ALJ/vdl H-2a

Decision 82 10 049 OCT 20 1982

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY for a certificate that the present and future public convenience and necessity require or will require that Applicant construct and operate a geothermal electric generation facility to be known as the Heber Geothermal Generation Station Plant No. 1, located in the State of California, County of Imperial, near Heber, California.	Application 61167 (Filed December 31, 1981)

Lucina Lea Williams and Philip Walsh, Attorneys at Law, for Southern California Edison Company, applicant.
Pamela D. Ferry, for San Diego Gas & Electric Company, and Robert Spertus and Michel Peter Florio, Attorneys at Law, for Toward Utility Rate Normalization, interested parties.
James E. Scarff, Attorney at Law, and Robert Penny, for the Commission staff.

O P I N I O N

I. Summary

Southern California Edison Company (Edison) has filed a second application requesting a certificate of public convenience and necessity (CPCN) to build a Heber Geothermal Generation Station Plant (Heber) in the Imperial Valley. The proposed plant would use the dual-flash geothermal technology and would generate a net of 47 megawatts (MW). The brine fuel for the plant would be supplied by Chevron.

In this decision we grant Edison's request for a CPCN to build the Heber project. The project was found in D.93035 to be technically feasible and based on both a reliable geothermal fuel source and a proven power production technology. These findings were not controverted in the present proceeding.

We conclude in this decision that the cost-competitiveness of the project vis-a-vis other generation options is uncertain. However, our adopted ratemaking arrangements minimize this cost-competitiveness risk for ratepayers, and these arrangements, coupled with the further non-quantifiable benefits associated with the project, provide a sufficient basis for granting a CPCN. These benefits associated with the Heber projec include the enhanced diversity of Edison's resource mix, reduced risks associated with smaller shorter lead time projects, decreased reliance on on foreign fuels, and reduced air emissions.

While granting Edison's request for a CPCN, we decline to accept Edison's proposed ratemaking treatment for the project. Instead we find that the staff's recommendation that Heber cost recovery be limited to avoided costs is a more reasonable ratemaking arrangement. With avoided cost recovery the risks of project cost-competitiveness are borne by Edison stockholders rather than ratepayers. We conclude that this is an appropriate allocation of risks for this project. In essence, Edison will recover costs for power produced from the Heber geothermal project in a manner that is consistent with cost recovery by non-utility small power producers that operate similar alternative energy projects. This ratemaking treatment is a reasonable way to protect the interest that ratepayers have in obtaining cost-effective power from the Heber plant.

Finally, we conclude that the Heber project for which we are granting a certificate is in compliance with the California Environmental Quality Act (CEQA). In making this determination we rely on the Imperial County Final Environmental Impact Report and Conditional Use permit relevant to the Heber project.

II. Background

Application (A.)61167 is the second application filed by Edison seeking a CPCN to build the Heber geothermal plant. The first filing, A.59512, was denied by D.93035 after the Commission found that the Brine Sales Contract terms were unfavorable and that the estimated cost of electricity from Heber was greater than the predicted cost of power from alternative generating sources.

However, the Commission also found in D.93035 that the Heber project is technologically feasible and should prove to be a reliable source of power. Accordingly, Edison was encouraged to restructure its participation in the project so that the cost of electricity from Heber is more competitive with the costs of power from other alternative resources. In particular, Edison was expected to renegotiate its brine supply contract with Chevron so that the price paid by Edison for brine would not track the price of oil as it did in the first agreement.

Edison has renegotiated its contract with Chevron and bases its present filing, A.61167, on the new agreement. Edison filed A.61167 on December 31, 1981. It was accepted as complete by the Commission staff (staff) on January 29, 1982. Public hearings were held on June 2-3 and July 16, 19-20, 1982. Edison and staff were the only active participants. San Diego Gas & Electric Company (SDG&E) and Toward Utility Rate Normalization filed appearance forms but did not offer any evidence, cross-examine any witnesses, or submit briefs.

Opening briefs of Edison and staff were tendered for filing in the Docket Office on August 9, 1982. Both briefs lacked the table of authorities required by Rule 75 and were not filed until a table of authorities was provided. Edison filed a reply brief on August 18, 1982. Staff chose not to file a reply brief. A.61167 was submitted on August 20, 1982, the date Edison's opening brief was accepted for filing.

Under the Permit Streamlining Act, Stats. 1977, Ch. 1200, the Commission is a "responsible agency" which must approve or

disapprove a project application such as A.61167 within 180 days of the date the "lead agency" has approved or disapproved the project. (See Government Code § 65952(a).) Imperial County, the "lead agency," issued a conditional geothermal production permit approving the Heber project on March 23, 1982. Accordingly, the Commission is required under the Permit Streamlining Act to issue a decision on or before September 20, 1982. This deadline was extended to October 22, 1982 by consent under Government Code § 65957. No further extensions of time are allowed under the Permit Streamlining Act. So, the Commission must act on A.61167 on or before October 22, 1982.

III. Applicant's Showing

Edison offered six witnesses in support of its application: Thomas R. Sparks, geothermal engineer; Norman J. DeHaven, project manager; Richard Kodani, environmental engineer; Jan J. Strack, planning engineer; Carl H. Silsbee, regulatory cost engineer; and Glenn J. Bjorklund, vice president of System Development. These witnesses testified to Edison's need for the project, the technical reliability of the plant's physical facilities, the project's capital cost and cost control procedures, environmental impacts, financial impacts of the project, and the renegotiated contracts with Chevron.

Need for the Heber Project

Edison's Fall 1981 Long-Range Forecast predicts a need for more than 5,000 MW of additional generating capacity by 1990. Witness Strack testified that about 1,862 MW are needed for load growth, 2,200 MW are needed to replace oil and gas unit retirements, and 585 MW are needed due to termination of purchased power contracts. The witness was unable to quantify the additional generating capacity intended only for oil displacement.

