

September 18, 1998

**VIA FEDERAL EXPRESS**

Mr. Bruce Kaneshiro  
Project Manager  
c/o Environmental Science Associates  
225 Bush Street, Suite 1700  
San Francisco, California 94104

Re: Draft Environmental Impact Report Regarding Pacific Gas and Electric Company's Application for Authorization to Sell Certain Generating Plants and Related Assets (Application No. 98-01-008)

---

Dear Mr. Kaneshiro:

Union Oil Company of California ("Unocal"), NEC Acquisition Company ("NEC") and Thermal Power Company ("Thermal") (collectively, "U-N-T"), have reviewed the referenced Draft Environmental Impact Report ("DEIR") for Pacific Gas and Electric Company's ("PG&E's") proposed divestiture of certain generating assets pursuant to Application No. 98-01-008. This letter summarizes U-N-T's review and provides comments on the DEIR's analysis and conclusions as it pertains to the Sonoma County Geysers Power Plant Units. U-N-T's specific comments are as follows:

**Alternative 3 - The Geysers Plants Are Sold To The Steam Field Operators**

[Begin P1]

- The DEIR concludes that Alternative 3, the sale of the Geysers plant to the steam field operators, is an environmentally superior alternative to the proposed project. DEIR at 6-23 to 6-29. See also DEIR at 5-31, 5-35 (concluding that sustained steam production at the Geysers units would have the substantial beneficial effect of displacing the need for fossil fuels and would be a beneficial cumulative effect). U-N-T agree with this conclusion, and with the factual analysis supporting the conclusion. [End P1]

[Begin P2]

- Please explain why the noise impact would be greater under Alternative 3 than it would be under the proposed project. DEIR Table S.6, Impact 4.10-2. [End P2]

**Generation Data**

[Begin P3]

- According to the DEIR, Table C-1 "shows historic and available generation at the PG&E Geysers units through 1997." DEIR at C-9. U-N-T believe this statement is incorrect.

The only sources the DEIR cites for the generation numbers are PG&E's Energy Cost Adjustment Clause ("ECAC") filings. However, U-N-T cannot find any support for Table C-1's generation figures in the ECAC filings. The DEIR appears to rely on numbers in the filing that do not represent available generation under baseload conditions. For instance, it appears that Field Capacity, a defined term in the Steam Sales Agreements between U-N-T and PG&E, may have been taken to mean that the level of generation would have been available had PG&E operated the plants at maximum continuous output (at baseload). The terms of the contract specify that Field Capacity represents the peak output under a contract-specified set of plant operating constraints. This is also known as "high 5" conditions. Moreover, the decline rate shown on Table C-1 conflicts with statements in PG&E's ECAC filing. *See Pacific Gas and Electric Co., Report on the Reasonableness of Operations for 1998 (January 1, 1997 to December 31, 1997), before California Public Utilities Commission in Energy Cost Adjustment Clause (San Francisco, California: Pacific Gas and Electric Co. April 1998) at 3-15.* Accordingly, please clarify and provide support for the historic and available generation data reflected in the DEIR. [End P3]

[Begin P4]

- Tables C-1, S.1, S.3, 5.2, and 6-1 provide generation forecasts for the Sonoma County Geysers Power Plant Units. These generation forecasts are highly speculative, and as explained above, U-N-T believe they may be based on incorrect generation data. Accordingly, U-N-T believe the generation forecasts are incorrect. Please clarify and provide support for the generation forecasts. [End P4]

[Begin P5]

- The Geysers is a declining resource, which the DEIR ostensibly recognizes. DEIR at S-7. However, the DEIR goes on to suggest increased electrical demand will lead to increased generation from the Geysers. DEIR at 5-16, 5-19. This is inconsistent with field optimization and management techniques, and inconsistent with the historical declines in Field Capacity. This assertion may mislead prospective buyers and regulators. Please explain and provide supporting evidence for this conclusion. [End P5]

### **Santa Rosa Reclaimed Water Geysers Recharge Project**

[Begin P6]

