

Decision 82 09 066 SEP 22 1982

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's )  
own motion into the electric )  
resource plan and alternatives of )  
Pacific Gas and Electric Company )  
and the ratemaking implications )  
and options relating to the )  
various plans. )

OII 26  
(Filed September 6, 1978)

(See Appendix A of Decision 91109 for appearances.)

Additional Appearances

David L. Ludvigson, Attorney at Law, for  
Pacific Gas and Electric Company,  
respondent.  
Gordon Pearce, Leslie R. Kalin, Thomas F.  
Mulvaney, by Leslie R. Kalin and  
Thomas F. Mulvaney, Attorneys at Law,  
for San Diego Gas & Electric Company;  
Richard K. Durant, Robert Kendall,  
Frank J. Cooley, and Carol B.  
Henningson, Attorneys at Law, for  
Southern California Edison Company;  
Steven Kotz and Dian Grueneich,  
Attorneys at Law, for the California  
Energy Commission; Thomas D. Clarke  
and David B. Follett, Attorneys at Law,  
for Southern California Gas Company;  
John Blethen, Attorney at Law, for  
Toward Utility Rate Normalization;  
William B. Hancock, for Cut Utility  
Rates Today; Alden Bryant, for Cross-  
roads Community (The Farm); and  
William A. Jennings, Attorney at Law,  
for himself; interested parties.  
Steven Weissman, Attorney at Law, for the  
Commission staff.

FINAL OPINION

On September 6, 1978, this Commission issued Order Instituting Investigation (OII) 26 to "explore the relative merits and cost-effectiveness of the entire range of options available to Pacific Gas and Electric Company (PG&E) and its customers for providing energy services whether through energy conservation or through traditional or alternative supply technologies." (OII 26 mimeo, p. 2.) On March 9, 1979, Administrative Law Judge (ALJ) John Gilman issued a ruling, structuring the investigation into three phases which would examine the following topics:

Phase I - Repowering and maintenance.

Phase II - Auxiliary power and cogeneration.

Phase III - PG&E's long-range resource plan.

Due to federal regulations which were then under consideration regarding the topics included in Phase I, it was decided to proceed first with Phase II, auxiliary power and cogeneration, including biomass.

This initial phase of OII 26 led to the issuance on December 19, 1979 of Interim Decision (D.) 91109 which adopted an avoided cost pricing policy for PG&E purchases of power from cogenerators. This policy was later extended to all utilities and to all small power production technologies, and was adopted to approximate the competitive marketplace and to encourage the development of independent small power production as an additional supply available to utilities.

On August 27, 1979, ALJ Mary Carlos issued a ruling on the methodology portion of Phase III of OII 26 which indicated that the Commission would take testimony on two related subjects: (1) the appropriateness of Environmental Defense Fund's (EDF) approach as a method of evaluating utility resource plans, and (2) the validity of EDF's analytic methodology as set forth in the ELFIN User's Manual, independent of numeric values and results. ELFIN is a computer model for making financial and cost analyses of electric and gas utility resource plans.

Hearings were held later in 1979. The matter was submitted subject to the receipt of concurrent briefs due January 31, 1980.

On October 29, 1979, ALJ Carlos issued a ruling establishing hearings in Phase I to receive testimony regarding repowering, maintenance, and small hydroelectric generation. Hearings were held later in 1979 and in the early part of 1980. The matter was submitted subject to the receipt of concurrent briefs due March 17, 1980.

On October 24, 1980, ALJ James Squeri issued a ruling establishing hearings to receive testimony on photovoltaics and wind as sources of electric generation. Hearings were held later in 1980 and in the early part of 1981. Examination of witnesses filing testimony was not completed during the scheduled hearing days. No additional hearing days were scheduled concerning wind and none were scheduled concerning photovoltaics since CEC hearings on that topic were then in progress. Briefs were not filed.