Edison plans to develop 2,100 MW of renewable/alternative resources by 1990. Of this amount, Edison expects to get 275 MW from geothermal resources. The 47 MW Heber project is the first

commercial geothermal generating facility planned for the Imperial Valley. Edison asserts that the Heber project is an important early step in its goal to develop renewable/alternative resources. Edison contends that if the Heber project is not built now, geothermal development in the Imperial Valley will be curtailed, and the entire geothermal industry will be depressed.

Edison further argues that the Heber project will not only provide important performance data on the geothermal anomaly in the Imperial Valley but also will encourage further geothermal development in other areas. For this reason, Edison submits that any evaluation of need for the Heber project should consider the project as a crucial beginning in the development of the entire geothermal industry in Southern California.

Technical Reliability

The Heber project is designed as a 47 MW net geothermal electric generating facility using a double-flash geothermal technology. The double-flash technology is a commercially proven process which has been successfully applied in several other countries. Edison expects the plant to operate initially at a 75% capacity factor.

Edison further asserts that the Heber geothermal anomaly which will supply the brine for the project will be a reliable source of heat fuel. Edison relies upon the testimony of William E. Brigham, professor in the Petroleum Engineering Department at Stanford, given in A.59512, which has been incorporated into this record. Professor Brigham testified in A.59512 that in his opinion the Heber geothermal anomaly can supply brine heat to operate the plant for 30-35 years. (See A.59512, Exh. 4.)

Capital Cost and Controls

The total capital cost of the Heber project is projected as $146,600,000 (1984 dollars). Of this amount, Edison will invest $91,500,000, and Chevron will contribute $55,100,000. Edison is

responsible for the turbine generator plant and the associated flash system. Chevron is responsible for the brine production and injection facilities.

Edison intends to use the company's existing cost control procedures if the project is approved. Witness DeHaven testified that these procedures have been used on four other projects that he personally has been involved with: Coolwater 3 and 4 combined cycle project, Big Creek 3 Unit 5 hydroelectric facility, Salton Sea geothermal project, and Solar 1 project. Each of these projects is either on budget or under budget. Accordingly, Edison submits that application of the same cost control procedures to the Heber project should assure the Commission that the project's capital cost will be carefully monitored.

Environmental Impact

The master environmental impact report on the proposed Heber project was reviewed by Imperial County, the lead agency. The report concludes that the project will not impose any unacceptable environmental impacts. A copy of this report is in the A.59512 formal file.

In addition, Richard Mitchell, Imperial County planning director, appeared on behalf of the county to state that significant economic benefits will flow to the county if the Heber project is approved and the project stimulates further geothermal development. Imperial County would receive increased property tax revenues and would benefit from additional employment opportunities. Accordingly, Mitchell urges us to approve the Heber project.

Financial Impacts

In its application, Edison estimates that the capital costs, brine costs, and operating costs of the Heber project added together will result in a 30-year levelized revenue requirement of 17.4¢/kWh.

This revenue requirement of 17.4¢/kWh was compared to a range of avoided cost projections prepared by Edison. Edison's most recent estimates of 30-year levelized avoided costs range from 10.9¢/kWh to 13.4¢/kWh. Edison points out that these recent avoided cost figures represent a significant decrease in avoided costs. According to Edison, this decrease should trigger lower, renegotiated brine prices under the terms of the Brine Sales Contract, thus bringing total project costs closer to avoided costs.

Further, Edison argues that a comparison of Heber project costs with avoided costs is a very limited measure of the project's overall value. Edison asserts that unquantifiable benefits such as reduced air pollutants, diversification of resources, and reduced oil and gas dependence are not considered in an avoided cost comparison. Edison contends that the inclusion of these unquantifiable benefits in the overall analysis of the project makes the Heber project a desirable and worthwhile project despite its high revenue requirement.

Edison also points out that the development of alternate/renewable resources is intended to supplant traditional oil and gas units. As these alternate/renewable resources are developed, the demand for oil or gas should drop leading to lower prices and reduced avoided costs based on oil and gas prices. Edison argues that a cost comparison of an alternate/renewable resource with the traditional oil- or gas-based resource it is designed to replace is tantamount to punishing success. As Edison develops alternate/renewable resources, it would become increasingly difficult to meet an avoided cost standard based largely on the price of oil or gas. Thus, Edison maintains that strict adherence to an avoided cost standard will slow the development of alternative/renewable resources.

In summary, Edison believes that even though the Heber project's estimated revenue requirement could significantly exceed projected avoided costs, the project's unquantifiable benefits outweigh this cost difference and justify approval of the project.

Chevron Contracts

After the issuance of D.93035 denying the first Heber project application, Edison renegotiated the Sales and Energy Contracts with Chevron. The Sales Contract covers the price Edison will pay for brine supplied to the Heber project. The Energy Contract essentially gives Edison an option to purchase brine for additional geothermal plants in the future.

Edison submits that the new contracts contain major concessions by Chevron and therefore represent the best available brine sales agreements in the Imperial Valley. In particular, Edison claims it has renegotiated the original contract provisions to meet every concern raised by the Commission in D.93035.

For example, under the original sales contract, Edison was responsible for $17.6 million in capital expenditures for the brine delivery, brine reinjection, and water treatment facilities. The new Sales Contract provides that Chevron is responsible for the injection pumps and piping. Edison is responsible only for the water supply facilities.

Under the original sales contract, Edison was obligated to pay demand and energy charges to Chevron. Consequently, Edison was bound to pay Chevron's fixed costs even if the geothermal plant failed to operate. The demand charge has been removed from the new Sales Contract.

As a final example of the renegotiated contract provisions, the original sales contract tied the price index for brine to the price of oil. Thus, the cost of electricity from the Heber project would have tracked the price of electricity from oil-fired units. The new Sales Contract uses a price index for brine which is not closely related to oil prices. The new index is a composite of four cost indexes which are intended to reflect changes in Chevron's cost of operation in the Heber geothermal anomaly.

