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Decision No. \_\_\_\_\_

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application  
of Pacific Gas and Electric Company  
for a certificate of public  
convenience and necessity, under  
Section 1001 of the California  
Public Utilities Code and California  
Public Utilities Commission General  
Order No. 131-B, authorizing the  
construction, operation and  
maintenance of a 230 kV transmission  
line from Applicant's Lakeville  
Substation, in Sonoma County, to  
Applicant's Sobrante Substation,  
in Contra Costa County.

Application No. 59330  
(Filed December 12, 1979;  
accepted January 14, 1980;  
amended March 3, 1980 and  
July 28, 1980)

Robert Ohlbach, Daniel Gibson, and Harry W. Long,  
Attorneys at Law, for Pacific Gas and Electric  
Company, applicant.

Brobeck, Phleger & Harrison by James M. Addams,  
Attorney at Law, for Radio Station KCBS-AM,  
protestant.

Lillick, McHose & Charles, by Ronald W. Nelson,  
Attorney at Law, for Lundberg Maryland Seamanship  
School, Inc., interested party.

James T. Quinn, Attorney at Law, and Richard Tom,  
for the Commission staff.

O P I N I O N

By its application accepted January 14, 1980, and its amendments filed March 3, 1980<sup>1</sup> and July 28, 1980, Pacific Gas and Electric Company (PG&E) requests authorization pursuant to Public Utilities Code Section (PUC Sec.) 1001 to construct, operate, maintain, rearrange, and use a double circuit 230 kV transmission line from PG&E's Lakeville Substation, in Sonoma County to PG&E's Sobrante Substation in Contra Costa County.

Background

PG&E proposes to construct (1) Geysers Unit No. 16, a 110-MW geothermal power plant, in Lake County near Anderson Springs, (2) a related 230 kV transmission line from Castle Rock Junction near the Geysers to Lakeville Substation in Sonoma County, and, (3) a 230 kV transmission line from the Lakeville Substation to the Sobrante Substation in Contra Costa County.

PG&E filed an application, Docket No. 79-AFC-5, for a certificate for (1) and (2) above which was accepted by the California Energy Resources Conservation and Development Commission (CEC) on February 21, 1980. Item (3) above is the matter before us, the California Public Utilities Commission (CPUC), Application No. 59330.

The CEC and CPUC entered into an Interagency Agreement<sup>1/</sup> to provide for the formulation of a single Environmental Impact Report document to cover both the Geysers to Lakeville transmission line project and the Lakeville to Sobrante project. The agreement set forth the guidelines for cooperation between the CEC and CPUC. The agreement provided for joint and separate public hearings on the transmission lines.

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<sup>1/</sup> Approved November 6, 1979.

Hearing

A duly noticed joint public hearing was held before CEC Commissioner (Comr.) Suzanne C. Reed and Administrative Law Judge (ALJ) Garret Shean and CPUC Comr. Richard D. Gravelle and ALJ John J. Doran in Lakeport on July 10, 1980, in Santa Rosa on July 10, 1980, and in Vallejo on August 6, 1980. The joint hearings were set to and we did receive public comment on the Draft EIR prepared by the CEC and CPUC on the proposed Geysers Unit No. 16 Geothermal Power Plant, the Geysers to Lakeville transmission line, and the Lakeville to Sobrante transmission line. The CEC has jurisdiction over the power plant and the transmission line from the Geysers to Lakeville Substation. The CPUC has certification and siting jurisdiction over the transmission line from Lakeville to Sobrante Substation.

A duly noticed prehearing conference (PHC) and three days of public hearing were held before ALJ Doran. The PHC was held on July 16, 1980, and the hearing on August 5, 7, and 8, 1980. All were held in Vallejo, except for August 5 in San Francisco. The matter was submitted December 1, 1980 on briefs.

On December 30, 1980, we consented to PG&E's December 9, 1980 request for a 90-day extension of the time limit to approve or disapprove Application No. 59330.

Project Description

A supervising planning engineer in PG&E's Transmission Planning Department testified that the double-circuit 230 kV transmission line from Lakeville to Sobrante is proposed to be established for 1984 summer operation. The line will be located in Sonoma, Marin, Napa, Solano, and Contra Costa Counties. The proposed line will consist of two 2300 kcmil all-aluminum conductors per phase between Lakeville Substation and Ignacio Junction and between American Canyon Junction and Sobrante Substation, except that steel supported aluminum conductors are proposed for the

Carquinez Strait crossing. The existing 230 kV double circuit transmission line between Ignacio Substation and American Canyon Junction will be bundled using 1,113 kcmil all-aluminum conductors.

Project Cost

A senior electrical engineer in PG&E's Electrical Engineering Department testified that the Lakeville-Sobrante Project, commencing with two new 230 kV line positions at Lakeville Substation and terminating at two existing line positions<sup>2/</sup> in Sobrante Substation, is estimated to cost \$29,485,000 (1983 dollars). The cost estimate includes \$1,705,000 for right-of-way, \$3,529,000 for substation work, and \$24,251,000 for the transmission line.

PG&E in the second amendment to its application revised its originally proposed 1,113 kcmil conductor size to 2,300 kcmil. Its planning engineer testified that new system power values reflecting increased cost of oil and capital justify the larger conductor size as the optimum conductor size. While the larger conductor costs more, the line loss savings are greater. With the larger conductor, the annual cost of the Lakeville-Sobrante line would be \$1,390,000 less than with the original smaller conductor.