As originally conceived, the hearings which have been held in OII 26 were to serve as a prelude to consideration of PG&E's then current resource plan which was filed in compliance with Ordering Paragraph 12 of OII 26. Since that time, a number of decisions made in other proceedings bear on our consideration of resource plans generally and on the type of consideration originally planned for the remaining portions of this investigation. Through these decisions, we have basically fulfilled the primary objectives of our investigation planned in this proceeding. As a result, we are disposing of unresolved issues raised in OII 26 and are closing OII 26 with the issuance of this opinion. We expect to continue to analyze the effect on ratepayers of utility resource plans or feasible alternatives in various proceedings as appropriate.

#### Methodology Portion of Phase III

In the hearings on the methodology portion of Phase III, testimony was presented by EDF, the Commission staff (staff), and PG&E. Briefs were filed by EDF, PG&E, Southern California Edison Company (Edison), San Diego Gas & Electric Company (SDG&E), and staff. The recommendations of each are set forth below:

EDF recommends that the Commission:

1. State that EDF's approach is Commission policy.
2. Instruct staff to conduct independent, computer-based evaluations of utility supply plans on a regular basis, and establish appropriate proceedings.
3. Authorize staff to use EDF's model and methodology to investigate resource plans.
4. Issue findings to avoid repetitive fact-finding in subsequent proceedings.
5. Instruct staff to assemble computer data files on major California utilities other than PG&E.
6. In OII 26, direct an independent inquiry of PG&E's resource plan, including data requests for alternative plans.

PG&E recommends that the Commission:

1. Not give formal recognition to the EDF approach without a clear statement as to the limitations upon the uses to which that approach can be applied.
2. Not give formal approval to EDF's ELFIN computer model.
3. Recognize that no one model can capture all the complexities of the real world being portrayed or answer all questions.
4. Encourage the use of adequately tested, fully disclosed computer models by establishing guidelines which encourage debate about real issues of energy needs, availability and cost of energy supplies and mechanisms for assuring that the real needs of PG&E's customers continue to be met. Seven specific guidelines are set forth for the Commission's consideration.

Edison recommends that the Commission:

1. Reject any suggestion that punitive measures or mandates for resource development be imposed on utilities as a result of evaluating resource plans based solely on results from the EDF computer model.

2. Reject any requirement that a particular computer program or model be used for resource planning.
3. Permit the staff to use all tools at its disposal to evaluate resource plans and not limit it to use of the EDF computer model.

SDG&E recommends that the Commission:

1. Refrain from recognizing the validity of the EDF methodology.
2. Order the staff to:
  - a. Determine the types of analyses to be conducted by making side-by-side comparisons of resource plans.
  - b. Determine the type of model to be used.
  - c. Determine what level of accuracy is necessary for making a valid side-by-side comparison, and
  - d. Direct the staff to develop or acquire appropriate models.
3. Make sufficient resources and staff available to accomplish #2.

Staff recommends that the Commission:

1. Formally express its resolve to have the staff perform side-by-side financial comparisons of resource options.
2. Provide staff with funds and personnel necessary to develop sufficient in-house expertise concerning the use of computerized methods of resource planning analysis.
3. Not require that the EDF methodology for resource planning analysis be used in every case but recognize it as relevant and a valid analytical tool.

#### EDF's Evidence

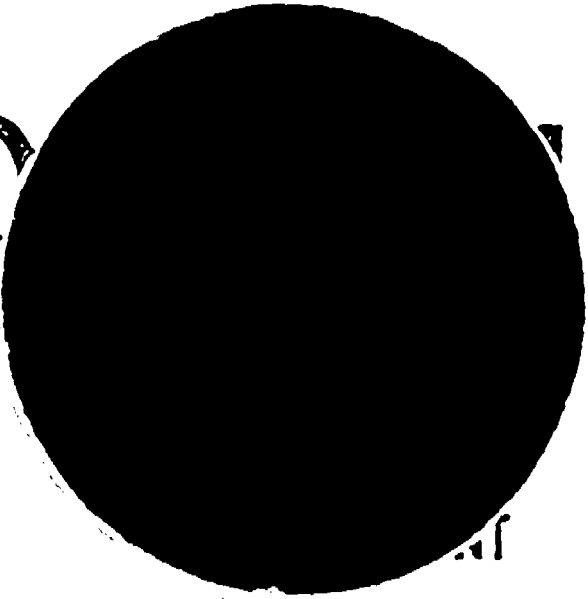
EDF presented two witnesses, Daniel A. Kirshner who wrote the ELFIN User's Manual and testified on direct about the operation and use of the ELFIN model; and Dr. Irvin C. Bupp, coauthor of Energy Future, in rebuttal.