Edison submits that because of these renegotiated provisions, the brine price under the new Sales Contract is 25% lower than the price under the old sales contract. In addition, Edison points out that Chevron has assumed responsibility for $20 million in pipeline system capital costs that under the old sales contract were Edison's responsibility. Witness Sparks testified that in his opinion Edison was able to renegotiate its agreement in this manner with Chevron primarily because the Commission's D.93035 stated well-defined criteria for renegotiation of the contracts. In their negotiations, Edison and Chevron focused on every problem articulated by the Commission in D.93035.

IV. Staff Showing

Staff offered four witnesses: Richard Finnstrom, senior utilities engineer; Dana A. Toulson, research program specialist; Robert Penny, supervising utilities engineer; and William Thompson, research program specialist. Finnstrom, Toulson, and Penny represented the Utilities Division. Thompson testified on behalf of the Revenue Requirements Division.

Utilities Division

The Utilities Division reviewed need for the project, capital cost, cost controls, the brine supply contracts, and the economics of the project.

Witness Penny analyzed Edison's need for the Heber project and made some general observations. He testified that Edison has overstated its need for the Heber project. In his opinion, if the Heber project is not built, it can be easily replaced with a more economically competitive resource. In addition, witness Penny disagrees with Edison's claim that there is an immediate need to build the Heber project. He believes there is ample time to restudy the economics of the project and to renegotiate an even more advantageous brine supply contract. Witness Penny agrees that the

second Sales Contract is a substantial improvement over the first sales contract, but states that even greater concessions might be obtained.

Despite his testimony that Edison does not need the Heber project at this time, witness Penny had no specific recommendation to make on the application. He declined to recommend whether a CPCN should be granted or denied.

Witness Finnstrom reviewed primarily the Heber project's capital cost, cost controls, and brine prices. He found Edison's estimates of capital costs and planned cost control procedures to be satisfactory. If a CPCN is granted for the Heber project, he recommends that Edison should be required to demonstrate in its Energy Cost Adjustment Clause proceedings the reasonableness of the brine prices and the payments made to Chevron. Witness Finnstrom also declined to recommend approval or denial of this application.

Witness Toulson analyzed the Heber project's economics. She compared the project to what she believes is its most likely alternative, a coal-fired plant. Witness Toulson reasons that since the Heber project is intended for use as a baseload facility, it should be compared to the next planned baseload facility in Edison's resource plan, a coal-fired plant.

Witness Toulson estimates the 30-year levelized cost of a baseload coal-fired plant to be 14.0¢/kWh as compared to the Heber project costs in Edison's application of 17.4¢/kWh.

Witness Toulson concedes that her analysis is limited as it does not consider externalities or indirect benefits such as reduced air pollution, resource diversification, operating experience, etc. However, if she confines her analysis to an avoided cost comparison, she finds that since the Heber project's estimated cost exceeds avoided cost projections based on a coal-fired plant, she must recommend denial of the application.

Revenue Requirements Division

Witness Thompson recommends that the Commission deny this application and instead allow Edison to build the Heber project and pay itself avoided costs for any electricity. Under his proposal, no part of the Heber project would enter rate base. To the extent the cost of electricity from Heber is below Edison's avoided cost, Edison will retain a profit. In the event the cost of electricity exceeds avoided cost, Edison will take a loss. In either case, Edison's shareholders absorb the profit or the loss.

Witness Thompson characterizes the Heber project as a questionably cost-effective project brought to the Commission for prior approval. The project, in his view, involves substantial risk that the project costs will exceed avoided costs. He argues that if Edison's shareholders are unwilling to accept this risk under his avoided cost payment proposal, then Edison's ratepayers should not be asked to bear it.

Witness Thompson submits that Edison's management, representing the company's shareholders, is in the best position to evaluate the risks and benefits of the Heber project. He points out that the staff and the company's ratepayers did not participate in the negotiations with Chevron and are not privy to the information Edison's management had access to in the negotiation process. Therefore, he concludes neither staff nor the ratepayers can determine whether the negotiated price for brine is a fair price. Further, he adds that the brine contract renegotiation provisions affecting future brine prices make this determination even more difficult and uncertain.

Under the Thompson proposal, if a utility is required to accept the economic risks and benefits of the Heber project, and other projects, extensive economic analysis by the staff and the Commission becomes unnecessary. Edison's management would be required to evaluate each project under the constraint of avoided

cost recovery. The Commission would not need to review project cost in detail but would simply fix the utility's avoided cost. Witness Thompson contends that as a result the certification process would be streamlined, and regulatory lag would be minimized.

In summary, witness Thompson recommends that Edison should be allowed to build the Heber project and receive avoided cost payments, similar to a QF under PURPA. In this way, he asserts Edison's management will be given an economic incentive to build and construct only cost-competitive projects.

V. Discussion

In D.93035 we found that the Heber project was technically feasible and involved both a reliable geothermal anomaly and a proven power production technology. These findings were not controverted in this proceeding. The Commission's decision pursuant to A.59512 also found that the brine contract was not reasonable and prudent, and that this conclusion was sufficient to deny the application (D.93035, p.38). Further, the overall project was found not be be cost-competitive. These latter issues have been the primary focus of the present proceeding. Our decision here requires discussion of (1) the adequacy of the brine contract, (2) the need for, and cost-effectiveness of the project, (3) the appropriate ratemaking treatment of the project, and (4) the project's environmental impact.

The Brine Sales Contract

We agree with Edison that the present brine sales agreement contains certain improvements over the agreement filed in A.59512, which we criticized. Under the new agreement Chevron has taken a more equitable share of the capital costs associated with brine production and reinjection. Further, Edison is no longer required to pay a demand charge to Chevron whether or not it takes brine. The elimination of the demand charge leads to a more balanced set of remedies for non-performance under the contract. Finally, the brine price escalation index is less closely tied to oil price escalation, thus allowing this supply source to diversify Edison fuel price risks.