Project Need

The 230 kV system in the region consists of double-circuit transmission lines as follows: Castle Rock Junction-Fulton, Fulton-Ignacio, Vaca Dixon-Lakeville, Vaca Dixon-Moraga (one circuit looped into Ignacio), and Vaca Dixon-Contra Costa.

These lines bring Geysers, northern California hydroelectric, and Pacific intertie power to Napa, Sonoma, Marin Counties, and to the Bay Area.

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<sup>2/</sup> Currently occupied by a loop of existing Vaca Dixon-Moraga 230 kV line, which is to be removed.

PG&E's planning engineer testified that based upon a power flow study, the above transmission system must be reinforced because the power expected to flow in the summer of 1984 through the Fulton-Ignacio and Lakeville-Vaca Dixon lines will exceed their thermal rating during line outage conditions.

Overloading leads to conductor sag and possible conductor failure. The increased sag could violate the clearance criteria in our General Order No. 95, Rules of Overhead Line Construction, and could possibly result in contact with objects under the line.

The planning engineer testified that overloading can be prevented by building an additional line because the other alternative, curtailing the Geysers generation, is not acceptable. Any Geysers curtailment would require replacement by more costly fossil generation. Further, as additional Geyser units are added the overloads would be much greater.

The EIR describes the Geysers Known Geothermal Resources Area (KGRA) and its production. The KGRA is producing 908 MW, through Units 1 through 15. Units under or approved for construction will bring the total to 1,293 MW by 1984.

The staff utilities engineer testified that the project is needed. Further, the Draft EIR states:

"The proposed Lakeville to Sobrante project is required to prevent line overloads which may occur in 1984 when Geysers generation exceeds approximately 1,400 MW and to strengthen the existing electrical systems between Lakeville, Ignacio, Sobrante, and Vaca Dixon substations."

: The Draft EIR also states:

"Because power from Lakeville Substation would flow along an existing 230 kV transmission line to Vaca Dixon via Tulucay Substation, and to other portions of the system, the power from Unit 16 and approximately two additional units could enter PG&E's electrical system without the need for constructing additional facilities beyond Lakeville Substation. However, additional power transmission would overload one or more of the existing 230 kV transmission lines. In order to prevent this possible disturbance, the construction of the proposed Lakeville to Sobrante project will be needed. The proposed Geysers to Lakeville project could transmit the 110 MW of power added by Unit 16 and could also accommodate the equivalent power of approximately two additional 110 MW units without a system overload. At present, however, the equivalent of 2½ units in addition to Geysers Unit 16 are tentatively scheduled prior to or during the summer of 1984, thus the line 'need' date may precede the construction completion date by a few months."

#### Proposed Route

PG&E's electrical engineer testified that from the Lakeville Substation located near the City of Petaluma, in Sonoma County the first segment of the proposed line (Lakeville-Ignacio Junction Segment) will parallel the existing Fulton-Ignacio 230 kV transmission line for approximately nine miles. This is a new line strung on new lattice towers. Approximately nine miles southeast of the Lakeville Substation, the line then turns southeast for one additional mile for new line, on new lattice towers and connects with the existing Ignacio Loop of the Vaca Dixon-Moraga No. 1 230 kV transmission line at a point approximately one mile east of the Petaluma River and one-fourth of a mile north of Highway 37.

The second or Ignacio Loop Segment involves bundling the Ignacio Loop Segment of the double-circuit Vaca Dixon-Moraga No. 1 230 kV transmission line. This 22-mile segment originates at the Ignacio Substation, located northwest of Hamilton Air Force Base in Marin County, and ends at the American Canyon Junction in Solano County.

PG&E avers that the above 22-mile segment is exempt from the California Environmental Quality Act of 1970 (CEQA) under a Class 1 exemption in CPUC Rule 17.1(h) and exempt from the certification requirements of PUC Sec. 1001 which excludes extension to or within territory currently served.

The third or American Canyon Junction-Sobrante Segment, about 21 miles long, will consist of one mile of new nonparallel line, 9.5 miles of 230 kV line rebuilt on an existing right-of-way and 10.5 miles of new 230 kV line built parallel to the two Vaca Dixon-Moraga 230 kV lines. This segment will begin at American Canyon Junction on the Ignacio Loop in Solano County, cross through the city of Vallejo on an existing right-of-way and end at the Sobrante Substation near Orinda in Contra Costa County. The entire line will be conventional lattice towers except that three-circuit tubular steel poles are proposed on an overt four-mile portion of the line which passes through the city of Vallejo.

The above evidence shows that, for the proposed 53-mile-long project, there will be two miles of new nonparallel transmission line, 19.5 miles of paralleling existing lines, 9.5 miles of replacing existing lines, and 22 miles of only adding conductors to an existing line.

For the 10-mile Lakeville-Ignacio Junction Segment, approximately 9 miles of 90-foot parallel right-of-way and 1 mile of 120-foot nonparallel right-of-way will be required. No new right-of-way will be required for the 22-mile Ignacio Substation-American Canyon Junction Segment. One mile of 120-foot nonparallel right-of-way, one mile of a 25-foot parallel right-of-way, 2.5 miles of a 50-foot parallel right-of-way, and four miles of a 120-foot parallel right-of-way will be required for the 21-mile American Canyon-Sobrante Segment. No new right-of-way will be required for the remaining 12.5 miles of the segment.