- According to the DEIR, "[r]egardless of who owns the plant, steam field capacity will continue to decline unless substantially more injection water becomes available." DEIR at 5-9 to 5-10. This implies that the decline in field capacity is reversible through water injection, an implication U-N-T believe is incorrect. The DEIR does not provide any support for this assertion. For instance, the Santa Rosa EIR, quoted in the DEIR, does not support the implication because that EIR predicted only a maximum potential gain of 85 MW. Further, the implication is contrary to conclusions in professional literature on water injection. Accordingly, please clarify that water injection will not reverse the decline in field capacity. [End P6]

[Begin P7]

- The DEIR states that PG&E is one of the "key players" in the Santa Rosa Wastewater Modified Geysers Recharge Project, and that "the new owners would simply assume

PG&E's role in the process." DEIR at 5-10, 5-11. These statements are inaccurate. As the DEIR indicates, the contract giving rise to the Santa Rosa Modified Geysers Recharge Project is a contract between U-N-T and the City of Santa Rosa. DEIR at 5-10. PG&E is not a party to the contract. Further, while the contract requires the supply of water for injection in U-N-T's steam fields, neither the contract nor the project includes any agreement or commitment to inject Santa Rosa water to PG&E's Sonoma plant area. In fact, PG&E has no role in the project whatsoever. Accordingly, there is no role for the new owners of PG&E's units to assume with regard to the Project.

- The DEIR states that "the current steam field operators and PG&E have entered into an agreement to inject effluent into the Geysers steam fields . . ." DEIR at 6-24. As stated above, PG&E is not a party to the contract giving rise to the Santa Rosa Modified Geysers Recharge Project and the project includes no agreement or commitment whatsoever to inject Santa Rosa water to PG&E's Sonoma plant area. [End P7]

[Begin P8]

- According to the DEIR, as a result of the imported water supply and injection projects referenced above, "the existing units could be operated at sustained power generation rates for 20 to 30 years." DEIR at 5.11. The DEIR also states that, for units PG&E currently owns, "this would mean an assumed sustained power generation of about 700 MW for 25 years." *Id.* For the reasons stated above, there are no pending or proposed projects requiring reinjection in PG&E's plant area, nor is there a technical basis to conclude that such reinjection, even if it materialized, would accomplish such a level of sustained generation. Thus, U-N-T believe these statements are incorrect. Please clarify and provide support for the statements. [End P8]

### **Capacity Factors**

[Begin P9]

- The use of the term "Capacity Factor" in Tables S.3, 5.2, 6.1 and C-1 is confusing. Specifically, according to footnote a, capacity factors are derived using a rated capacity denominator. However, the annual plant capacities that the tables list for the Geysers are derived using an estimated availability denominator. This use of different denominators within the same table is misleading. Further, it is unclear whether the term "Capacity Factors" is the same as the "Adjusted Capacity Factor" PG&E used in its filings with the California Public Utilities Commission. U-N-T believe the text and the table would be clearer if, instead of using ratios, they consistently referred to values expressed in MW or annual average power output. In the alternative, please clarify and explain the ratio's definition. [End P9]

### **Steam Stacking and Puff**

[Begin P10]

- The DEIR's definition and characterization of "steam stacking" is inaccurate. See DEIR at S-16, 1.7, 4.5-47, 4.5-75, 6-24. In contrast to the DEIR's characterization, steam stacking is the controlled release of unabated geothermal steam at a power plant rock muffler. Steam stacking is conducted in accordance with local Air Pollution Control District regulations. [End P10]

[Begin P11]

- The DEIR's definition and characterization of "puff" is inaccurate and should be deleted. DEIR at 6-23. Puff is not related to steam stacking. Rather, puff refers to the initial increase in production from a well after it has been shut-in for a period of time. [End P11]

### **Natural Resources**

[Begin P12]