The latter improvement has apparently been achieved at a cost. Evidence in the record indicates that while the brine price will not fluctuate with oil prices, the present brine escalation index is projected to increase faster than oil prices overall (see Exhibit 23). As the escalating brine costs are a major component of total project costs, this naturally leads us to the central issue in the present proceeding: the cost-effectiveness of, and need for, the project.

Need and Cost-Effectiveness

The primary basis for establishing the need for a given utility project must be an economic one. The fact that there will be new increments of customer demand that must be met does not automatically make a proposed project necessary. If alternative projects or the enhanced use of existing facilities can meet the new increment of demand at a lower cost than the proposed project, then the project is not necessary or desirable in an economic sense. Unless there are persuasive non-economic or non-quantifiable reasons establishing need, a project that does not meet this economic test should not be granted a CPCN.

It is questionable whether the proposed Heber project meets the aforementioned economic test. Evidence in the record indicates that the project costs listed in Edison's application are higher than Edison's current estimates of avoided costs (based primarily on the cost of enhanced use of existing facilities) as well as staff's measure of avoided cost (based on the costs of building and operating an alternative baseload project). Edison points out that the project costs listed in the application are likely to be reduced through brine price renegotiation given the recent drop in avoided costs, and this will bring project costs closer to avoided costs. Further, Edison points out that avoided cost projections are quite volatile. While we agree that Heber project costs and comparable avoided costs are both subject to uncertainty, we find that the cost-competitiveness of the project is problematic.

Edison argues that even if the project does not meet a strict economic test of cost-competitiveness, it will also produce associated non-quantifiable benefits which make it a desirable undertaking. The primary benefits that are pointed to are the enhanced diversity of Edison's resource mix, reduced risks associated with smaller, shorter lead time projects, decreased reliance on foreign fuels, and reduced air emissions in the South Coast Air Basin. Further, Edison points out that the construction of this project is likely to create momentum toward the further development of geothermal resources in the Imperial Valley.

We would note that Edison stockholders reap many of the non-quantifiable benefits associated with this project. Risk is reduced by investing in smaller investments of capital. Cash flow is improved through a project with a shorter time. Volatility of future earnings is decreased through the establishment of a more diverse and stable fuel mix.

We agree with Edison that there are also non-quantifiable benefits for ratepayers associated with this project. However, these benefits are not unique to Heber. In general, such non-quantifiable benefits also accrue from independent small power producers which sell electricity to Edison at its avoided costs. Indeed, we have supported full avoided costs for small power producers in part because of these additional benefits. Similarly, the non-quantifiable benefits would make the Heber project clearly desirable if it could produce electricity at or below avoided costs. However, if the Heber project cannot be economically developed within avoided costs, it is unclear why ratepayers should not rely on other independent small power producers for the equivalent energy production. As noted above, the cost-competitiveness of the Heber project is uncertain.

Accordingly, the decision to grant a CPCN is dependent upon the ratemaking treatment that will be associated with it. We will grant a CPCN under the condition that avoided cost ratemaking is used, as described in the following section.

Ratemaking Treatment

While finding sufficient basis for granting a certificate to allow this project to go forward, we are also cognizant of the need to safeguard ratepayers' interests in the ratemaking treatment that we approve for the project. In this regard, we decline to accept Edison's proposed ratemaking treatment. Edison requests that we find that brine costs incurred pursuant to the brine sales agreement are reasonable and recoverable in ECAC, and that the capital costs of the project should be rate-based and subject to the company-wide authorized rate of return.

We agree with staff witness Thompson that this ratemaking treatment will place undue risks on ratepayers that Heber project costs will, in actuality, be excessive, above avoided costs. The cost-competitiveness of this project is too uncertain vis-a-vis avoided costs for us to place this risk on ratepayers. We agree with staff that it is more appropriate in this case for Edison's management and shareholders to take on this risk, as management is in a better position to carefully compare likely project costs with forecasted avoided costs. This is particularly appropriate since Edison's management is in a better position to ascertain the prospects for brine price renegotiation under the contract, and to carry out such renegotiation in a vigorous fashion. We will therefore adopt the staff recommendation and limit cost recovery on the Heber project to avoided costs, allowing Edison management and shareholders to take the risks and potential returns associated with the cost-competitiveness of the project.

This approved method of cost recovery should provide Edison with a strong incentive to go forward with a project that is structured in the most economical way possible, to keep construction costs down, and to push vigorously for lower brine prices during the life of the project. At the same time, ratepayers' interests will have been protected.

Avoided cost recovery for power produced by Edison should be based on the energy and thirty-year capacity payment schedules of Standard Offer #2 filed pursuant to D.82-01-103. This basis for avoided cost recovery is appropriate for a long term firm power source such as the Heber project. Payments for Heber power pursuant to Standard Offer #2 should reflect any revisions that are made in this price schedule between the date of this decision and the date of cost recovery.

Cost recovery for power produced from Heber shall be limited to avoided cost recovery in ECAC at the time the power is produced. Actual costs incurred to produce the power, and associated returns to shareholders, shall be treated "below the line" and not recognized for ratemaking purposes, now or in the future. Edison shall observe the strictest accounting requirements for separating costs and returns associated with the Heber project and other company costs and returns that are recognized for ratemaking purposes. Edison shall submit the accounting methodology that it uses to separate out its Heber related activities, including any separate subsidiary arrangements that may be implemented, for approval by this Commission prior to cost recovery for Heber generated power.

We recognize that this innovative cost recovery scheme is a departure from more traditional forms of utility project cost recovery. It is, however, a reasonable method of cost recovery given the facts of this case. As noted above, the cost-competitiveness of this project is quite uncertain. Moreover, it is clear that Edison's management is in the best position to weigh the risks and potential returns associated

with this project's costs vis-a-vis other generation options. Edison's management can thus make a precise judgement about the economic viability of the project and act on the basis of this judgement. By placing the risks of project cost-competitiveness on Edison's management and shareholders in this way, ratepayers' interests will be protected.