Three circuit tubular poles approximately 135 feet in height will replace the existing lattice towers in the existing right-of-way through the Vallejo urban area. A double-circuit lattice tower approximately 383 feet in height will be installed on both sides of the Carquinez Strait. In all other sections of the proposed project where towers are required, double-circuit lattice towers varying in height between 100 and 170 feet will be used.

The staff engineer testified that PG&E's proposed route is superior to other routes and is recommended.

Environment

A comprehensive record on environmental matters was developed in this proceeding through issuance of a Draft EIR, consultation with public agencies and others, and public hearings. All are elements in the environmental process which culminated in the issuance of the final document.

PG&E must obtain a certificate of public convenience and necessity from this Commission. Regulatory decision-making at the state level must comply with environmental review laws. This environmental impact document on the proposed project has been designed to meet the state requirements of CEQA. The CEC and CPUC agreed that a joint EIR would be prepared. A staff engineer sponsored the Draft EIR on the Lakeville-Sobrante line at our hearing.

EDAW, Inc., a consulting firm on environmental matters, and our staff conducted independent review of the environmental impact of the proposed project which is represented by the Final EIR.

PG&E prepared the Proponent's Environmental Assessment (PEA), submitted as part of the pending application, describing its study and environmental rationale for supporting the proposed route.



We have carefully considered the evidence on environmental matters contained in the Final EIR and make findings pursuant to Section 21081 of the Public Resources Code.

Public Statements

Eleven people made public statements about the proposed project. Ten were from Black Point and Novato. They represented the Black Point Environmental Action Committee, Black Point Improvement Club, Marin Conservation League, Marin Audubon Society, City of Novato, and Bahia Homeowners Association. They want the portion of the proposed line in the Petaluma River floodplain in Sonoma County in the vicinity of Black Point rerouted to east of the Lakeville Highway in Sonoma County. This would be similar to Alternate A in the Draft EIR. The major item highlighted by the public is one of visual impact. Additional items were communications static, biological effects, impacts on birds using the Pacific Flyway, and effects on aircraft.

The eleventh represented East Bay Municipal Utility District (EBMUD). He appeared to confirm EBMUD's written comments dated July 15, 1980 submitted about the Draft EIR. It wanted the Final EIR to address matters of impact problems in its San Pablo and Briones, and Pinole watershed lands.

Responses

Responses to the public statements are presented in the Final EIR.

The EIR states that it is unlikely that existing transmission lines cause communications interference in the Blackpoint area and we find that the proposed line, to be located further away than existing structures, is unlikely to cause communications interference. The occurrence of such interference is minimized by the line design. It is PG&E's policy to respond promptly to

complaints regarding radio and TV interference and implement appropriate corrective measures. Further, we shall require PG&E to mitigate transmission line interference that causes unsatisfactory communications service.

Comments from the Federal Aviation Administration and initial and subsequent comments from the California Division of Aeronautics reveal no significant hazards to air safety from the project. Such comments appear reasonable and are adopted.

The potential increase in bird collisions caused by adding more lines across the Pacific Flyway<sup>3/</sup> is unknown. With additional wires bird collisions could increase. However, the increased visibility of more and larger conductors may enable the birds to better avoid collisions.

EBMUD's request that the Final EIR address its concern about impact has been undertaken.

#### Biological Effects

The discussion in the EIR under public health and safety and under the responses addresses biological effects. The statement in the Final EIR that present available information concerning health effects does not indicate that the exposure to electric fields in the project right-of-way will induce detrimental biological effects is reasonable and adopted. Existing transmission lines, many in service for many years, including lines with higher voltages and exposures will still continue in service. We shall require PG&E to continue to join in the funding of the Electric Power Research Institute (EPRI) studies about biological effects of transmission lines and keep us informed of the results of EPRI studies. We shall also direct our staff to monitor other ongoing studies in this country on biological effects of transmission lines, as well as any new studies. We have the jurisdictional capability of modifying this decision in the future as the result of new information should such action prove necessary or desirable.

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<sup>3/</sup> A north-south corridor of varying width used by migratory birds that cross the project area.

To delay the project until additional information is available does not appear reasonable. A delay in the project could cause overloads, increase the use of oil, and cause economic impacts.

#### Floodplain Visual Impact

Alternatives B and C, both of which would link up with the Ignacio Loop east of the Sonoma Mountains, would require the longest stretches of nonparallel line. Both would impact on areas that are much more sensitive archaeologically and geologically than the routing through the floodplain. Numerous Indian artifacts have been uncovered in the Tolay Creek area. Geologically, the ground is less stable along Alternatives B and C, and Alternative C passes through a marsh area east of Highway 121. In addition, the Tolay Creek area is impacted by both a fault and a concealed fault.

Alternative A would require a nonparallel segment which would be approximately double the length of the one-mile nonparallel segment in the floodplain. Geologically, the route presents difficulties, since it traverses steeply sloping land which is significantly less stable than land in the floodplain. Moreover, not only towers but an extensive set of access roads would have to be located in the sloping land below the foothills of the Sonoma Mountains.

Visually, Alternative A's towers, lines, and access roads would have prominence since they would be silhouetted before the low hills which command the view-plain both for travelers on Lakeville Highway and eastbound travelers on Highway 37. Lakeville Highway has been designated a Sonoma County scenic highway. Finally, instead of serving as a backdrop into which the transmission line might blend, the low foothills approaching Highway 37 are basically devoid of vegetation and would only serve to starkly outline the towers and conductors.