Kirshner described EDF's approach as subjecting utility supply plans to comparative financial analysis, stressing both the comparative nature of the analysis and its economic orientation. The approach, using the ELFIN computer model to perform the analytic calculations, compares the financial results of one supply plan with the financial results of other potential supply plans which can meet the same needs in terms of useful energy and reliability. If the supply plans which are compared rely on differing mixes of alternative energy sources and all other factors (such as internal-to-external finance ratios, interest coverage, average electricity prices, etc.) are kept equal, then EDF asserts that its approach will provide a reliable basis for determining which degree of reliance on alternative energy sources is more economically beneficial, in comparative terms.

The ELFIN User's Manual describes the computer model which is composed of a financial model and a generation model, together with the capabilities of both models. There is a brief section on use of the ELFIN model and the remainder of the manual is directed to setting up the data, running the model, printed output, and equations used by the model. Except for the equations, the language of the User's Manual is written at an introductory level. No experience with computers is assumed. Test runs, using hypothetical figures, are included as examples of data output.

Kirshner was extensively cross-examined by PG&E, Edison, SDG&E, and staff. In addition, PG&E presented a witness rebutting Kirshner's testimony and attacking the analytic methodology EDF used in ELFIN. In reply, EDF presented Dr. Bupp whose testimony did not address the computational accuracy or structural details underlying the ELFIN model but covered the adequacy of this type of computer model to perform the tasks established for it within the EDF approach. ✓


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Dr. Bupp generally concurred with EDF on the potential usefulness of the EDF approach, its potential value to the staff, its potential for putting the Commission in a proactive rather than a reactive mode with respect to the electric utility companies, and, in the largest sense, as an addition to the Commission's resources as a public agency. His testimony concluded:

"But I am confident that EDF's comparative methodology is quite sound enough to test an extremely important hypothesis. As investments are shifted from a utility supply plan based on conventional sources into alternative energy developments, there may be economic benefits for the utility company, for its shareholders, and for its ratepayers."

During cross-examination, he stressed that he had used the word "test" in the sense of "investigate" and stated that he did not believe that the Commission should suppose that review of the output of the EDF model (or of any model) is going to provide a litmus test of the matters involved in the sense of providing a definitive answer to a specific question. He emphasized that this or any other analytic endeavor should be only part of an effort to make a judgment based on the broadest consideration of as many relevant factors and circumstances as the decision-maker has access to.

#### Testimony of PG&E

PG&E presented Dr. Howard W. Pifer III, both on direct and in rebuttal to EDF's testimony. Based on a detailed assessment of the EDF model, Pifer concluded that the EDF model alone is not an appropriate methodology for critically evaluating resource plans; that the EDF model does not optimize and, therefore, no inference can be drawn concerning whether a particular resource should be developed; and that the EDF model contains numerous structural and computational errors and is therefore not valid even for financial planning.

Pifer maintains that, as presently structured, the potential function of the EDF model is limited to computing and reporting statistics which are related to the economic and financial implications of a set of assumptions concerning a resource plan. He criticizes the EDF model because it does not evaluate whether a set of assumptions is consistent with the resource plan being examined, nor does it evaluate whether the resource plan meets utility reliability requirements or environmental and financial constraints. As a consequence, the EDF model cannot evaluate even the financial consequences of a resource plan but rather it is only able to demonstrate what those consequences would be if all the unevaluated assumptions were correct.