- The DEIR states that "the steam fields in the Geysers area are being managed to prolong the steam resources to the extent possible." DEIR at 4.8-5. This is inaccurate. PG&E expressly manages its operations to maximize economic benefit to its shareholders, and has declined to make numerous investments and operating changes that would prolong resource life. For instance, it is PG&E's practice to curtail operations at the Geysers when such curtailment would result in short-term economic benefit, despite inefficient steam use and waste of a valuable natural steam resource resulting from such curtailed operations.
- The DEIR assumes that the new owners will "operate the units in a manner similar to PG&E's operation." DEIR at S-6. The DEIR also concludes that the proposed project will not promote wasteful or inefficient use of non-renewable resources because the "new owners are expected to operate the plants efficiently so that fuel is not wasted." DEIR Table S.6, Impact 4.8.2; DEIR at 4.8.4. As explained above, PG&E's operation promotes wasteful and inefficient use of fuel. Accordingly, if the new owner operates the power plants in a manner similar to PG&E's operations, the project will promote wasteful and inefficient use of a valuable natural resource. [End P12]

### **Steam Sales Agreement**

[Begin P13]

- The DEIR assumes that, "[i]f a third-party entity with no ownership interest in the underlying steam field purchases the Geysers units, it is reasonably foreseeable that such new owner would pay a steam price similar to that paid by PG&E under its contracts with the steam field owners." DEIR at S-6. This is misleading. While the steam sales agreements between PG&E and each of Unocal, NEC and Thermal are long term legal obligations which will bind the permitted successors and assigns of the parties, the agreements contain certain provisions that are not customary, and were heavily negotiated to address certain rate recovery issues faced by PG&E. Such provisions will no longer make sense once the generating assets are transferred to a new, unregulated owner for whom rate recovery issues are irrelevant. Therefore, certain aspects of the agreements may need to be modified to accommodate a new owner. [End P13]

### **Cooling Tower Drift**

[Begin P14]

- The DEIR discusses fallout type particulate ("FTP") issues. However, the DEIR does not discuss the impacts of cooling tower drift at the Sonoma County Geysers. U-N-T's understanding is that cooling tower drift is an ongoing problem at the Sonoma County Geysers, and has been extensively studied by PG&E. The DEIR should address the impacts of cooling tower drift inside and outside of the power plant yard. [End P14]

**Other Miscellaneous Comments**

[Begin P15]

- Global Change: “Condensate” should be referred to as “steam condensate.” [End P15]

[Begin P16]

- Page S-21: The spacing and font used at Table S.6, Impact 4.6-4 should be conformed with the rest of the table. [End P16]

[Begin P17]

- Page 2-28: GEO should be GEP. [End P17]

[Begin P18]

- Page 2-28: U-N-T understand that SMUD’s interest in the unit(s) has been acquired. Accordingly, SMUD should be replaced with the name of the entity that acquired SMUD’s interest. [End P18]

[Begin P19]

- Page 2-28: U-N-T understand that Santa Fe Geothermal, Inc.’s interest in the unit(s) has been acquired. Accordingly, Santa Fe Geothermal Inc. should be replaced with the name of the entity that acquired Santa Fe Geothermal, Inc.’s interest. [End P19]

[Begin P20]

- Page 2-35: U-N-T is unfamiliar with the term “Geysers Geothermal Area.” U-N-T believe the DEIR drafters may have meant to reference the Geysers Known Geothermal Resource Area (“KGRA”). [End P20]

[Begin P21]

- Page 2-35: Please confirm whether Big Sulphur Creek or Big Sulfur Creek is the correct spelling for the creek referenced. [End P21]

[Begin P22]

- Page 2-36: The last sentence of the third full paragraph should be revised as follows: add “a conceptual diagram of” before “the circulation.” [End P22]

[Begin P23]

- Page 2-36: The last sentence at the bottom of the page should be revised as follows: strike “spent” and replace with “geothermal.” [End P23]

[Begin P24]

- Page 2-38: The first full sentence of the first paragraph should be revised as follows: strike “evaluated as a viable” and replace with “used as a.” [End P24]

[Begin P25]

- Page 2-38: The first sentence of the first full paragraph should be revised as follows: strike “purified” and “pressurized”; add “to power plants” after “insulated pipes.” [End P25]

[Begin P26]

- Page 2-39: The first sentence of the first paragraph should be revised as follows: strike “is believed to”; add “s” to “increase”; strike “to”; add “s” to “increase.” [End P26]

[Begin P27]

