

# ORIGINAL

Decision No. 85298

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 Present and Future Public Convenience and Necessity require or will require the construction and operation by Applicant of two combined cycle electric generating units, to be known as Units No. 3 and 4 at an existing site known as COOLWATER GENERATING STATION, together with other appurtenances to be used in connection with said units.

Application No. 53389  
(Filed June 9, 1972;  
amended January 11, 1973)

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Commission staff.

O P I N I O N

By this application, as amended, Southern California Edison Company (Edison) seeks, pursuant to Section 1001 of the Public Utilities Code and to Section 1 of General Order No. 131, a certificate of public convenience and necessity to construct and operate two combined cycle electric generating units, to be known as Units Nos. 3 and 4, at the Coolwater Generating Station in San Bernardino County near Barstow, California, together with other appurtenances to be used in connection with said units.

The additions to the transmission system associated with the proposed additional generating capacity at Coolwater Station are the subject of Application No. 53602 filed September 25, 1972 by Southern California Edison Company in which authority is sought to construct and operate two 220 kv transmission lines from Coolwater Generating Station to Kramer Substation. These transmission lines will carry the electricity generated by the proposed Coolwater combined cycle Units Nos. 3 and 4 having a total capacity of 472 megawatts to the interconnected Edison system.

EIR Process and Public Hearings

In December 1972 Edison submitted its environmental report, which served as the Environmental Data Statement (EDS) provided for under our Rule 17.1. Its contents were consistent with the amended application filed the following month. In June 1973 the Commission staff issued the Draft EIR. It was sent to all public agencies having jurisdiction by law over the project to State agencies having pertinent statutory authority or expertise according to the Resource Agency Guidelines, and to various interested local agencies. Some of those agencies commented on the Draft EIR. Their written comments were included in Appendix B of the Final EIR. The Final EIR was issued in August 1975.

Public hearings were held before Examiner Main on August 8, 9, 10, 28, 29, and 31; September 5, 6, 7, 13, and 14; October 15; and November 5, 7, and 9, 1973. The hearings were held in Barstow and Los Angeles and were devoted primarily to environmental matters. Certain testimony and exhibits presented at those hearings were incorporated into Appendix C of the Final EIR.

By Decision No. 84205 dated March 18, 1975 the Commission assigned responsibility for preparation of the Final EIR to the staff chief environmental engineer, Harold T. Sipe. The Final EIR was issued, as noted earlier, in August 1975. Exceptions and replies to exceptions to the Final EIR were filed in due course and closing briefs were received in September 1975. This matter now stands ready for decision.

A decision concerning the Coolwater-Kramer 220 kv transmission line project in Application No. 53602, which was consolidated for hearing with Application No. 53389, will be issued shortly.

Protestant's Allegation of  
Deficiencies in the EIR Process

The EIR process, as it has been carried out in this proceeding, is in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., the Guidelines for Implementation of CEQA (Guidelines), Public Resources Code Section 15000 et seq., and Rule 17.1<sup>1/</sup> of our

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<sup>1/</sup> In Commission Decisions Nos. 81237 and 81484 in Case No. 9452, the Commission adopted Rule 17.1 pursuant to the California Environmental Quality Act of 1970 and the Guidelines issued pursuant thereto by the California Resources Agency.

In Case No. S.F. 23031, the Planning and Conservation League, Sierra Club, and High Desert Defense Fund petitioned the California Supreme Court for a writ of certiorari to review the above decisions. On or about January 17, 1974, the California Supreme Court denied the writ.

Rules of Practice and Procedure. In June 1973, when the Draft EIR on this project was issued, Public Resources Code Section 15061 (b) read:

15061 (b) Where a project which may have a significant effect on the environment is to be carried out by a nongovernmental person subject to approval, financial support, or some other involvement by a public agency, the public agency will prepare an EIR by its own efforts or by contract. However, the agency may require the person to supply data and information, both to determine whether the project may have a significant impact on the environment, and to assist in the preparation of an EIR by the agency. This information may take the form of a draft EIR, if the agency desires.

Section f(4) of our Rule 17.1 read:

(4) If it is determined that the project may have a significant effect on the environment, the staff shall review the proponent's EDS for form, adequacy, and objectivity and, if necessary, request proponent to correct any deficiencies. The EDS reviewed, corrected, or amended by the staff may become the Commission's Draft EIR. When issued, the staff shall arrange for circulation of the Draft EIR for comment to all public agencies which have jurisdiction by law over the project, including those public agencies which must approve or disapprove the project. It may also be circulated for comment to any person who has special expertise with respect to any area of environmental concern involved in the project. The staff may also consult with and request, the services of state agencies or others who have special expertise with respect to any area of environmental concern involved in the project.

The Commission's Draft EIR was prepared in conformity with the above quoted sections. It consisted of the EDS after review by the staff and certain State and local governmental agencies, the comments on the EDS as a result of that review and Edison's responses to those comments including interrogatories, and corrections and amendments to the EDS. State and local governmental agencies were furnished the Draft EIR for review as provided in the Guidelines. In addition, certain agencies responsible for reviewing the effects of the proposed project, who did not furnish written comments upon their review of the EDS or the Draft EIR, were contacted and their statements made part of the record. None of the reviewing agencies opposed this project, which employs combined cycle technology with its low emission characteristics and incorporates other significant measures to mitigate environmental impacts.

In proceedings before this Commission where a proposed project has more potential than this one for significant environmental effects, the Air Resources Board, the Department of Fish and Game, and/or the pertinent air pollution control district have presented exhibits and testimony of expert witnesses. Examples in which this was done are the proceedings on the Edison Long Beach combined cycle project (Decision No. 82763 dated April 23, 1974 in Application No. 53418) and the Encina steam electric generating Unit No. 5 project of San Diego Gas & Electric Company (Decision No. 84977 dated October 7, 1975 in Application No. 53359).