The certificate that we grant for the Heber project is clearly conditional on this adopted form of cost recovery, as this form of cost recovery is necessary to protect ratepayers' interests in this case. The certificate is thus a stricter and narrower grant of authority than that which appertains to other utility projects which are granted certificates coupled with traditional ratemaking treatment. The method of cost recovery adopted for Heber is reasonable based on the facts of this case but is not precedential toward the treatment of other utility applications.

Environmental Impact

In A.59512, Edison's prior filing on Heber Plant No. 1, considerable information was presented on the environmental impacts expected to occur from construction and operation of the proposed plant. In accordance with CEQA requirements, in early 1980 Imperial County issued a Final Master Environmental Impact Report on the 500 MW of geothermal generation in the county proposed by both Edison and San Diego Gas & Electric Company. This master FEIR was used by the county in evaluating impacts associated with Edison's Heber Plant No. 1 in determining whether a conditional land use permit should be issued to Edison for this plant. Because of our decision to reject Edison's prior application, we did not make any findings on environmental issues in D.93035.

In the current proceeding, Imperial County's Master FEIR was incorporated into the record by reference. There has only been one change of any environmental significance in the project since the previous application. At that time, Edison proposed to use water from the New River in reinjection processes to replace brine used and lost from evaporation in the cooling tower. In its current application, Edison proposed to use irrigation water for cooling for at least five

years, and, if possible, longer to delay the capital costs associated with construction of the water treatment plant. Impacts associated with this change had already been analyzed in the master FEIR issued by Imperial County.

Due to the change in the source of cooling water, Edison sought a revised conditional use permit from Imperial County. After determining that no further environmental report was needed under CEQA, the county issued this permit on March 23, 1982. The Commission staff concurs with Imperial County that the analysis of impacts contained in the master FEIR adequately analyzes the environmental impacts, possible mitigation measures, and alternatives. (See also Pub. Res. C. §21167.2.) We believe that the impacts are either beneficial, insignificant, or adequately mitigated by the measures proposed in the application or the conditional use permit.

Pursuant to §15085.5(h) of the CEQA Guidelines, we find that:

(1) changes or alterations have been required in, or incorporated into, the project which mitigate or avoid each of the significant environmental effects identified in the master FEIR, and

(2) such changes or alterations are within the responsibility and jurisdiction of Imperial County and have been adopted by that agency.

Accordingly, we direct the staff to file a Notice of Determination of the Commission's findings pursuant to §15085.5(i) of the CEQA Guidelines.

Findings of Fact

1. By A.61167, Edison requests a CPCN to construct the Heber Geothermal Generation Plant No. 1 (Heber).

2. Heber would use a dual-flash technology and have an initial net output of 47 MW.

3. In D.93035 the Commission found that Heber was technically feasible and involved both a reliable geothermal anomaly and a proven power technology; these findings were not controverted in the present proceeding.

4. Edison has renegotiated its brine sales contract with Chevron.

5. In the renegotiated brine contract, Chevron has taken a more equitable share of the capital costs of the project.

6. In the renegotiated brine contract, the elimination of the demand charge has created a more balanced set of remedies for non-performance.

7. In the renegotiated brine contract, the brine price escalation index is less closely tied to oil price escalation.

8. The brine price escalation index is projected to escalate faster between 1984 and 1996 than oil prices during the same period.

9. The cost-competitiveness of Heber vis-a-vis other generation options has not been demonstrated.

10. Heber will produce non-quantifiable benefits that are not considered in a strict avoided cost test of cost-competitiveness.

11. Heber will enhance the diversity of Edison's future resource mix.

12. Heber is a smaller, shorter-lead time baseload generation project when compared to conventional baseload projects such as coal-fired powerplants.

13. Heber will allow decreased reliance on foreign fuels by Edison.

14. Heber will allow reduced emissions in the South Coast Air Basin by Edison.

15. Heber is the first of several commercial geothermal generating facilities planned by Edison for the Imperial Valley.

16. Edison's proposed ratemaking treatment for Heber cost recovery will place undue risks on Edison's ratepayers that such costs will be excessive, above avoided costs.

17. Edison is in the best position to make a precise judgement about the economic viability of the project, is the party responsible for brine price negotiation, and is best able to weigh the risks and potential returns associated with the comparison of Heber costs and other generation options.

18. The staff recommendation that Edison be limited to avoided cost recovery on Heber is reasonable.

19. Under the staff's recommended method of cost recovery, ratepayer interests in relation to Heber will be protected.

20. It is reasonable that avoided cost recovery for Heber should be based on the energy and thirty-year capacity payment schedules of Standard Offer #2, filed by Edison pursuant to D.82-01-103, revised to reflect any changes in that Offer made by this Commission prior to Heber cost recovery.

21. Protection of ratepayer interest requires a strict separation of Heber costs and returns and other Edison costs and returns that are recognized for ratemaking purposes.

22. Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid each of the significant environmental effects identified in the master FEIR.

23. Changes or alterations in the project which mitigate or avoid significant environmental effects are within the responsibility and jurisdiction of Imperial County and have been adopted by that agency.

Conclusions of Law

1. The Commission is required to issue a decision on A.61167 on or before October 22, 1982, by the Permit Streamlining Act.

2. A CPCN should be issued to Edison to build and operate Heber, conditional on the cost recovery arrangement adopted in this decision.

3. The staff recommendation to allow Edison avoided cost recovery for Heber should be approved.

4. Avoided cost recovery for Heber should be based on energy and thirty-year capacity payment schedules of Standard Offer #2, filed by Edison pursuant to D.82-01-103, revised to reflect any changes in that offer made by this Commission prior to Heber cost recovery.

5. For accounting purposes, Edison should strictly separate Heber costs and returns from other Edison costs and returns that are requested for ratemaking purposes.

6. The Master Final Environmental Report issued by Imperial County satisfies the requirements of CEQA in accordance with Public Resources Code §21167.2.