By comparison, the route through the floodplain offers a number of advantages. Probably most important is the fact that it offers the shortest stretch of nonparallel tower line. This conforms with a key transmission line planning criterion of Sonoma County, the county in which the line would be situated, namely, that whenever possible, new transmission lines should parallel existing lines. The relatively short stretch of nonparallel line would require only about three to four new free-standing towers. This compares with a need for about seven to eight free-standing towers for Alternative A.

Another advantage of the floodplain route is that access to the line, which would be located on flat, agricultural terrain, would be easier than along the sloping land of Alternative A. Disturbance of the land by the construction of new access roads would thus be minimal.

A further advantage of the preferred routing is that it conforms with land use patterns. The existing Fulton-Ignacio line already has introduced a linear element into the landscape. The new floodplain line would serve to complement this characteristic of the landscape. The floodplain line also exhibits a general conformance with existing field patterns and drainage ditches. The Alternative A nonparallel segment, instead of reinforcing already established man-made characteristics of the landscape, would require the introduction of a linear element that is not now part of the environment.

While it is clear there will be some visual impact on Black Point residents, such impact is alleviated by certain factors. First of all, the line will be located about three-quarters of a mile to the east of the ridge line. More importantly, though, most of the Black Point residences are located at a high enough elevation that they would look down upon and over the line and not through it.

Thus the line would not obstruct or significantly intrude upon such dominant elements of the viewscape as the Sonoma Mountains and San Pablo Bay. On balance, therefore, the visual impact on Black Point is not of such a nature as to make rejection of the preferred route a reasonable proposition. Clearly, the overwhelming weight of the evidence, both as contained in the EIR and as elaborated in direct testimony, demonstrates the preferability of the proposed floodplain route over its alternatives.

Position of KCBS

Radio Station KCBS-AM (KCBS) states that it is licensed<sup>4/</sup> by the Federal Communications Commission (FCC); that it serves California as a 24-hour source of news and information; and that it is a member of the Emergency Broadcasting System, serving as a vital source of public information in emergency situations.

KCBS protests that portion of PG&E's proposed route for the Lakeville to Ignacio Junction segment of the transmission line which would pass within two miles of KCBS' antenna site in Marin County. The site is about two miles north of Novato, east of the Marin County Airport and west of the Petaluma River. KCBS states that construction of the line along Alternative Route A would not present significant problems.

KCBS' director of technical operations testified about possible impact on KCBS' radio broadcasting patterns and monitoring of those patterns that might result because of the proximity of the proposed routes to the antenna system.

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<sup>4/</sup> Licensed to broadcast at a frequency of 740 kHz and 50 kW.

The witness stated that such impacts might necessitate a reduction in broadcasting power, and consequently its broadcast area coverage, or loss of license, because of the FCC rules.

He testified that the frequency allocated to KCBS is protected by the North American Radio Broadcast Agreement as a clear channel for Canadian stations within Canada. Therefore, he states, KCBS' signal in the direction of Canada must be attenuated to a greater degree. In addition, other stations on this frequency in the United States must also be protected, but to a lesser degree.

The witness indicates that perhaps the shorter towers along the proposed route might form a resonant length which might result in some reradiation. He states that since the towers on the proposed line would be grounded, there would be an electrical connection between the base of one tower and the base of another tower through the ground system. He further states that there would be a connection between cables that exist between the towers. He concluded that this would form a loop and that the loop could be resonant at the frequency on which KCBS broadcasts. However, placing mica blocks under tower footings and detuning of towers in critical areas should eliminate any electrical connection that might exist between towers. This would also stop the formation of the loop described. The witness states that the conductors might cause reradiation. This appears to be based on the assumption that the conductor is attached to or terminates at each tower. However, the conductors are one continuous length which pass through each tower. The witness did not explain how one continuous conductor much longer than 1,300 feet between towers in length could cause reradiation.

While there is little basis for assuming that the towers along the proposed route will, in fact, cause reradiation or monitoring problems for KCBS, there is even less basis for assuming that such problems if encountered, could not be satisfactorily mitigated. If monitoring problems develop and if all mitigation

measures are unsuccessful in curbing the monitoring problems, it would be possible to locate and make use of other monitoring points on the radials affected. The rationale for selecting the proposed route as being the environmentally preferred as compared to Alternative A is explained in detail in the PEA and in the EIR. The proposed route parallels the existing transmission corridor for about one mile further than Alternative A. The portion of the route in question is all in Sonoma County and is more in harmony with that County's preference for new routes to parallel existing transmission corridors.

The witness testified about past difficulties caused by existing transmission lines that are within a two-mile radius of the antenna, which was indicated as the critical area. While the mitigation measures taken to alleviate past problems were not completely successful, they did reduce the problem significantly. Further, the FCC was willing to amend its authorization to KCBS to officially recognize the remaining impact and the required modifications. Thus, both the station and its federal regulatory agency were able to adjust to the previous change in the environment brought about by the introduction of a new transmission line within the two-mile radius of the KCBS antenna.

The existing line that brought about the above problem passes closer to the KCBS antenna site than the proposed line. The towers along the line that caused the problem are taller than the proposed towers. It appears that whatever the effects may be from the proposed line, they should be mitigated sufficiently as was the case with the existing line.

Adequate mitigation measures exist to satisfactorily alleviate whatever interference that may occur to KCBS's radio

broadcasting and monitoring patterns. PG&E shall be required to take all necessary mitigation measures such as the placing of mica blocks under tower footings, detuning of towers in critical areas, and other measures as may be necessary to eliminate interference affecting the FCC license of KCBS that is not amended by the FCC.