Because the bulk of the material on the environmental impact of the project was submitted by Edison, protestant alleges that the EIR cannot be objective or complete. Protestant ignores the fact that a good deal of Edison's testimony and exhibits are based upon the data and studies produced either by governmental entities or by independent consultants and that Edison's witnesses were experts in their field because of education and training. Edison's witnesses were subject to prolonged cross-examination by protestant. Protestant was given ample opportunity to present any credible evidence which he may have wished to present on any environmental issue.

What appears to protestant as a one-sided, nonobjective record is in fact a full record of the environmental impact of the proposed project. The Final EIR on this project is the product of a careful and comprehensive evaluation of that record.

Project Description

The Coolwater Generating Station is located in the high desert region of Southern California in San Bernardino County near the community of Daggett. The site is approximately ten miles east of Barstow on the south bank of the Mojave River. Currently there are two conventional steam electric generating units at the site. Unit No. 1 has a generating capacity of 65 megawatts and Unit No. 2 has a generating capacity of 81 megawatts for a total of 146 megawatts.

The proposed new units, Coolwater combined cycle Units Nos. 3 and 4, will be located north of and adjacent to the existing Units Nos. 1 and 2. Each new unit will consist of two gas turbines rated at 69 megawatts each, exhausting into separate heat recovery boilers; the heat recovery boilers are supplementary fired and produce steam to drive a steam turbine generator rated

at 98 megawatts, for a total capacity of 236 megawatts per combined cycle unit. Thus, the total new generating capacity is 472 megawatts, which would bring station capacity to 618 megawatts.

The gas turbine portion of the combined cycle units can be brought to full load within ten minutes after connection to the company's system, providing 57 percent of total module output within thirty minutes after start-up. The steam turbine portion provides 43 percent of the total module output and will require an additional 30 minutes to reach full-load capacity. Thus, full-load power output can be achieved in one hour.

The cooling system will consist of a cooling tower and the necessary pumps to circulate the water through the steam condensers and cooling tower. The steam exhausted from the steam turbine generator will be cooled and condensed by a shell tube-type surface condenser. The cooling water for the condenser will be provided by a closed circuit cooling system. The cooling tower will be 337 feet in length and 55 feet in height. It will have an expected cooling capability of 160,000 gallons per minute with a temperature drop of 20° Fahrenheit, or a heat load of 1.6 billion Btu's per hour. Make-up water for the cooling system will be provided by two new on-site fresh water wells. All blow-down will be directed to on-site evaporation ponds with impervious linings of compacted bentonite clay. Waste water will not be returned to the ground water table.

Fuel for the combined cycle units will be either natural gas or distillate oil. Natural gas will be supplied by Pacific Gas & Electric Company's pipeline which passes by the station. Distillate fuel will be delivered to the site by an approximate two-mile extension of an existing supplier's pipeline. The distillate will be stored on site in two tanks of 500,000 barrels capacity each. These tanks will be located east of Units Nos. 1 and 2 and will have a height of 48 feet and a diameter of 275 feet.

The quantity of fuel in the tanks will be sufficient to permit operation of the modules 24 hours a day for 55 days at 100 percent capacity factor in case of emergency situations. The distillate fuel will meet requirements of the San Bernardino County Air Pollution Control District and will contain about 0.1 percent sulphur and 0.003 percent ash by weight.

The total cost of the on-site facilities at the Coolwater Generating Station for Units Nos. 3 and 4 was estimated in the amended application to be \$82 million. The total cost of the off-site facilities, including the proposed Coolwater Generating Station to Kramer 220 kv lines was similarly estimated to be \$6.1 million. Edison is financing these projects from available funds or funds to be obtained from the sale of securities.

The Need for Additional Generating Capacity

By periodically adding generating capacity to its electric system to keep pace with growing peak loads, Edison provides reliable service to its customers. The current need is for generation in the intermediate capacity factor range of operation. Combined cycle units are desirable for use in this mode of operation because of their characteristics of efficiency, relatively low water requirements, reduced production of atmospheric contaminants, and flexible operation, i.e., fast starting and loading. In addition, the gas turbine portion will provide valuable peaking capacity for Edison's system.

At the present time, the intermediate capacity requirements are being met by oil and gas-fired generating stations. When these stations are operated at reduced load during off-peak periods, they are significantly less efficient than at full load. The large, conventional fossil-fired units, which are currently used to fill this needed capacity gap, take from 8 to 21 hours to be brought up to full power. They also should not be subject



to daily cycling because frequent thermal shocks are detrimental to many equipment components. In contrast a combined cycle installation can be shut down during low load periods or can be reduced to a lower, more efficient minimum load operation than a conventional unit. This is because the combined cycle modules are quick-starting and can be brought on the system within one hour as required. The proposed combined cycle units are particularly suitable for intermediate loading and would normally perform in this mode in meeting Edison's load requirements. The lifetime capacity factor of operation that is expected for these units is 30 to 60 percent.