- Page 2-39: The second sentence of the first paragraph should be revised as follows: strike “Currently” and replace with “Consistent with practices during the past several years”; add “currently” before “returned.” [End P27]

[Begin P28]

- Page 2-39: The third sentence of the first paragraph should be revised as follows: strike “it is expected that.” [End P28]

[Begin P29]

- Page 2-39: The first sentence of the second paragraph should be revised as follows: strike “agencies” and replace with “steamfield operators.” [End P29]

[Begin P30]

- Page 2-42: The first sentence at the top of the page should be revised as follows: add “Lake County” before “area.” [End P30]

[Begin P31]

- Page 4.1-1: The first sentence of the fourth paragraph should be revised as follows: strike “geysers” and replace with “thermal features.” [End P31]

[Begin P32]

- Page 4.1-15: The second sentence of the fourth paragraph should be revised as follows: strike “ten” and replace with “thirty.” [End P32]

[Begin P33]

- Page 4.3-4: The second sentence of the second paragraph should be revised as follows: strike “steam generating conditions” and replace with “production intervals.” [End P33]

[Begin P34]

- Page 4.3-12: Please clarify the second paragraph. U-N-T do not understand the paragraph’s characterization of the relationship between steam generation, water supply and injection, steam reservoir pressure, and plant operation. For instance, as opposed to shutting down at some minimum threshold, a well will typically be shut-in if operating conditions of the plant cause pipeline pressure to rise above the producing pressure of the well. Further, the second sentence suggests that water only flows back to the area when wells are shut down, which is inaccurate since production tends to increase water flow into the area. Also, the last sentence of the paragraph suggests that the plants could operate continuously at full capacity but for the lack of sufficient water supply. Again, this is a misleading portrayal of the relationship between water supply and plant operation. [End P34]

[Begin P35]

- Page 4.4-10: Please consider adding Cobb Creek, Anderson Creek, and other creeks listed on page 4.4-6 to the list of prominent perennial creeks located in the vicinity of the Geysers plant. [End P35]

[Begin P36]

- Page 4.4-11, Table 4.4-2: Please note that Units 7-10, 12, 13, 16, and 20 are also close to streams. [End P36]

[Begin P37]

- Page 4.4-13: The Class V Underground Injection Control Program (“UIC Program”) is a permit by rule program. Therefore, no “permits” are issued under the UIC Program. The program is implemented by DOGGR, with oversight review by North Coast Regional Water Quality Control Board. [End P37]

[Begin P38]

- Page 4.5-47: The last sentence of the first full paragraph should be revised as follows: add “controlled” after “unscheduled.” [End P38]

[Begin P39]

- Page 4.5-47: The third sentence of the second full paragraph should be revised as follows: strike “relieving” and replace with “reducing.” [End P39]

[Begin P40]

- Page 4.5-49: Please explain why hydrogen sulfide (“H<sub>2</sub>S”) is not included on Tables 4.5-21 and 4.5-22. Please also explain whether these tables assume all total suspended particles (“TSPs”) are particles with an equivalent diameter of 10 microns or smaller (“PM-10”). [End P40]

[Begin P41]

- Page 4.9-13: The second sentence of the second paragraph should be revised as followed: add “abatement of” before “hydrogen sulfide.” [End P41]

[Begin P42]

- Page 4.9-19: Please explain why sodium vanadate and hydrogen were not listed and discussed as hazardous materials representative of those found at power plants to be divested. [End P42]

[Begin P43]

- Page 4.9-22: The fifth sentence of the first paragraph should be revised as follows: add “hydrogen.” [End P43]

[Begin P44]

- Page 4.11-8: The first sentence of the first paragraph should be revised as follows: add “incipient” before the word “fire.” [End P44]

[Begin P45]

- Page 4.11-12: The second sentence of the fourth paragraph should be revised as follows: strike “which restricts” and replace with “and restricted.” [End P45]

[Begin P46]

- Page 4.11-16: Please confirm whether the amount the Geysers Power Plant generates per year in property taxes to Lake County is \$920,000 million or \$920,000. [End P46]

[Begin P47]