Position of Lundeberg

Lundeberg Maryland Seamanship School, Inc. (Lundeberg) owns about 1,200 acres of undeveloped land in the northeast quadrant of Vallejo. The land is just east of Interstate 80 and is bisected by Columbus Parkway. Lundeberg's witness, from an architectural and planning firm, proposes that the two existing Vaca Dixon-Moraga 230 kV lines located in eastern right-of-way through Lundeberg land be moved over to the western right-of-way that contains the Brighten-Oleum Junction 115 kV line. He notes that PG&E plans to place the proposed double-circuit project in the western right-of-way.

The witness testified that the above use of the western corridor for all circuits would reduce the visual disruption to potential property owners occupying Lundeberg land because it would remove towers that presently pass through the center of the property. He also requested additional environmental information.

When Lundeberg acquired the property, the two transmission lines complained of had been in place for many years. Lundeberg's witness was not able to identify any type of development that would be excluded by the pre-existing transmission lines on its property. Lundeberg's witness was not able to quantify the economic impact of the pre-existing transmission lines on Lundeberg's development plans. Lundeberg provided no environmental or economic basis for its proposal. The only purpose that would seem to be served by Lundeberg's proposal would be to increase the value of Lundeberg's planned development at no cost to Lundeberg. The proposal would benefit



Lundeberg. It is not possible to see what the benefits would be to the people of Vallejo and to PG&E's ratepayers, who presumably would have to bear the substantial cost occasioned by Lundeberg's proposal.

The proposed line, in the western corridor, would run only along the western edge of Lundeberg's land. There is even less substance regarding any significant impacts on Lundeberg because of the proposed transmission line. Lundeberg had no idea of the type of tower required for its five-circuit transmission line, nor whether the existing right-of-way would accommodate all of the circuits. Lundeberg did concede the towers would probably be larger than the two-legged towers for Oakmont (part of Geysers to Lakeville proposed line). These later towers would be 105 to 195 feet high and be 75 feet wide.

This proposal is without merit and will not be adopted.

#### Protection of Bird Species of Concern

The staff EIR wildlife ecology consultant was questioned with regard to the following proposed mitigation measure presented in the Draft EIR:

"Construction activities in the Napa marsh area, particularly near the Rookery on Russ Island, should be conducted in the late summer or fall after the peak nesting season." (Draft EIR)

According to the witness, this proposed mitigation measure was intended to restrict construction activities roughly during the three-month period from April through June. According to the witness, the area of primary concern is in the vicinity of Russ Island. The witness indicated that the Russ Island area covers approximately two miles of the proposed corridor through the Napa marsh area. Subsequently, the witness clarified the time period for the restriction on construction activities to be from April through August 15.

We shall approve this restriction on construction activity to the two-mile stretch of bundled line in the vicinity of Russ Island as a mitigation measure. None of the nesting birds<sup>5/</sup> to be protected by the mitigation measure are rare or endangered species. Therefore, it would be inappropriate to restrict construction and delay the project by restricting construction in any portion of the proposed line other than the two-mile stretch in the Russ Island area.

Alternative to the Project

There are three substations which could potentially be used as junction points for Geysers power. The substations are Lakeville, Tulucay, and Vaca Dixon. This leads to four potential corridors as follows: Lakeville (1), Tulucay (2), and Vaca Dixon (1). The EIR contractor-consultant made an evaluation of the corridors and concludes that the proposed corridor as the preferred corridor.

Potential impacts of alternative routes within the preferred corridor were analyzed by the EIR consultant. The consultant concluded that the proposed route had the least impact.

The EIR consultant concludes that the alternative of not carrying out the project would avoid the significant impacts

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<sup>5/</sup> Great blue heron and double-crested cormorant.

associated with its implementation. However, it would result in authorized Geysers generating capacity being curtailed, or other measures taken, and this is inefficient. Further development of KGRA generation potential would also be restricted or precluded if there were no transmission availability. Fossil fuels would have to be relied upon more heavily. We find that the no project alternative is not acceptable.

We are of the opinion that the EIR consultant alternatives to the project conclusions are reasonable and will be adopted.

#### Environmental Consequences

Use of the land within the right-of-way would be subject to certain restrictions during the lives of the projects, and the actual tower locations would preclude any alternative use for the lives of the projects. The use of the land for transmission corridors would not result in any constraints to alternative future uses of the land should that use become unnecessary at some time in the future. The vegetation which would be cleared to provide for tower pads, access roads, conductor stringing, construction camps, and safety clearances from the energized lines would be irretrievably lost. However, much of this vegetation can be expected to regenerate over the long-term. There is a potential for loss of archaeological resources either damaged or destroyed by the construction process. The severity of such an impact is potentially capable of significant reduction if appropriate mitigation steps are followed during the construction process.

While many of the materials used in the construction of the projects would be recyclable, e.g., copper, aluminum, and steel, there are some which would not be recycled, given present technology, such as concrete, porcelain, and fuel oils which would be irretrievably committed to these projects alone.

The project will provide for increased transmission capability from the Geysers KGRA which should result in increased development of this resource as a partial source of our electric power resources. It is not known whether geothermal steam is a renewable resource, and if so, the period of time required for resource renewal is not known. The life of the steam supply for the primary purpose of electric generation remains undetermined. The development of geothermal resources for electrical generation is considered desirable at this time. The proposed line also will reinforce the 230 kV transmission system in the north and east bay areas, prevent overloads, and should provide a greater level of reliability to the system.