Since the end of the public hearings in this matter in 1973, Edison has revised its load forecasts substantially downward. Energy conservation measures, higher costs for fuel oil to Edison, higher electric costs to its customers, and the economic recession have resulted in actual system peak demands lower than those forecast for 1973 and 1974. In its annual report to the Commission on loads and resources pursuant to General Order No. 131, Edison shows Coolwater Unit No. 3 coming on line June 1, 1977 and Unit No. 4 on June 1, 1978. In that report Edison noted that "the rapidly changing environment in which the Edison Company operates requires an ongoing evaluation that may result in significant changes in projected loads and resources." That General Order No. 131 report was dated March 1, 1975 and was updated on July 7, 1975. In the updating Edison revised its forecast downward to account for recent changes in economic and demographic outlooks for the Edison service area as well as the impact of conservation and higher energy prices with the specific result that the operational date of Unit No. 3 was delayed until April 1, 1978.

The Commission staff has not only studied the load forecasts in the record and in Edison's General Order No. 131 reports, but has made its own independent forecast which was included in the "Report on Ten-Year Forecasts of Electric Utilities Loads and Resources" published May 19, 1975. Both that report and the July 7, 1975 update of Edison's earlier 1975 report to the Commission on loads and resources have been incorporated into the Final EIR.

The staff has also studied the resources available to meet these loads, the mutual assistance obligations of this utility, and accepted utility industry practice. The loads projected by the staff in its independent forecast show that both Coolwater Unit No. 3 and Coolwater No. 4 are needed in 1977. At that time, without those units, the net margin over firm load would be only 1,517 megawatts which represents a 12.4 percent margin.

However, lead times to obtain all required permits and to construct the combined cycle generating units and associated facilities make their commercial operation unlikely until 1978, resulting in a margin of 1,899 megawatts or 14.8 percent with the new units in operation at that time. Without the new units for 1978, 1979, and 1980, the margins would drop to as low as 6.5 percent.

As another aspect of need, we carefully note that construction and operation of the proposed combined cycle units will reduce total Edison produced air emissions and emissions into the South Coast Air Basin. Without the project, emissions into the South Coast Air Basin would be higher by approximately 30 tons per day for the years 1975-1982. Because emissions into the Southeast Desert Air Basin would correspondingly increase by an average of six tons per day in the same period, the annual net reduction in Edison's air emissions in California would be 24 tons per day.

In a similar vein installation of the Coolwater combined cycle units would provide for the orderly retirement of older gas and oil-fired units, resulting in more reliable and economic system operation, reduced fuel consumption, and reduced emissions into the South Coast Air Basin. The Coolwater combined cycle units are expected to save about 200,000 barrels of oil per year on the Edison system for the first four years of full operation of the new units, and an average of 158,000 barrels per year over the first ten years of operation of the new units.

In summary, the Coolwater Units Nos. 3 and 4 are needed in 1977 to provide adequate margins of resources over firm loads for reliable electric service in the summers of 1977 and later years. Even with both Coolwater units in service as scheduled, Edison's margins will be too low in 1979 and 1980. Thus, without the Coolwater units considerable doubt about the adequacy of service arises.

### Alternative Sites

Once the need for additional generation in the 1977 to 1978 time frame was established, and the decision to use combined cycle units was made, criteria for selection of the site became apparent:

- a. It must be an expansion of an existing facility with available land for new units.
- b. It must have a source of cooling water.
- c. It must have fuel transportation facilities to or near the site.
- d. It must have an existing transmission line corridor to the site.

Developing a completely new generating site would require more time than is available before the combined cycle units are needed. A new site would have to be selected, the property purchased, water rights obtained, environmental reviews performed, permits and licenses obtained, a new transmission corridor opened, and so on. Recent utility experience indicates this process could not be completed before 1980 at the earliest. Sites meeting the above criteria were studied and Edison concluded that Coolwater is the only site available which can provide additional power in the time frame of the proposed project.

### Alternative Types of Generation

The Final EIR contains the following discussion of alternatives to the proposed Coolwater combined cycle units:

"1. Alternatives to the Coolwater Combined Cycle Units are discussed in the following paragraphs, as well as in the Draft EIR, Tab 2, Section 5; Tab 3; Tab 5; and Tab 7. Timing of resource additions, which is governed by load growth on the applicant's system, is an important parameter in

evaluation of specific generation alternatives. On a large electric utility system such as that of SCE, an appropriate mix of peaking, intermediate, and baseload generating capacity is necessary to meet the load. Several other projects involving alternative types of generation are currently being actively pursued in addition to the Coolwater project as Edison attempts to meet the projected electric load growth in its service area with a properly balanced system. These other projects are not true alternatives to the proposed project, but are complementary in terms of system operation. ✓

"Alternative of a Conventional Unit"

"2. A conventional steam unit could provide the electricity generated by the Coolwater Combined Cycle Units. There are three serious problems with this alternative, however. The first is availability of condenser cooling water. Considerably more cooling water would be needed for a conventional unit of the same capacity as the combined cycle units. The Mojave Water Agency might not allow Edison to pump this increased amount of water, and if they did the environmental impact on water quality and ground water supply would be greater and would have to be thoroughly evaluated.

"3. The second problem is that of resource timing. There would be a delay of several years to the project if it were switched to a conventional unit. Design, letting of contracts, acquisition of water rights and all necessary regulatory approvals, and environmental review would have to be completed to arrive at the stage where the combined cycle project is now. The information presented by Edison indicates that the project cannot be delayed this long without adverse effect on system margins.

"4. The third problem is that of air quality impact. Exhaust emissions would be significantly increased by burning the expected fuel for conventional units in California, low sulfur (0.5%S) residual oil. SO<sub>2</sub> emissions would be about five times higher. Suspended particulate matter and NO<sub>x</sub> levels would be increased. It would be necessary to obtain approval for construction of such a unit from the San Bernardino County Air Pollution Control District. Although it is expected that all applicable ambient air quality standards could be met by a conventional unit, the environmental impact of the increased emissions would have to be evaluated.