- Page 4.14-5: The first sentence of the second paragraph should be revised as follows: strike “about 1971” and replace with “1960.” [End P47]

[Begin P48]

- Page 5-8: The last bullet point should be revised as follows: strike “and existing” and replace with “an existing.” [End P48]

[Begin P49]

- Page 5-23: U-N-T’s understanding is that the Basin 2000 Project and the 70-acre parcel are Lake County projects. Please explain why these Lake County Projects require Sonoma County Community Development Commission review. [End P49]

[Begin P50]

- Page 5-27: The second sentence of the second paragraph should be revised as follows: strike “Condensation” and replace with “Condensate.” [End P50]

[Begin P51]

- Page 5-32: The second sentence of the fourth paragraph has two periods. [End P51]

[Begin P52]

- Page 6-11: Please confirm whether PG&E is currently monitoring seismic activity associated with the Geysers’ operation. [End P52]

[Begin P53]

- Page 6-23: The DEIR refers to NEC as a “Japanese turbine producer.” This is inaccurate. NEC is a geothermal steam-production company. [End P53]

[Begin P54]

- Page 6-24: The last sentence of the first full paragraph should be revised as follows: strike “6 million” and replace with “8 million”; add “from Lake County” after “field.” [End P54]

[Begin P55]

- Page 6-26: According to the DEIR, potential accidental discharges of contaminants to streams is a hazard for the life of the operation of the steam fields and the power plant, and “[r]unning the units at higher levels would increase the risk of an upset condition.” Please explain why running the units at a higher level would increase the risk of an upset condition. [End P55]

[Begin P56]

- Page C-7: The sixth sentence of the first paragraph should be revised as follows: strike “200” and replace with “130.” [End P56]

[Begin P57]

- Page C-7: The eighth sentence of the first paragraph should be revised as follows: strike “pump” and replace with “pipe.” [End P57]

[Begin P58]

- Page C-7: The second sentence of the fourth paragraph should be revised as follows: strike “pressure” and replace with “production.” [End P58]

[Begin P59]

- Page C-8: The fourth bullet point should be revised as follows: strike “capture” and replace with “collect”; strike “pump (inject)” and replace with “direct.” [End P59]

[Begin P60]

- Page C-9: The first sentence at the top of the page should be revised as follows: strike “injections” and replace with “injection.” [End P60]

[Begin P61]

- Page C-9: Please explain the statement that “changes in operations by PG&E and NCPA . . . have affected . . . the actual geology of the KGRA.” [End P61]

[Begin P62]

- Page C-21: The fourth sentence of the fifth paragraph should be revised as follows: strike “, refining and retailing.” [End P62]

[Begin P63]

- Page C-33, Footnote 63: In addition to the practical matters listed in footnote 63, please also note that the Steam Sales Agreement only allows for a sale of steam to a third party after a succession of tests and declarations by each party. [End P63]

[Begin P64]

- Page C-33, Footnote 65: U-N-T understand that PG&E has shut down five Geysers plants, including Unit 15. [End P64]

Again, U-N-T appreciate the opportunity to comment on the DEIR. Please contact me at (619) 236-1234 if you have any questions or require any additional information.

Sincerely,

Lisa P. Gomez  
of LATHAM & WATKINS  
Attorneys for Union Oil Company of  
California, NEC Acquisition Company, and  
Thermal Power Company

cc: Joel H. Mack, Esq.  
Loretta Mabinton, Esq.  
Joseph E. Ronan, Esq.

P. U-N-T (UNOCAL/NEC/THERMAL)

(as Represented by Latham & Watkins, Attorneys at Law)

P1 Comment noted.

P2 Please see response to Comment N11.

P3 As detailed in the response to Comment N5, the steam field operators refused to provide data on steam field capacity; therefore, the interpretation of available generation and capacity is based on PG&E's representations to the CPUC and the ISO in relevant filings. The decline rate computation shown at page 3-15 in PG&E's "Report on Reasonableness of Operations" provides no context for the calculations, including whether the "high 5" conditions noted by the commenter were a factor in such calculations. The computation appears to be based on actual generation after economic curtailment rather than available generation, which is the relevant measure used in the Attachment C forecast.