#### Mitigation

Mitigation measures proposed in the PEA and Final EIR are highlighted and supplemented herein.

Soil stability mitigation measures for the proposed Lakeville to Sobrante transmission route will be based on detailed site specific investigations. No access roads or towers will be constructed on active landslides.

The principal seismicity measure for avoiding damage to access roads, towers, and transmission lines should be the avoidance of siting within traces of any known or suspected active faults, avoidance of siting across such fault traces in so far as possible, and crossing such fault traces at as near perpendicular angle as possible.

The principal measures which will be used to substantially reduce the likelihood of damage to tower foundations or loss of towers and resulting line outages due to strong earthquake ground-shaking are appropriate tower design, siting, and construction. Conservative tower designs will be used. New access roads will be designed to avoid areas which might be subject to earthquake-induced failures. New access roads and tower foundations will be designed,

located, and constructed to avoid the impacts of any soil compaction, fill settlement and expansive soils. Towers located in areas subject to liquefaction and settlement will employ specially designed tower foundations.

Soils mitigation measures are included in the project plans. Existing roads will be used when possible. A revegetation program will be tailored to fit the needs of the project as it progresses. Cut and fill slopes on roads will be seeded or planted in areas where the soil is conducive to revegetation. In areas where soils are not conducive to revegetation, roads may be protected by compaction, trimming back to bedrock, or applying straw, netting, or waste materials against slopes.

Mitigation for water quality includes clearing of ditches and culverts to maintain drainage systems; limiting vehicle use of access roads during wet weather except during required maintenance or operation and emergency procedures; and conducting a reconnaissance of roads whenever necessary to determine and correct areas where water tends to collect and may cause washouts.

Specific vegetation mitigation measures for this transmission line include the careful selection of pulling and payout sites between Ignacio and American Canyon, the minimization of tower placement in marshes, and avoidance of dense oak stands between the Sobrante Substation and the Carquinez Strait. The impacts to vegetation along this line will be relatively insignificant if the general mitigation measures listed earlier are implemented.

The mitigation measures in the PEA designed to reduce erosion potentials, vegetation clearance and disturbance, and to span riparian, wetland, and other sensitive habitats are adequate to protect wildlife resources. Transmission lines have been routed below ridge lines wherever practicable. Construction activities near identified rare, endangered, or sensitive wildlife species habitats or nest sites should be conducted after June 15 to reduce possible disturbance impacts and nest abandonment.

Construction activity within 2 miles of the Russ Island rookery in the Napa River will not be undertaken between the beginning of April and August 15 which represents the important nesting and fledgling support period for the great blue heron and double-crested cormorant.

The occurrence of communication interference is minimized by line design. It is PG&E's policy to respond promptly to complaints regarding radio and TV interference and implement appropriate corrective measures. Further, we shall require PG&E to mitigate transmission line interference that causes unsatisfactory communications service.

Adequate mitigation measures exist to alleviate whatever interference that may occur to KCBS' radio broadcasting and monitoring patterns at its antenna site in Marin County. We shall require PG&E to take all necessary mitigation measures such as the placing of mica blocks under tower footings, detuning of towers in critical areas, and other measures as may be necessary to eliminate interference affecting the FCC license of KCBS that is not amended by the FCC.

PG&E has stated that if it receives an induced current (nuisance shock) complaint it shall be investigated. If it is established that the nuisance is being caused by PG&E facilities, every reasonable effort to promptly eliminate the nuisance at the utility's expense will be made provided that:

1. The object is located outside the right-of-way, or
2. The object is within the right-of-way and existed prior to the right-of-way acquisition.

If the object is within the right-of-way but was located after acquisition of the right-of-way, PG&E will notify the owner of the object that it should be grounded. In this case, grounding of the object would be the responsibility of the owner. This procedure is adequate and we will adopt it.

The estimated electrical field voltage through Vallejo, where the double-circuit 230 kV transmission line will be constructed above an existing 115 kV transmission line, will be no greater than 0.42 kV per meter in the right-of-way. The Commission staff believes that the weight of scientific research indicates that electrical fields of this magnitude will not induce harmful biological effects. Likewise, in the staff's opinion, no detrimental biological effects would occur at other points along the proposed route where the configuration of the line would be a double-circuit 230 kV line, and where the maximum electrical field at one meter above ground on the edge of the right-of-way would be approximately 1 kV/m. The staff also believes that no unacceptable effects on persons required to rely on cardiac pacemakers will occur due to the proposed line.

We shall require PG&E to continue its participation in funding EPRI studies about the biological effects of electric high-voltage transmission lines. PG&E shall also keep us informed about the results of the studies.

Should any fossil bearing geological deposits be encountered during construction activities associated with the project, a qualified paleontologist will be consulted. At such a time impact evaluations will be made and mitigation measures presented.

When the centerline of the approved route has been surveyed and the preliminary tower sites are located, an intensive archaeological (and historic) survey will be done. Archaeologists will examine the right-of-way, tower sites, access roads, and construction sites. The significance of all archaeological sites found will be determined. A mitigation plan will be developed if needed by qualified archaeologists based on the location and significance of cultural resources that have been identified.

Undetected, subsurface archaeological (and/or historic) resources may be discovered during land alteration activities associated with the proposed project. Should evidence of archaeological deposits be encountered by construction personnel, work in the general vicinity of the find should be suspended and a qualified archaeologist consulted; determinations regarding the nature of the resource can then be made and a program of impact mitigation can be developed as required.