"5. Considering the adverse impacts of a conventional unit on water quality and air quality, and the deterioration of system margins due to delay of the project, and the uncertainty (sic) of obtaining all necessary regulatory approvals for a conventional unit at the Coolwater site, such a unit is not a viable alternative to the proposed project.

"Alternative of Purchased Power

"6. In order to provide adequate and reliable electric service, a public utility must have a total of installed capacity and firm contracts for power equal to its peak demand plus an adequate margin of safety. Supply over intertie connections with other utilities would be a possible source of power. Edison has investigated this alternative, however, and concluded that none of the other electric utilities will have excess capacity available to supply the company system (Draft EIR, Tab 2, p. 5-4).

"Gas Turbine Alternative

"7. Gas turbines could be installed in approximately two to three years (Draft EIR, Tab 2, p. 5-3) to supply the energy produced by the proposed project. However, they are not as efficient for intermediate load service for which this project is needed. More fuel would be burned to produce the same number of kilowatt-hours of electricity, and more combustion products released to the atmosphere. This unnecessary consumption of fuel is contrary to U.S. policy to obtain energy independence. Thus, it is concluded that installation of gas turbines is not a viable alternative to the combined cycle project.

"Nuclear Alternative

"8. Edison currently has most of the approvals required for San Onofre Units 2 and 3, and is building these units on the southern California coast near Camp Pendleton for service beginning in late 1980. The total installed capacity to these units is 2,280 mw. As discussed in Chapter 3, the capacity represented by Coolwater Units 3 and 4 is needed beginning in 1977, too early for the San Onofre units to pick up the projected load increases. Due to long lead times, nuclear units at Coolwater could not be built during the time frame of the project. Nuclear units are baseload units, not directly comparable to intermediate load units. Thus nuclear power is complementary to the combined cycle units and both are needed for efficient system operation in the future.

"Hydroelectric and Pumped Storage Hydroelectric

"9. Hydroelectric generation utilizes water runoff (which is a renewable resource) to turn turbines and generate electricity. No consumption of fossil or nuclear fuel is necessary. Hydroelectric power is advantageous on environmental, energy and economic grounds. It is suitable for peaking and

intermediate load generation, and for baseload generation during periods of heavy runoff. Unfortunately, we are aware of no sites at which Edison could build a 472 mw hydroelectric facility, and even if a site were available, it would take more than five years to obtain approvals and to install the capacity.

"10. Pumped storage plants also have a long lead time for construction. Such plants are net users of energy rather than producers since more energy must be spent pumping the water up to the reservoir than is recovered when it is released through the turbines. Pumped storage plants are limited to a relatively low capacity factor range, and so are useful for peaking operation only. For these reasons, hydroelectric or pumped storage hydroelectric plants are not a viable alternative to the proposed project.

"Geothermal Power

"11. Geothermal power is currently under investigation in the Imperial Valley and in the Mono Lake area. High salinity of the hot brine has caused serious corrosion problems with mechanical equipment so far. Edison cannot bring any geothermal plants on line during the time frame of the proposed project according to their latest General Order No. 131 Report filed 3/1/75. Hopefully, geothermal power will become an important source for Edison in the future. ✓



"Other Forms of Energy Considered as an Alternative

"12. Other energy sources that may be practical in the future are in various stages of research and development. These include nuclear fusion, breeder reactors, magnetohydrodynamics (MHD), and solar energy. Current technological limitations on equipment and materials impose major difficulties. Although small experimental plants may be built and tested during this decade, commercial operating facilities would not be possible before 1985 at the earliest."

Environmental Matters

A comprehensive record on environmental matters has been developed in this proceeding through public hearings, preparation of the Draft EIR, consultation with public agencies, and presentation of expert testimony and exhibits by various parties, all of which are elements in the EIR process culminating in the preparation and issuance of the Final EIR.

The next section of this decision includes, pursuant to Rule 17.1 of our rules of practice, an extensive series of findings, Nos. 9 through 53, based on the Final EIR's coverage of (a) the environmental impact of the proposed action; (b) any adverse environmental effects which cannot be avoided if the proposal is implemented; (c) mitigation measures proposed to minimize the impact; (d) alternatives to the proposed action; (e) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; (f) any irreversible environmental changes which would be involved in the proposed action should it be implemented; and (g) the growth-inducing impact of the action.

Findings of Fact

NEED FOR PROJECT

1. To maintain reliable electric service, Edison must add generating capacity to its system on a timely basis.
2. The Coolwater Combined Cycle Project is an important part of Edison's resource addition program.
3. Reliance on estimated peak demands through 1980 no lower than those forecast by the staff appears prudent in planning generation resource additions.
- 4.a. Coolwater Units Nos. 3 and 4 are needed in 1977 to provide an adequate margin of resources over firm loads for reliable electric service.  
b. The Coolwater site is the best location for expansion of generating capacity within the time frame in which new capacity is needed.
5. Other than Coolwater Units Nos. 3 and 4, only a gas turbine alternative can be constructed and placed in commercial operation by 1978.
6. The need to be filled is for generation in the intermediate capacity factor range of operation. Thus, Coolwater Units Nos. 3 and 4 are preferred over gas turbine peaking units from the standpoints of system reliability, operating costs, and fuel conservation.
7. Edison has the ability to finance the construction of the Coolwater Combined Cycle Project.