Pifer acknowledged that the EDF model does not seek to optimize but rather only to compare resource plans developed outside the model. As a consequence, however, he finds it likely that individual resources included in an overall "lowest cost" (or theoretically optimal) resource plan could be replaced at lower cost by resources from another plan with higher overall costs. Since the EDF model does not evaluate the financial implications of individual resources, Pifer contends that it cannot easily be used to verify that each resource in a particular resource plan should in fact be developed.

Lastly, Pifer asserted that the absence of an effective reliability constraint in the EDF model, the failure of the EDF model to ensure consistency, accuracy, and feasibility of input data, and the presence of errors in both the utility operation and financial portions of the model invalidate its use for even simulating the financial and economic effects of resource plans.

EDF presented rebuttal testimony arguing that Pifer's criticisms are not relevant for the use for which the model is intended.

Testimony of Staff

Staff presented Raymond Czahar, who testified that EDF had furnished the staff with a copy of the ELFIN computer model in September 1978 and that certain changes had been made since that time to reflect the ratemaking and accounting practices of the Commission. Czahar created a data file based on information contained in PG&E's Common Forecasting Method II filing, plus information provided by PG&E. Czahar determined the key financial variables. In Czahar's opinion, the model produces good quality financial results and is flexible enough so that it can be used and maintained by one or two people. He characterized the computer model as an aid to the analysis with its validity dependent on the care and skill of the analyst rather than on the sophistication of the model itself. He emphasized that any computer model is just a tool and that he would counsel against direction which limited an analyst to use of a particular tool to the exclusion of all others.

Neither Edison nor SDG&E presented direct showings although both participated in cross-examination, Edison quite extensively. Edison concludes that EDF's methodology is simply a computer code which permits calculations based on accepted accounting principles to be performed at high speed. Even putting aside the deficiencies Edison maintains are contained in the computer code, ELFIN cannot be used alone to develop or evaluate a resource plan nor can it be used to make valid side-by-side comparisons of resource plans. Edison cross-examined PG&E, staff, and EDF witnesses on seven steps necessary to produce a resource plan and while all witnesses agreed about the necessity of each step to resource planning, there were few key factors contained within each step that were susceptible to evaluation by the ELFIN model. Edison contends that if the ELFIN model cannot be used alone to develop a resource plan neither can it be used alone to make valid side-by-side comparisons of resource plans. Since the ELFIN model can evaluate only four of the elements that must be considered to develop a resource plan, it can therefore compare only these four elements.

SDG&E believes that there are certain problems inherent in the Commission's formal recognition of the EDF approach as an appropriate method for evaluating utility resource plans. First, formal recognition is tantamount to formal approval or endorsement of one of several like products available in the marketplace. Second, formal recognition could interfere with the Commission's adoption or the staff's use of subsequent methodologies as they are developed. Third, formal recognition is likely to result in excessive reliance being placed on the methodology by anyone doing the resource plan evaluation. Lastly, SDG&E believes that formal recognition of the EDF methodology may create the impression without further analysis that a utility could have adopted resource plans that were more economically beneficial to its ratepayers, shareholders, and the communities in its service territory. ✓

SDG&E also believes that the validity of the EDF methodology should not be formally recognized by the Commission. It relies on PG&E's development of the specific problems with the methodology for its recommendation.

#### Discussion

Two issues are addressed in this section which are closely related, and which require careful demarcation. The first concerns EDF's approach to evaluation of utility resource plans which centers around a comparison of the financial and cost impacts of the utility plan and other potential alternatives. The second concerns EDF's computer model ELFIN as an analytic methodology appropriate for use in such a comparative approach. This portion of OII 26 was entered into to explore both EDF's general comparative approach and the specific methodology used in the ELFIN model.