According to EBMUD staff, two mitigation possibilities should be examined by PG&E. One would involve consolidating conductors or increasing the number of conductors on individual towers so the existing easements would accommodate the proposed transmission line. Another mitigation measure would be for PG&E to parallel the existing Martinez-Sobrante/Oleum-Sobrante 115 kV line to the east of the proposed alignment. This alternative alignment is discussed by the EIR. The conclusion of the analysis was that, considering a whole range of other environmental factors there was insufficient justification for using an alternative corridor, particularly as the visual impact associated with a transmission line corridor had already occurred on the EBMUD lands. The possibility of consolidating conductors and thereby obviating the need for additional towers is a mitigation measure which should continue to be explored by PG&E in negotiation with EBMUD as such a solution could be used to reduce the impact in a particularly key section of the route. However, this procedure would result in towers of increased height and consequent visibility as well as increased cost. It does not appear that this would be a viable mitigation measure in this particular location.

The proposed alignment contains a new nonparallel segment between the existing Fulton-Ignacio 230 kV line and the Ignacio Loop. The extension is approximately one and one-quarter miles long and



roughly parallels the Petaluma River. A number of residences are situated on the hills on the southwest side of the Petaluma River. Several of these Marin County homes are sited to take advantage of the scenic views out over the Petaluma River basin to Sears Point and beyond. The views at present contain as many as three existing transmission lines. The proposed transmission alignment is no closer than about one mile from the residences of Novato and more typically a mile and a half from the residences with the sensitive views. The new line will be visible from some of the homes. The new line will cut across the view of the generally flat river basin and connect two of the existing transmission lines. Due to the distance involved the line will not appear large, especially in contrast to the Ignacio Loop which passes from the foreground to the background of the same view. PG&E should consider painting or dulling the towers to minimize their visual presence.

The mitigation measures proposed in the PEA and Final EIR as supplemented herein have been designed to reduce project impacts and are adequate to protect the environment. We conclude that the double-circuit 230 kV transmission line from PG&E's Lakeville Substation to its Sobrante Substation, as proposed by PG&E, should be authorized subject to implementing the mitigation measures in the PEA, Final EIR, and this opinion.

Environment - Overall

The public safety, health, comfort, convenience, and necessity require the installation, maintenance, operation, and use of the project. The project should not, on balance, have a significant detrimental effect on the environment. The project does not compete with any person, firm, or public or private corporation in the public utilities business for furnishing or supplying electric service to the public in or adjacent to the territory in which the project shall be located.

We have reviewed the record, the Final EIR, received on February 27, 1981, the comments filed, and find that granting the application, subject to the mitigation measures contained herein will not produce an unreasonable burden on natural resources, aesthetics of the area in which the proposed facilities are to be located, public health and safety, air and water quality in the vicinity of park, recreational and scenic areas, or historic sites and buildings, or archaeological sites.

Findings of Fact

1. PG&E requests permission to construct a double-circuit 230 kV transmission line from its Lakeville Substation to its Sobrante Substation, a distance of approximately 53 miles.
2. The proposed line will reinforce the 230 kV transmission system in the north and east bay areas, prevent overloads, and should provide a greater level of reliability to the system. It will provide for additional Geysers development.
3. Estimated cost of the PG&E transmission line, substation facilities, and right-of-way is \$29,485,000.
4. PG&E's proposed route was fully discussed in the Final EIR.
5. Several alternatives were identified in the Final EIR.
6. The most environmentally acceptable route between Lakeville Substation and the Ignacio Loop is the route whose southernmost segment consists of a one-mile nonparallel stretch through the Petaluma River floodplain.
7. The visual impact of the floodplain route on Black Point is significantly alleviated by the fact that Black Point residences are distant from and generally at an elevation above the proposed line.
8. Alternative A to the floodplain route would require a longer stretch of nonparallel transmission line and would have more significant visual and geologic impacts.

9. Alternatives B and C to the floodplain route would require the longest lengths of nonparallel line and would have more significant visual, geologic and archaeologic impacts.

10. The extent of the impact of the floodplain route on KCBS-AM radio operations is not known and hence it is not reasonable to base a rejection of the otherwise more environmentally acceptable floodplain route on such tentative data. Moreover, adequate mitigation measures exist to satisfactorily alleviate whatever interference that may occur to KCBS' radio broadcasting and monitoring patterns.

11. No significant environmental impacts of the existing 230 kV Vaca Dixon-Moraga line on Lundeberg property was established.

12. A five-circuit tubular tower line through Vallejo's east side areas would have severe and unacceptable visual impacts.

13. It is environmentally preferable to construct the proposed three-circuit transmission line through Vallejo and retain the existing 230 kV Vaca Dixon-Moraga line, than to consolidate all five circuits into the proposed project's corridor.

14. The Final EIR reveals that there should be no significant hazards to air safety from the project.

15. The Final EIR states that it is unlikely that the existing transmission lines cause communications interference in the Black Point area. Therefore, the proposed line located further away is unlikely to cause interference.

16. Impacts to wildlife could occur in the event that migratory birds were to fly into the transmission line across the Pacific Flyway.

17. The peak nesting season in the Russ Island rookery in the Napa Marsh area, begins in April and is completed by about mid-June. After hatching, the young remain on their nests for about two months. Some late hatching occurs after the end of the peak nesting season.