8. After reviewing the exceptions and replies to exceptions to the Final EIR, the Commission has determined that the Final EIR should be considered either modified or clarified, as appropriate, in the following respects:

- a. The statement in the Final EIR with reference to sulfur content of fuel on page 5-10, paragraph 32, line 9, that "... SCE will not be permitted to burn such fuel (fuel containing more than 0.1% sulfur) except in an energy emergency ..." is imprecise. In Rule 67 of the San Bernardino County Air Pollution Control District there is not a limit of 0.1 percent sulfur content for fuels, but there is a related combustion contaminant requirement. The 0.1 percent sulfur content figure is an approximation arrived at because of that requirement. Accordingly, the quoted words are replaced with "however the constraints of Rule 67 preclude the burning of any fuel exceeding approximately 0.1% sulfur."
- b. In Paragraph 5 of Chapter 13 of the Final EIR there is a recommendation that "the water level in the area of the plant be monitored for several years after commercial operation is begun. If a significant lowering of this level does occur due to Edison's operations, then Edison should withdraw additional land from agricultural use to compensate for the increased water consumption due to use of the ground water in power plant operations instead of the previous use for agricultural irrigation." This recommendation should be construed as applying only to the increased consumptive use of water as the result of the operation of Units Nos. 3 and 4 and as providing only an interim means of compensating, if needed, for such increased consumptive use prior to a resolution of water rights of all the users within the jurisdiction of the Mojave Water Agency. Ultimately, however, the consumptive use of water by Edison should be resolved by the adjudication or other definition of water rights which will be applicable to all water users.

The Commission has carefully considered the evidence on environmental matters, especially the contents of the Final EIR, and makes Findings 9 through 53 pursuant to Rule 17.1(j)(3) of its Rules of Practice and Procedure.

ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

(a) Land Use Impact

9. The Coolwater Combined Cycle Project will result in the withdrawal of a portion of Edison's land from agricultural use near the site of the existing Coolwater Units Nos. 1 and 2. The proposed generating facilities will not conflict with present or future land use.

(b) Impact on Archaeological and Historic Resources

10. The project is not located near any national historic places listed in the National Register of Historic Places. The closest natural landmark is Rainbow Basin, approximately eight miles northwest of the site. There are no state points of historical interest which would be affected by the proposed project. There is one registered site in the vicinity, the town of Calico, designated as State Historical Landmark No. 782. The Calico Mountains archaeological site located about six miles northeast of Yermo is also in the vicinity. Construction and operation of Units Nos. 3 and 4 will have no impact on these sites.

(c) Water Quality Impact

11. The water supply for the Coolwater Generating Station originates from existing wells located on Edison property. Groundwater in the area is approximately 75 to 125 feet below ground surface and is of acceptable quality for domestic purposes.

12. Assuming a 45 percent capacity factor for Units Nos. 3 and 4 and substantially the same operation of Units Nos. 1 and 2 as is being experienced now (90 percent capacity factor), the station's average water use of 7,836 acre-feet per year would be allocated as follows:

2,764 acre-feet per year for Units Nos. 1 and 2  
3,043 acre-feet per year for Units Nos. 3 and 4  
2,029 acre-feet per year for agricultural use

13. Of the total of 3,043 acre-feet required for Units Nos. 3 and 4, 2,318 acre-feet per year is expected to be evaporated from the cooling tower, 213 acre-feet from the evaporation pond, and 512 acre-feet per year is to be used for other plant systems. The 2,029 acre-feet per year would be available for agricultural use or as backup in the event of a malfunction of the existing water supply system.

14. Reduction of the agricultural use of water caused by the operation of Coolwater Units Nos. 3 and 4 should slightly improve the groundwater quality by reducing the increasing concentration of salts in the soil which is the result of any irrigation practice.

15. The average annual recharge to the local aquifers of the water supply within sub area 18 (includes the project site) is approximately 20,000 acre-feet per year and there is presently approximately 2.5 million acre-feet of available water in storage in sub area 18 underlying the plant.

16. There will be no increase in the amount of water drawn from wells on Edison's property because of the operation of Coolwater Units Nos. 3 and 4.

17. The consumptive use of water caused by the operation of Coolwater Units Nos. 3 and 4 will result in less return of water to the groundwater supply than is currently experienced with agricultural operations. Such decrease in groundwater return is not expected to have a significant effect upon the existing basin groundwater table. However, should the unexpected occur Edison can withdraw additional land from agricultural use to compensate for such decrease in groundwater return.

(d) Air Quality Impact

18. Exhaust emissions from the combined cycle units operating at 45 percent capacity factor would be 3.0 tons per day of  $\text{NO}_x$ , 2.3 tons per day of  $\text{SO}_x$ , and 0.2 tons per day of combustion contaminants including particulate matter operating on distillate fuel.

19. Rule 67 of the San Bernardino County Air Pollution Control District would preclude the emission of more than 7 tons per day of  $\text{NO}_x$ , 10 tons per day of  $\text{SO}_x$ , and .5 tons per day of combustion contaminants.

20. Emissions from the Coolwater project will not be trapped by the surrounding terrain and will not produce high ground level concentrations downwind of the facility. Emissions from the facility will be adequately dispersed without being confined to a separate and distinct localized air basin.

21. The California Air Resources Board has commented that "the proposed project utilizes recently developed low emission technology to minimize its impact on air quality and is to be located in an area without major air pollution problems at this time."

22. The San Bernardino County Air Pollution Control District has stated that "the District calculations on downwind dispersion from these units (Units 3 and 4) operating under 'worst conditions' show that the downwind concentrations will not cause air quality standards to be exceeded in this area."

23. The proposed Coolwater Units Nos. 3 and 4 will not place an unreasonable burden upon the air quality or visibility in the vicinity of the plant or in the southeast desert air basin.

