over time, or whether future customers who did not receive the benefit of the plant during operations will pay them.

Q 6 Are there any other reasons why withdrawing money from the qualified NDT to return to customers now is inappropriate?

A 6 Yes, TURN's recommendation is problematic because the Internal Revenue Code and related Treasury regulations do not contain provisions that allow for the withdrawal of potentially excess funds from the qualified NDT prior to final decommissioning of the nuclear unit site. Withdrawal of funds from a qualified NDT is allowed only for purposes of paying decommissioning costs of the nuclear unit and administrative costs of the NDT. In addition, TURN's recommendation is contrary to Nuclear Regulatory Commission (NRC) staff guidance that the return of "excess" decommissioning trust funds will not be allowed until nuclear decommissioning is completed.

D. Conclusion

Q 7 Does this conclude your rebuttal testimony?

A 7 Yes, it does.

PACIFIC GAS AND ELECTRIC COMPANY

APPENDIX A

CONFIDENTIALITY DECLARATION

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

DECLARATION SUPPORTING CONFIDENTIAL DESIGNATION
ON BEHALF OF
PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)

1. I, Thomas Jones, am the Senior Director, Regulatory, Environmental & Repurposing for Nuclear Generation for Pacific Gas and Electric Company ("PG&E"), a California corporation. Maureen Zawalick, the Vice President ("VP") of Decommissioning and Technical Services for PG&E, delegated authority to me to sign this declaration. My business office is located at:

   Pacific Gas and Electric Company
   9 MI N/W of Avila Beach
   San Luis Obispo, CA 93424

2. PG&E will produce the information identified in Paragraph 3 of this Declaration to The Utility Reform Network (TURN) in response to a CPUC audit, data request, proceeding, or other CPUC request.

   Name or Docket No. of CPUC Proceeding (if applicable): A.21-12-007 - Application of Pacific Gas and Electric Company in the 2021 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP).

3. Title and description of document(s): PG&E 2021 NDCTP Rebuttal Testimony Chapter 1, Rebuttal Testimony on Decommissioning Cost Estimates and Chapter 2, Rebuttal Testimony on Spent Nuclear Fuel.

4. These documents contain confidential information that, based on my information and belief, has not been publicly disclosed. These documents have been marked as confidential, and the basis for confidential treatment and where the confidential information is located on the documents are identified on the following chart:

Check	Basis for Confidential Treatment	Where Confidential Information is Located on the Documents

☐	Customer-specific data, which may include demand, loads, names, addresses, and billing data. (Protected under PUC § 8380; Civ. Code §§ 1798 *et seq.*; Govt. Code § 6254; Public Util. Code § 8380; Decisions (D.) 14-05-016, 04-08-055, 06-12-029)	
☐	Personal information that identifies or describes an individual (including employees), which may include home address or phone number; SSN, driver's license, or passport numbers; education; financial matters; medical or employment history (not including PG&E job titles); and statements attributed to the individual. (Protected under Civ. Code §§ 1798 *et seq.;* Govt. Code § 6254; 42 U.S.C. § 1320d-6; and General Order (G.O.) 77-M)	
☐	Physical facility, cyber-security sensitive, or critical infrastructure data, including without limitation critical energy infrastructure information (CEII) as defined by the regulations of the Federal Energy Regulatory Commission at 18 C.F.R. § 388.113 and/or General Order 66-D ("The subject information: (1) is not customarily in the public domain by providing a declaration in compliance with Section 3.2(c) stating that the subject information is not related to the location of a physical structure that is visible with the naked eye or is available publicly online or in print; **and** (2) the subject information either: could allow a bad actor to attack, compromise or incapacitate physically or electronically a facility providing critical utility service; or discusses vulnerabilities of a facility providing critical utility service"). (Protected under Govt. Code § 6254(k), (ab); 6 U.S.C. § 131; 6 CFR § 29.2)	
☒	Proprietary and trade secret information or other intellectual property and protected market sensitive/competitive data. (Protected under Civ. Code §§3426 *et seq.*;Govt. Code §§ 6254, *et seq*., e.g., 6254(e), 6254(k), 6254.15; Govt. Code § 6276.44; Evid. Code §1060; D.11-01-036)	Grey shaded information in Chapter 1, Rebuttal Testimony on Decommissioning Cost Estimates and Chapter 2, Rebuttal Testimony on Spent Nuclear Fuel
☐	Corporate financial records. (Protected under Govt. Code §§ 6254(k), 6254.15)	
☐	Third-Party information subject to non-disclosure or confidentiality agreements or obligations.	

	(Protected under Govt. Code § 6254(k); see, e.g., CPUC D.11-01-036)	
☐	Other categories where disclosure would be against the public interest (Govt. Code § 6255(a)): _____ _____ _____	

5. The importance of maintaining the confidentiality of this information outweighs any public interest in disclosure of this information. This information should be exempt from the public disclosure requirements under the Public Records Act and should be withheld from disclosure.
6. I declare under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge.
7. Executed on this 30th day of June, 2022 at San Luis Obispo, California.

/S/ Thomas Jones
Thomas Jones
Senior Director, Regulatory, Environmental & Repurposing for Nuclear Generation
Pacific Gas and Electric Company