O R D E R

1. A certificate of public convenience and necessity is granted to Southern California Edison Company (Edison) to construct and operate the Heber Geothermal Generation Plant No. 1 (Heber), conditional on the cost recovery arrangements authorized today.

2. Cost recovery for power produced from Heber shall be limited to avoided cost recovery in Edison energy cost adjustment clause (ECAC) account at the time the power is produced, based on the energy and thirty-year capacity payment schedules of Standard Offer No. 2, filed pursuant to D.82-01-103, revised to reflect any changes in that Offer made by this Commission prior to Heber cost recovery.

3. Costs incurred by Edison now or in the future to build and operate Heber, and returns to shareholders derived from Heber, shall not be recognized for ratemaking purposes.

4. Edison shall submit the accounting methodology that it will use to separate out its Heber related activities from its activities that are recognized for ratemaking purposes, including any separate subsidiary arrangements that may be implemented, to this Commission for Commission approval prior to cost recovery for Heber generated power.

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

This order becomes effective today.

Dated OCT 20 1982, at San Francisco, California.

We will file a concurring opinion.

/s/ LEONARD M. GRIMES, JR.
/s/ VICTOR CALVO
Commissioners

JOHN E. BRYSON
President
RICHARD D. GRAVELLE
LEONARD M. GRIMES, JR.
VICTOR CALVO
Commissioners

Commissioner Priscilla C. Grew, being necessarily absent, did not participate

I CERTIFY THAT THIS DECISION WAS APPROVED BY THE ABOVE COMMISSIONERS TODAY.

Joseph E. Bodovitz, Executive Director

APPENDIX A

NOTICE OF DETERMINATION

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

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

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

Application 61167

Project Title Heber Geothermal Generating Station Plant No. 1

State Clearinghouse Number (If submitted to State Clearinghouse)
SCH 79021361 (Lead Agency: Imperial County Planning Department)

Contact Person: James E. Scarff

Telephone Number: (415) 597-1091 (ATSS)

Project Location
Imperial County, CA

Project Description
Construction of a 47 MW Geothermal Electric Generating Plant.

This is to advise that the California Public Utilities Commission has made the following determination regarding the above described project:

1. The project has been [X] approved by the CPUC
   [ ] disapproved
2. The project [ ] will have a significant effect on the environment.
   [X] will not
3. [X] 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. A copy of the Negative Declaration is attached.

Dec. 31, 1981
Date Received for Filing

Executive Director

Date 10-20-87

LEONARD M. GRIMES, JR., Commissioner and
VICTOR CALVO, Commissioner, Concurring:

We concur.

By assuring Southern California Edison Company recovery of avoided costs and treating actual costs "below the line" our decision offers Edison an opportunity to earn a profit commensurate with the skill, ingenuity, and efficiency claimed by the company. To the extent that Edison manages to keep its actual costs below avoided costs, it will profit; to the extent that it fails, Edison will lose.

We encourage the management of Edison to rise to this challenge by devoting its best commercial and professional talents to making the Heber project a profitable venture. For the reasons discussed in our decision, a successful project will benefit both shareholders and ratepayers alike.

While our decision today limits Edison's recovery to avoided costs, this Commission has not ruled out the use of added payments to compensate future QF or utility projects for the value of benefits which are currently unquantifiable. Such payments may be necessary to stimulate the development of certain projects. To assist the Commission in evaluating future projects and in determining avoided costs, we invite interested groups including Edison, other utilities, and public interested organizations to provide us with information on how benefits which are now unquantifiable may be quantified and introduced in our analysis of cost effectiveness.

LEONARD M. GRIMES, JR., Commissioner

VICTOR CALVO, Commissioner

San Francisco, California
October 20, 1982

Agenda Number 2625 Item No. H-2a

Notice of Nonsubstantive Revision

Since the above-referenced proposed decision was distributed, changes have been made by: Commissioner Gravelle on the following pages:

pp 2, 7, 14, 15, 16, 17, 17a-(added), 19

20, 21

NOTE: This revision is distributed to: complete Agenda distribution list.

held up
Notice of determination

In this decision we grant Edison's request for a CPCN to build the Heber project. The project was found in D.93035 to be technically feasible and based on both a reliable geothermal fuel source and a proven power production technology. These findings were not controverted in the present proceeding.

We conclude in this decision that the cost-competitiveness of the project vis-a-vis other generation options is uncertain. However, our adopted ratemaking arrangements minimize this cost-competitiveness risk for ratepayers, and these arrangements, coupled with the further non-quantifiable benefits associated with the project, provide a sufficient basis for granting a CPCN. These benefits associated with the Heber project include the enhanced diversity of Edison's resource mix, reduced risks associated with smaller shorter lead time projects, decreased reliance on on foreign fuels, and reduced air emissions.

While granting Edison's request for a CPCN, we decline to accept Edison's proposed ratemaking treatment for the project. Instead we find that the staff's recommendation that Heber cost recovery be limited to avoided costs is a more reasonable ratemaking arrangement. With avoided cost recovery the risks of project cost-competitiveness are borne by Edison stockholders rather than ratepayers. We conclude that this is an appropriate allocation of risks for this project. In essence, Edison will recover costs for power produced from the Heber geothermal project in a manner that is consistent with cost recovery by non-utility small power producers that operate similar alternative energy projects. This ratemaking treatment is a reasonable way to protect the interest that ratepayers have in obtaining cost-effective power from the Heber plant.

Finally, we conclude that the Heber project for which we are granting a certificate is in compliance with the California Environmental Quality Act (CEQA). In making this determination we rely on the Imperial County Final Environmental Impact Report and Conditional Use permit relevant to the Heber project.

This revenue requirement of 17.4¢/kWh was compared to a range of avoided cost projections prepared by Edison. Edison's most recent estimates of 30-year levelized avoided costs range from 10.9¢/kWh to 13.4¢/kWh. Edison points out that these recent avoided cost figures represent a significant decrease in avoided costs. According to Edison, this decrease should trigger lower, renegotiated brine prices under the terms of the Brine Sales Contract, thus bringing total project costs closer to avoided costs.