(e) Terrestrial Biology Impact

24. Site preparation will have some minor impacts upon terrain, vegetation, and wildlife. Construction of the generating units will require a minimum of foundation work since module components will be set on individual slab foundations. Excavation will be required in the construction of the evaporation ponds, distillate storage tanks, cooling tower basin, and the circulating water system between the cooling towers and the condensers. Cultivated crops and sparse populations of creosote bush and a few other species of native desert plants will be displaced. Animal species native to the area are expected to leave the immediate area and establish themselves nearby.

25. Atmospheric emissions should have little impact on terrestrial biology. Desert animals and plants are relatively sparse, and desert vegetation is metabolically inactive during the periods of atmospheric instability on summer afternoons when the highest groundlevel concentrations usually occur. During most of the time, groundlevel concentration will be extremely low due to the use of premium quality fuel and effective dispersion by the proposed 250-foot stacks.

(f) Environmental Impact of Seismic Disturbance

26. The generating units and associated fuel tanks and fuel lines have been adequately designed in terms of geology and seismology.

(g) Aesthetic Impact

27. Any project located in the desert with sparse ground cover will have a visual impact. Although the facilities are visible from highways and railroads passing near the site, with the proposed mitigation measures put into effect, the project is not expected to have a significant adverse aesthetic impact.

(h) Noise Impact

28. The combined cycle units are located approximately two miles from the nearest residences in Daggett; with the mitigation measures proposed there will be little impact on neighborhood sound levels, and operations should not have any adverse impact on ambient noise level.

ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT  
BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED

29. Unavoidable adverse environmental effects associated with this project will occur during construction. Dust and noise will be a temporary adverse effect on the natural terrestrial biota of the desert. However, since all construction will be on Edison property, this effect is not expected to be great. Displacement of vertebrate fauna will occur during construction of the combined cycle units and associated facilities at the site, but the vertebrates are expected to reestablish themselves nearby. Atmospheric emissions may have some effect on agricultural crops and indigenous desert plants during operation of the completed project. Although direct pumping of cooling water from wells on the Edison property is not expected to be greater than that presently extracted, this cooling water will not be returned



to the ground but will be evaporated in the cooling tower and evaporation ponds. This will cause an adverse effect to some extent on groundwater replenishment.

MITIGATION MEASURES PROPOSED TO MINIMIZE THE IMPACT

(a) Construction

30. Standard dust and noise control measures will be implemented during the construction phase of the project. The presence of railroads will facilitate delivery of module components to the site. Upon completion of construction activities, the contractors will be required to remove debris from the site for disposition in a sanitary landfill.

(b) Air Quality

31. Air quality considerations were given high priority in selection of the combined cycle units to add to needed electric generating capacity. Combined cycle units have low emissions compared to other types of fossil-fired generation. In addition, atmospheric emissions will be kept to a minimal level by the use of natural gas or low-sulfur, low ash content distillate fuel. The combined cycle modules will be provided with water injection into the combustion section of the gas turbines to further reduce emissions of nitrogen oxides. Stacks approximately 250 feet in height will be utilized for flue gas discharges to improve meteorological dispersion of combustion wastes and insure that groundlevel concentrations meet all ambient air quality standards.

(c) Water Quality

32. The requirements for waste water discharge imposed by the California Regional Water Quality Control Board, Lahontan Region, specify that "To protect other beneficial uses of ground water, all facilities used for transport, treatment, or disposal

of waste water shall be adequately protected against washout by flash flooding from a once-in-a-hundred years storm. . . . The condenser blowdown, which is highly mineralized water that is withdrawn from the circulating water system periodically to control salt concentrations, will be discharged to evaporation ponds and will not be allowed to return to the groundwater of the Lower Mojave River Sub-Basin." Edison will implement these mitigation measures.

(d) Groundwater Supply

33. Groundwater supply in the area will be protected by withdrawal of sufficient agricultural land from production so that Edison will pump the same amount of water from wells on its property after the project is in operation as it does now. This is because irrigation water will be diverted to power plant cooling from the agricultural lands to be taken from production. If necessary, groundwater supply will be further protected as contemplated in Finding 8(b).

(e) Aesthetics

34. Extensive mitigation measures are proposed to minimize the visual impact of the project and improve the appearance of the project's facilities. These mitigation measures include the following:

- a. Enclosing the combined cycle modules within metal shrouds to hide most of the equipment thus minimizing "visual clutter".
- b. The use of warm, natural tones and textures common in the desert environment for exterior colors.
- c. Aesthetic treatment of the fuel tanks through the use of decorative metal siding and an appropriate color scheme.

- d. Locating the 220 kv switchyard so that it is screened from view by existing tamarisk trees and by the station itself.
- e. The use of dikes with an undulating shape and natural soil cover to blend the dikes into the desert surroundings.
- f. Pockets of vertical landscaping will be developed to surround the cooling tower to soften its visual impact.

(f) Noise Abatement

35. Although the combined cycle units are located approximately two miles from the nearest residence, noise abatement measures are proposed to insure that no impact on neighborhood sound levels will occur and that workmen at the site are protected. These mitigation measures include the following:

- a. Designing the Coolwater combined cycle units to meet National Electrical Manufacturer's Association (NEMA) Level E criteria.
- b. Installation of the module components in enclosures to reduce noise.
- c. Silencers for the gas turbine combustion air inlets will be provided.
- d. Acoustic treatment of the transition duct between the gas turbine enclosures will be provided.
- e. Designing Units Nos. 3 and 4 in complete compliance with the Occupational Safety and Health Act of 1970 (OSHA) and all other government codes to protect workmen at the site.

ALTERNATIVES TO THE PROPOSED ACTION

(a) Alternative Types of Generation

36. Conventional steam electric generating units are not a viable alternative because of their long construction time, increased water usage, and higher air emissions.