18. Presently available information concerning health effects does not indicate that the exposure to electric fields in the project right-of-way will induce detrimental biological effects.

19. The proposed 53-mile project will require only two miles of nonparallel line. Twenty-two miles of the line will be placed on existing towers. The remainder of the line will be parallel to existing lines including 12.5 miles in existing right-of-way.

20. Based on the analyses in the Final EIR, the proposed route is the environmentally preferred route. This route is economically feasible and is adopted.

21. Restrictions on construction due to nesting activities within two miles of the Russ Island rookery in the Napa Marsh area from the beginning of April until August 15 are adopted.

22. Measures to mitigate transmission line interference that causes unsatisfactory communications service are adopted.

23. All necessary mitigation measures such as placing mica blocks under tower footings, detuning of towers in critical areas and other necessary measures to eliminate interference affecting KCBS' FCC license that is not amended by the FCC are adopted.

24. PG&E's procedure for handling induced current (nuisance shocks) complaints is adequate and adopted.

25. PG&E should continue participation in funding EPRI studies dealing with biological effects of electric high-voltage transmission lines and keep us informed of the study results. Our staff should monitor other ongoing and any new studies.

26. Mitigation measures required to minimize the project impacts as contained in the PEA, Final EIR, and in this opinion are reasonable and adopted.

27. The project will provide access to more desirable and less expensive sources of power and could reduce the quantity of oil consumed by PG&E.

28. The proposed project is essential to meet the future public convenience and necessity.

29. There are no feasible alternatives to the project.

30. The proposed project could have a significant effect upon the environment; however, such effect is far outweighed by the beneficial effects of the project.

Conclusions of Law

1. The Commission certifies that the Final EIR has been completed in compliance with the CEQA and the Guidelines. We have reviewed and considered the information contained in the Final EIR in reaching this decision. The Notice of Determination for the project is attached as Appendix A to this decision.

2. Potential environmental impacts have been or will be adequately mitigated by project design, proposed construction and operation methods, modifications of the project during this proceeding, and by conditions imposed in the Final EIR and this opinion.

3. The mitigation measures contained in the Final EIR and in this opinion should be a requirement of our authorization.

4. Any remaining environmental impacts are outweighed by the beneficial effects of the project.

5. The action taken herein should not be considered as indicative of amounts to be included in future proceedings for the purpose of determining just and reasonable rates.

6. Pursuant to Section 1001 of the Public Utilities Code, the 230 kV transmission line between PG&E's Lakeville Substation and its Sobrante Substation along the adopted (proposed) route should be authorized in the manner set forth in the following order.

7. The authorization granted should be subject to the Geysers Unit 16 to Lakeville Substation transmission line being authorized by the CEC.

O R D E R

IT IS ORDER that:

1. A certificate of public convenience and necessity is granted to Pacific Gas and Electric Company (PG&E) to construct, operate, maintain, rearrange, and use a double-circuit 230 kV transmission line between Lakeville Substation and its Sobrante Substation along the adopted (proposed) route in this proceeding subject to the mitigation measures recommended in the Final Environmental Impact Report and in this opinion.

2. PG&E shall file with this Commission a detailed statement of the capital cost of the transmission line project within one year following the date it is placed in commercial operation.

3. The authorization granted in this decision shall expire if not exercised within two years from the date hereof.

4. The authorization granted in this decision shall expire if the Geysers Unit 16 to Lakeville Substation transmission line is not authorized by the California Energy Resources Conservation and Development Commission. ✓

5. The Executive Director of the Commission shall file a Notice of Determination for the project as set forth in Appendix A to this decision with the Secretary of Resources.

The effective date of this order shall be thirty days after the date hereof.

Dated APR 7 1981, at San Francisco, California.

John S. Gray  
President  
Richard W. [unclear]  
[unclear]  
Antonio Calvo  
Priscilla C. [unclear]  
Commissioners

## NOTICE OF DETERMINATION

TO: Secretary for Resources  
 1416 Ninth Street, Room 1312  
 Sacramento, CA 95814

FROM: California Public Utilities  
 Commission  
 350 McAllister Street  
 San Francisco, CA 94102

SUBJECT: Filing of Notice of Determination in compliance with Section 21108  
 or 21152 of the Public Resources Code

Project Title Lakeville to Sobrante Transmission Line Project

State Clearinghouse Number (If submitted to State Clearinghouse)

SCH 80010809

Contact Person

Telephone Number

Richard Tom

(415) 557-3241

Project Location Lakeville Substation, Sonoma County to Sobrante Substation, -  
 Contra Costa County

Project Description 230 kV double circuit 53 mile Transmission Line, on lattice  
 towers except for tubular poles through Vallejo - Pacific Gas and Electric Company

This is to advise that the California Public Utilities Commission  
 (Lead Agency or Responsible Agency)

has approved the above described project and has made the following determinations  
 regarding the above described project:

1. The project  will have a significant effect on the environment  
 will not

2.  An Environmental Impact Report was prepared for this project  
 pursuant to the provisions of CEQA.

A Negative Declaration was prepared for this project pursuant  
 to the provisions of CEQA.

The EIR or Negative Declaration and record of project approval  
 may be examined at 350 McAllister St., San Francisco, CA

3. Mitigation measures  were,  were not, made a condition of the  
 approval of the project.

4. A statement of Overriding Considerations  was,  was not, adopted  
 for this project.

Date Received for Filing \_\_\_\_\_

Executive Director \_\_\_\_\_

Date \_\_\_\_\_