Further, Edison argues that a comparison of Heber project costs with avoided costs is a very limited measure of the project's overall value. Edison asserts that unquantifiable benefits such as reduced air pollutants, diversification of resources, and reduced oil and gas dependence are not considered in an avoided cost comparison. Edison contends that the inclusion of these unquantifiable benefits in the overall analysis of the project makes the Heber project a desirable and worthwhile project despite its high revenue requirement.

Edison also points out that the development of alternate/renewable resources is intended to supplant traditional oil and gas units. As these alternate/renewable resources are developed, the demand for oil or gas should drop leading to lower prices and reduced avoided costs based on oil and gas prices. Edison argues that a cost comparison of an alternate/renewable resource with the traditional oil- or gas-based resource it is designed to replace is tantamount to punishing success. As Edison develops alternate/renewable resources, it would become increasingly difficult to meet an avoided cost standard based largely on the price of oil or gas. Thus, Edison maintains that strict adherence to an avoided cost standard will slow the development of alternative/renewable resources.

In summary, Edison believes that even though the Heber project's estimated revenue requirement could significantly exceed projected avoided costs, the project's unquantifiable benefits outweigh this cost difference and justify approval of the project.

Edison argues that even if the project does not meet a strict economic test of cost-competitiveness, it will also produce associated non-quantifiable benefits which make it a desirable undertaking. The primary benefits that are pointed to are the enhanced diversity of Edison's resource mix, reduced risks associated with smaller, shorter lead time projects, decreased reliance on foreign fuels, and reduced air emissions in the South Coast Air Basin. Further, Edison points out that the construction of this project is likely to create momentum toward the further development of geothermal resources in the Imperial Valley.

We would note that Edison stockholders reap many of the non-quantifiable benefits associated with this project. Risk is reduced by investing in smaller investments of capital. Cash flow is improved through a project with a shorter time. Volatility of future earnings is decreased through the establishment of a more diverse and stable fuel mix.

We agree with Edison that there are also non-quantifiable benefits for ratepayers associated with this project. However, these benefits are not unique to Heber. In general, such non-quantifiable benefits also accrue from independent small power producers which sell electricity to Edison at its avoided costs. Indeed, we have supported full avoided costs for small power producers in part because of these additional benefits. Similarly, the non-quantifiable benefits would make the Heber project clearly desirable if it could produce electricity at or below avoided costs. However, if the Heber project cannot be economically developed within avoided costs, it is unclear why ratepayers should not rely on other independent small power producers for the equivalent energy production. As noted above, the cost-competitiveness of the Heber project is uncertain.

Accordingly, the decision to grant a CPCN is dependent upon the ratemaking treatment that will be associated with it. We will grant a CPCN under the condition that avoided cost ratemaking is used, as described in the following section.

Ratemaking Treatment

While finding sufficient basis for granting a certificate to allow this project to go forward, we are also cognizant of the need to safeguard ratepayers' interests in the ratemaking treatment that we approve for the project. In this regard, we decline to accept Edison's proposed ratemaking treatment. Edison requests that we find that brine costs incurred pursuant to the brine sales agreement are reasonable and recoverable in ECAC, and that the capital costs of the project should be rate-based and subject to the company-wide authorized rate of return.

We agree with staff witness Thompson that this ratemaking treatment will place undue risks on ratepayers that Heber project costs will, in actuality, be excessive, above avoided costs. The cost-competitiveness of this project is too uncertain vis-a-vis avoided costs for us to place this risk on ratepayers. We agree with staff that it is more appropriate in this case for Edison's management and shareholders to take on this risk, as management is in a better position to carefully compare likely project costs with forecasted avoided costs. This is particularly appropriate since Edison's management is in a better position to ascertain the prospects for brine price renegotiation under the contract, and to carry out such renegotiation in a vigorous fashion. We will therefore adopt the staff recommendation and limit cost recovery on the Heber project to avoided costs, allowing Edison management and shareholders to take the risks and potential returns associated with the cost-competitiveness of the project.

This approved method of cost recovery should provide Edison with a strong incentive to go forward with a project that is structured in the most economical way possible, to keep construction costs down, and to push vigorously for lower brine prices during the life of the project. At the same time, ratepayers' interests will have been protected.

Requested Modification in H-2a regarding Edison's choice on Standard offers: suggested language

(1) Insert to p. 16 as a new second paragraph:

"Another standard offer which may be appropriate is the long term resource plan-based offer. However, the details of this offer have not been sufficiently defined at this date to be certain that it is applicable. Therefore, while we are permitting cost recovery on the basis of Standard Offer #2, we will entertain a motion to permit recovery on the basis of the long term resource plan-based offer instead."

(2) No changes in Findings or Conclusions are required.

Avoided cost recovery for power produced by Edison should be based on the energy and thirty-year capacity payment schedules of Standard Offer #2 filed pursuant to D.82-01-103. This basis for avoided cost recovery is appropriate for a long term firm power source such as the Heber project. Payments for Heber power pursuant to Standard Offer #2 should reflect any revisions that are made in this price schedule between the date of this decision and the date of cost recovery. INSERT

Cost recovery for power produced from Heber shall be limited to avoided cost recovery in ECAC at the time the power is produced. Actual costs incurred to produce the power, and associated returns to shareholders, shall be treated "below the line" and not recognized for ratemaking purposes, now or in the future. Edison shall observe the strictest accounting requirements for separating costs and returns associated with the Heber project and other company costs and returns that are recognized for ratemaking purposes. Edison shall submit the accounting methodology that it uses to separate out its Heber related activities, including any separate subsidiary arrangements that may be implemented, for approval by this Commission prior to cost recovery for Heber generated power.