37. The alternative of purchased power is not viable because no other electric utilities will have excess capacity available to supply Edison.

38. The gas turbine alternative is not viable because more fuel would be burned to produce the same number of kilowatt-hours of electricity and would, therefore, release more combustion products to the atmosphere than combined cycle units.

39. Nuclear generation alternative is not a viable alternative because of the long lead times involved for any nuclear generation.

40. Hydroelectric and pumped storage hydroelectric alternatives are not viable because there are no sites at which a 472 megawatt hydroelectric facility could be built. Pumped storage plants, in addition to long lead times, are net users of energy and are limited to relatively low capacity factor ranges.

41. Other forms of energy considered as an alternative such as geothermal power, nuclear fusion, breeder reactors, magnetohydrodynamics, solar energy, and fuel cells are in the research and development stage and are, therefore, not a viable alternative for the time when the Coolwater Units Nos. 3 and 4 are needed.

(b) No Project Alternative

42. The environmental impacts resulting from a no project alternative are set forth below:

- a. Edison would be required to generate the power which would be generated at Coolwater Units Nos. 3 and 4 at older plants causing increased environmental impact at their locations. The older units involved are primarily of the 175 mw or less class at Redondo Beach, Alamitos, and El Segundo, all coastal locations. There would be increased discharges of condenser cooling water to the ocean from these plants if Coolwater is not built.
- b. Substitute generation at older plants would cause an increase in air pollution at their locations. Edison has performed a computer simulation of anticipated unit operation for the years 1975 through 1982 based on minimum NO<sub>x</sub> dispatch, and concluded that emissions into the South Coast Air Basin would increase about 30 tons per day (almost 8 percent) without the proposed Coolwater units. Total emissions into the Southeast Desert Air Basin would be less by an average of six tons per day.
- c. System reliability would be lower, and if service interruptions occur because generation cannot be provided by other units, there may be environmental and social impacts.
- d. There will not be an increase in consumptive use of groundwater at the Coolwater site.
- e. There will be no effect on geology and soils without the Coolwater project.

- f. The natural biological resources in the area have already been significantly altered by the agricultural activities. Most facilities associated with the project will be located within the boundaries of cultivated fields. Only the distillate storage tanks will be located outside the irrigated areas on Edison's property. The sparsely populated creosote bush would be preserved and small animals would not be displaced.
- g. The aesthetic impact would not occur at the Coolwater location.

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES  
OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND  
ENHANCEMENT OF LONG-TERM PRODUCTIVITY

43. The construction and operation of Units Nos. 3 and 4 involve a continuing use of local land and water resources during the life of the project. Historically, this land has been used for agricultural operations at Edison's Daggett Ranch. That portion of the Coolwater site that will be used for the combined cycle modules is small and is not immediately available for other public activities. Since local land and water resources are being protected, the land could be returned to agricultural use after the generation project is completed.

44. It is not expected that stack emission will have any long-term adverse effects on native desert plants and animals in the Mojave Valley and further east. The record shows that the level of stack emissions is low, that all applicable ambient air quality standards will be met, and that the impact on native plants and animals is small. After the life of the project, long-term productivity of local air resources will be maintained.

45. The expansion of electric generation capacity at Coolwater seems to involve no long-term effects on archaeological, historical, or aesthetic resources of the area. Thus, it is concluded that this local short-term use of man's environment should not have any significant adverse effects on maintenance and enhancement of long-term productivity.

ANY IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

46. The major irreversible or irretrievable commitment of resources associated with the proposed project is the consumption of fossil fuels during operation of the combined cycle generating units. The combined cycle units would consume approximately 6,400,000 barrels of distillate oil per year (burning only oil), or 39,500,000 MCF of gas per year (burning only gas) if the units were operated at a theoretical 100 percent capacity factor. The actual capacity factor will be lower than 100 percent due to many practical considerations, and is estimated at 65 to 75 percent for the early years of operation and 30 to 60 percent over the lifetime of the project. Oil will probably be the predominant fuel used.

47. Evaluation of fuel consumption must give consideration to the fact that the combined cycle units are part of Edison's integrated system. Operation of the units will save fuel at other generation sites. Edison's dispatching techniques preferentially load the combined cycle units before older fossil-fired units in the South Coast Air Basin because this will minimize fuel consumption and minimize basin  $\text{NO}_x$  emissions. The combined cycle units are significantly more efficient than some older units now on line, burning less fuel to generate the same number of kilowatt-hours of electricity.

48. The onetime expenditure of resources for construction of this project is irreversible to the extent that materials and equipment cannot be salvaged or recycled. There would be an irreversible commitment of many hours of human labor to the project from its initial planning stages to the completion of construction and unit operation. ✓

GROWTH INDUCING IMPACT OF THE PROPOSED ACTION

49. The proposed combined cycle electric generating units are being constructed to meet expected electrical demand, not to create an increase in demand. The growth of Edison's system depends on the numerous communities which make up its service territory and the nature of the economic and other resources available, and the manner in which communities utilize the resources. ✓

50. While an inadequate and unreliable supply of electricity will discourage growth and cause economic disruption, an adequate supply of power does not of itself assure or encourage growth. Growth is due primarily to many socioeconomic factors which are not necessarily created by an adequate supply of energy.

51. Local temporary growth-inducing impact will occur during the construction phase of this project by creating jobs for prospective workers. In turn, it is expected that these workers will purchase their necessary goods and services from the local communities. The completed project will employ permanent positions for maintenance of the units; however, the number of employees is expected to be small. Because of the station's history at the site, land users in close proximity have already had sufficient opportunity to respond to the facility. Therefore, the proposed project will not promote new development in the immediate area, nor will it affect existing land uses.