P4 Please see response to Comment N5 and N6.

P5 Please see response to Comment N9.

P6 The DEIR analysis assumes that the wastewater injection projects will only slow the rate of decline of the Geysers steam fields, and will not reverse that decline. For clarification, the last sentence of Page 5-9 of the DEIR is revised as follows:

Regardless of who owns the plants, the rate of decline of Geysers steamfield capacity will continue to can only be slowed if unless substantially more injection water becomes available.

P7 Please see response to Comments L45 and N3.

P8 Please see response to Comment N4.

P9 Please see response to Comment N6. The term "adjusted capacity factor" as used by PG&E in its filings to the CPUC is understood to be identical to the way "capacity factor" is employed in this EIR.

P10 Please see response to Comment N10.

P11 Please see response to Comment N10.

P12 The statement on page 4.8-5 of the DEIR that the Geysers steam fields "are being managed to prolong the steam resources to the extent possible" was related more to the efforts to extend the life of the fields using wastewater injection, rather than a judgment of day-to-day management practices concerning resource use decisions. Please see response to Comment N12 for further discussion on "wasteful or inefficient use of non-renewable resources."

P13 While a new owner may attempt to and succeed in negotiating new provisions in its contracts with the steam field operators, there is no way of predicting what types of contractual revisions might be made in the future. For purposes of the analysis presented in the DEIR, it is reasonable to assume that a new owner would pay comparable steam prices to those currently being paid by PG&E.

P14 Please see response to Comment N14.

P15 Please see response to Comment N16.

P16 Comment noted.

P17 Please see response to Comment N20.

P18 Comment noted.

P19 Comment noted.

P20 Please see response to Comment N23.

P21 Please see response to Comment N23.

P22 Please see response to Comment N24.

P23 Page 2-36, last sentence at the bottom of the page is hereby amended to read:

Other sources of recharge include (1) ~~spent~~ geothermal steam condensate...

P24 Please see response to Comment N26.

P25 Please see response to Comment N27.

P26 Please see response to Comment N29.

P27 Please see response to Comment N28.

P28 Please see response to Comment N30.

P29 Please see response to Comment N31.

P30 Please see response to Comment N32.

P31 Please see response to Comment H24.

P32 Please see response to Comment N35.

P33 Please see response to Comment N36.

- P34 Please see response to Comment N37.
- P35 Please see response to Comment N38.
- P36 Please see response to Comment N39.
- P37 Please see response to Comment N40.
- P38 Please see response to Comment N10.
- P39 Please see response to Comment N42.
- P40 Please see responses to Comments N43 and N44.
- P41 Page 4.9-13, the second sentence of the first full paragraph, is hereby amended to read:
- Elemental sulfur (a nonhazardous waste) also is produced from abatement of hydrogen sulfide in the geothermal steam.
- P42 Please see response to Comment N47.
- P43 Please see response to Comment N48.
- P44 Please see response to Comment N49.
- P45 Please see response to Comment N50.
- P46 Please see response to Comment N51.
- P47 Please see response to Comment N53.
- P48 Please see response to Comment N54.
- P49 Please see response to Comment N55.
- P50 Please see response to Comment N56.
- P51 Please see response to Comment N57.
- P52 Please see response to Comment N58.
- P53 Please see response to Comment N8.
- P54 Page 6-24 of the DEIR (last sentence of the first full paragraph) is hereby revised as follows:

Currently, some ~~6~~ 8 million gpd are being piped up to the field from Lake County and injected in the Southeast Geysers.

In addition, the first paragraph, seventh sentence, on page 2-39 of the DEIR is amended to read:

...able to deliver up to 8 ~~6~~ million gallons per day of effluent...

P55 Please see response to Comment N60.

P56 Please see response to Comment N61.

P57 Please see response to Comment N61.

P58 Please see response to Comment N62.

P59 Please see response to Comment N63.

P60 Please see response to Comment N64.

P61 Please see response to Comment N65.

P62 Please see response to Comment N66.

P63 Please see response to Comment N67.

P64 Please see response to Comment N68.