We recognize that this innovative cost recovery scheme is a departure from more traditional forms of utility project cost recovery. It is, however, a reasonable method of cost recovery given the facts of this case. As noted above, the cost-competitiveness of this project is quite uncertain. Moreover, it is clear that Edison's management is in the best position to weigh the risks and potential returns associated

with this project's costs vis-a-vis other generation options. Edison's management can thus make a precise judgement about the economic viability of the project and act on the basis of this judgement. By placing the risks of project cost-competitiveness on Edison's management and shareholders in this way, ratepayers' interests will be protected.

The certificate that we grant for the Heber project is clearly conditional on this adopted form of cost recovery, as this form of cost recovery is necessary to protect ratepayers' interests in this case. The certificate is thus a stricter and narrower grant of authority than that which appertains to other utility projects which are granted certificates coupled with traditional ratemaking treatment. The method of cost recovery adopted for Heber is reasonable based on the facts of this case but is not precedential toward the treatment of other utility applications.

Environmental Impact

In A.59512, Edison's prior filing on Heber Plant No. 1, considerable information was presented on the environmental impacts expected to occur from construction and operation of the proposed plant. In accordance with CEQA requirements, in early 1980 Imperial County issued a Final Master Environmental Impact Report on the 500 MW of geothermal generation in the county proposed by both Edison and San Diego Gas & Electric Company. This master FEIR was used by the county in evaluating impacts associated with Edison's Heber Plant No. 1 in determining whether a conditional land use permit should be issued to Edison for this plant. Because of our decision to reject Edison's prior application, we did not make any findings on environmental issues in D.93035.

In the current proceeding, Imperial County's Master FEIR was incorporated into the record by reference. There has only been one change of any environmental significance in the project since the previous application. At that time, Edison proposed to use water from the New River in reinjection processes to replace brine used and lost from evaporation in the cooling tower. In its current application, Edison proposed to use irrigation water for cooling for at least five

years, and, if possible, longer to delay the capital costs associated with construction of the water treatment plant. Impacts associated with this change had already been analyzed in the master FEIR issued by Imperial County.

5. In the renegotiated brine contract, Chevron has taken a more equitable share of the capital costs of the project.

6. In the renegotiated brine contract, the elimination of the demand charge has created a more balanced set of remedies for non-performance.

7. In the renegotiated brine contract, the brine price escalation index is less closely tied to oil price escalation.

8. The brine price escalation index is projected to escalate faster between 1984 and 1996 than oil prices during the same period.

9. The cost-competitiveness of Heber vis-a-vis other generation options has not been demonstrated.

10. Heber will produce non-quantifiable benefits that are not considered in a strict avoided cost test of cost-competitiveness.

11. Heber will enhance the diversity of Edison's future resource mix.

12. Heber is a smaller, shorter-lead time baseload generation project when compared to conventional baseload projects such as coal-fired powerplants.

13. Heber will allow decreased reliance on foreign fuels by Edison.

14. Heber will allow reduced emissions in the South Coast Air Basin by Edison.

15. Heber is the first of several commercial geothermal generating facilities planned by Edison for the Imperial Valley.

16. Edison's proposed ratemaking treatment for Heber cost recovery will place undue risks on Edison's ratepayers that such costs will be excessive, above avoided costs.

17. Edison is in the best position to make a precise judgement about the economic viability of the project, is the party responsible for brine price negotiation, and is best able to weigh the risks and potential returns associated with the comparison of Heber costs and other generation options.

18. The staff recommendation that Edison be limited to avoided cost recovery on Heber is reasonable.

19. Under the staff's recommended method of cost recovery, ratepayer interests in relation to Heber will be protected.

20. It is reasonable that avoided cost recovery for Heber should be based on the energy and thirty-year capacity payment schedules of Standard Offer #2, filed by Edison pursuant to D.82-01-103, revised to reflect any changes in that Offer made by this Commission prior to Heber cost recovery.

21. Protection of ratepayer interest requires a strict separation of Heber costs and returns and other Edison costs and returns that are recognized for ratemaking purposes.

22. Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid each of the significant environmental effects identified in the master FEIR.

23. Changes or alterations in the project which mitigate or avoid significant environmental effects are within the responsibility and jurisdiction of Imperial County and have been adopted by that agency.

Conclusions of Law

1. The Commission is required to issue a decision on A.61167 on or before October 22, 1982, by the Permit Streamlining Act.

2. A CPCN should be issued to Edison to build and operate Heber, conditional on the cost recovery arrangement adopted in this decision.

3. The staff recommendation to allow Edison avoided cost recovery for Heber should be approved.

4. Avoided cost recovery for Heber should be based on energy and thirty-year capacity payment schedules of Standard Offer #2, filed by Edison pursuant to D.82-01-103, revised to reflect any changes in that offer made by this Commission prior to Heber cost recovery.

5. For accounting purposes, Edison should strictly separate Heber costs and returns from other Edison costs and returns that are requested for ratemaking purposes.

6. The Master Final Environmental Report issued by Imperial County satisfies the requirements of CEQA in accordance with Public Resources Code §21167.2.

O R D E R

1. A certificate of public convenience and necessity is granted to Southern California Edison Company (Edison) to construct and operate the Heber Geothermal Generation Plant No. 1 (Heber), conditional on the cost recovery arrangements authorized today.

2. Cost recovery for power produced from Heber shall be limited to avoided cost recovery in Edison energy cost adjustment clause (ECAC) account at the time the power is produced, based on the energy and thirty-year capacity payment schedules of Standard Offer No. 2, filed pursuant to D.82-01-103, revised to reflect any changes in that Offer made by this Commission prior to Heber cost recovery.

3. Costs incurred by Edison now or in the future to build and operate Heber, and returns to shareholders derived from Heber, shall not be recognized for ratemaking purposes.

4. Edison shall submit the accounting methodology that it will use to separate out its Heber related activities from its activities that are recognized for ratemaking purposes, including any separate subsidiary arrangements that may be implemented, to this Commission for Commission approval prior to cost recovery for Heber generated power.