ENVIRONMENTAL ASSESSMENT IN THE AGGREGATE

52. In summary, the project should not place an unreasonable burden on the environment:

- a. The steps proposed to be taken to mitigate any deleterious consequences as described in Chapter 7 of the Final EIR and as highlighted in Findings 30 through 35, above, are adequate.
- b. The effects of exhaust emissions are acceptable and within the limits prescribed by the San Bernardino County Air Pollution Control District.
- c. No unacceptable reduction in visibility will occur due to operation of the combined cycle generating units.
- d. The aesthetic and noise impact of the project's facilities is acceptable.
- e. The environmental risks to the project due to seismic disturbances are acceptable.
- f. With the proposed evaporation ponds installed, the industrial waste waters discharged will not reach the water table. The project will not have an adverse effect on groundwater quality and may have a slight beneficial effect.
- g. The increase in humidity in the area surrounding the plant due to the waste water discharge into the evaporation ponds will not have an unacceptable adverse effect on the local relative humidity.
- h. The proposed cooling system, air pollution control measures, chemical and sanitary waste systems, and fuel supply systems are the best of available alternatives.

- i. To establish the impact on groundwater supplies, it will be necessary to monitor water levels in the area of the plant for several years after beginning of commercial operation of both units. Additional water could be diverted from agricultural use on Edison's Daggett Ranch to compensate for the increased consumption due to power plant operations if this should be necessary at some time in the future to protect groundwater supplies.

53. In conformance with General Order No. 131, the construction and operation of Coolwater Units Nos. 3 and 4:

- a. Is reasonably required to meet area demands for present and/or future reliable and economic electric service; and
- b. Will not produce an unreasonable burden on natural resources, aesthetics of the area in which the proposed facilities are to be located, community values, public health and safety, air and water quality in the vicinity, or parks, recreational and scenic areas, or historic sites and buildings, or archaeological sites.

54. The project will help maintain reliable electric service from an integrated system serving a substantial part of southern California; its benefits should thus outweigh any potential significant adverse environmental impact; its planned construction and operation is an economic, efficient, and appropriate means of providing this needed capacity by 1978.

55. A substantial savings in accounting costs may be realized by Edison if it is allowed to file a combined cost report for the combined cycle Units Nos. 3 and 4 eighteen months after Unit No. 4 is placed in commercial operation.

56. Present and future public convenience and necessity require the construction and operation of the Coolwater combined cycle project.

The certificate herein granted is subject to the following provision of law:

The Commission shall have no power to authorize the capitalization of this certificate of public convenience and necessity or the right to own, operate, or enjoy such certificate of public convenience and necessity in excess of the amount (exclusive of any tax or annual charge) actually paid to the State as the consideration for the issuance of such certificate of public convenience and necessity or right.

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

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

Based on the foregoing findings the Commission concludes that the Coolwater combined cycle project should be authorized and that other actions as prescribed in the following order should be taken by Edison.

#### O R D E R

IT IS ORDERED that:

1. A certificate of public convenience and necessity is granted to Southern California Edison Company to construct and operate combined cycle electric generating Units Nos. 3 and 4 at its Coolwater generating station, together with other appurtenances, all as proposed by Southern California Edison Company in this proceeding.

2. Southern California Edison Company is directed to monitor groundwater levels at its Daggett Ranch and take other appropriate steps to ascertain, to the extent practicable, the impact on groundwater supplies of the increases in consumptive use, over agricultural irrigation, attributable to the operation of Coolwater combined cycle Units Nos. 3 and 4. These measurements shall continue through the first full four years of operation of Units Nos. 3 and 4 and be analyzed and reported to the Commission annually. The initial report shall cover the first 12 months in which both Units Nos. 3 and 4 are in commercial operation and be filed within 15 months after Unit No. 4 is placed in commercial operation. Thereafter, for each of the next three years, reports shall be similarly due and filed.

3. Within 18 months after Coolwater combined cycle Unit No. 4 is placed in commercial operation, Southern California Edison Company shall file a combined cost report for Coolwater combined cycle Units Nos. 3 and 4.

The Executive Director of the Commission is directed to file a Notice of Determination for the project, with contents as set forth in Appendix A to this decision, with the Secretary for Resources. ✓

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

Dated at San Francisco, California, this 6th day of JANUARY, 1976. ✓

William J. Sproule President  
Vernon B. Thompson  
T. K. M.  
Robert L. ... Commissioners

## NOTICE OF DETERMINATION

TO: ☒ Secretary for Resources  
1416 Ninth Street, Room 1311  
Sacramento, California 95814

FROM: (Lead Agency)

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

☐ County Clerk  
County of \_\_\_\_\_

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

Project Title Coolwater Combined Cycle Units 3 and 4	
State Clearinghouse Number (If submitted to State Clearinghouse) 73062552	
Contact Person William R. Johnson	Telephone Number 415-557-1487
Project Location Daggett, San Bernardino County	
Project Description Application by Southern California Edison Company to the California Public Utilities Commission to construct two new combined cycle electric generating units at the Coolwater power plant together with associated facilities to be used in connection with said units.	

This is to advise that the California Public Utilities Commission  
(Lead Agency)  
has made the following determinations regarding the above described project:

1. The project has been ☒ approved by the Lead Agency.  
☐ disapproved
  2. The project ☒ will have a significant effect on the environment. ✓  
☐ will not (See Decision No. attached.)
  3. ☒ 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.

Date Received for Filing

Signature William R. Johnson  
Secretary  
Title

Date