The brief encapsulation of the testimony and recommendations of the parties presented here does not begin to capture the detail and depth of the examination of the EDF approach and computer model presented by the parties to this matter. Recounting each and every item explored and the positions of the parties, and resolving each difference would only serve to lengthen this decision substantially while obscuring the forest for the trees.

Having considered the extensive evidence and testimony in this portion of OII 26, we conclude that the type of comparative analysis urged by EDF in this proceeding can be a very useful approach to evaluation of utility resource plans. Comparison of the financial implications of different resource options is necessary to allow informed choice among the options. However, our direction to staff to use any particular approach for analyzing resource plans in all proceedings in which resource planning questions arise would be unnecessarily restrictive. We decline to tie the staff's hands by requiring the use of a particular approach, however meritorious.

Our reasons for declining to require a particular approach to analyzing resource plans are several. We are concerned that requirement of a particular approach may stifle innovation, change, or improvement in analyzing resource plans. We concur with staff that any approach, despite past usefulness, must be reexamined each time it is used in order to test whether the underlying assumptions are appropriate and reasonable for the particular case at hand. By analogy, this is consistent with our reexamination in each utility rate case of the various analytic approaches and underlying assumptions used in establishing a reasonable rate of return for a utility. Just as we have declined to adopt a particular approach in setting reasonable rates of return, so we decline to endorse a specific approach for evaluating utility resource plans.

Along these same lines, we do not "validate" either the current version of EDF's ELFIN model or any other version as being an appropriate analytic tool for performing the type of comparative analysis for which EDF designed ELFIN. As SDG&E points out, by validating a particular methodology we would create an aura of approval, possibly to the exclusion of competing methodologies or newly developing methodologies. In an area of advancing sophistication and increasing importance such as resource planning, we need to have the most current analytic tools available. We have no wish to limit ourselves to one "validated" methodology in preference to a newer, more innovative methodology.

While we decline to make any formal findings regarding the appropriateness of EDF's approach or the validity of the ELFIN model, we emphasize that our decision in this respect is not a rejection of either EDF's approach or its model. On the contrary, EDF has provided a valuable public service in making its computer model available to the Commission staff and others, and in focusing attention on the resource planning and evaluation process in this and other proceedings. We note that EDF's approach and the use of the ELFIN model in support of its position in Application 59308, the application of PG&E and Edison for the Harry Allen/Warner Valley generating plants, were very valuable. The model was also used by the staff in the Harry Allen/Warner Valley proceeding and in the solar demonstration program (OII 42).

In retrospect, it is our opinion that the most efficient way to consider the usefulness of any approach, methodology, calculation, or computer model is on a case-by-case basis. Actual current data are used, functional alternatives may be presented, and all parties are aware of the purpose for which the methodology, calculation, or computer model is being used. When we established the procedure for examination of the ELFIN model in this proceeding, we did so independently of numeric values and results in order to examine the usefulness of the model. In the abstract this procedure sounded good; however, in practice we found that the absence of actual data made evaluation more difficult rather than easier. Accordingly, we welcome EDF's participation and use of the ELFIN model in other proceedings where financial comparisons of resource alternatives are germane. As noted above, this has already been done successfully with no apparent burden on the parties involved and without undue delay in the proceedings. ✓

PG&E has recommended that certain guidelines be established for the use and presentation of computer models. We think such guidelines would be useful, if only to serve as a starting point for any analysis based on a particular computer model. In reviewing

PG&E's suggested guidelines, however, we find them unnecessarily restrictive. Just as we have declined to designate a particular model as "valid," so do we decline to state that we "prefer" one type of model over another or that we will give greater weight to data from certain kinds of models than to others. PG&E has included as one of the guidelines the statement that there is not one model which is appropriate for all utility systems and levels of analysis. We agree completely.

We will adopt the following portions of PG&E's recommended guidelines, emphasizing that they are not to be used as rigid strictures to presentations, but as general guidance for the benefit of all parties to give form to their presentations using computer models and to speed the discovery and hearing process.

Computer simulations presented to this Commission should contain, or have available to all parties, the following:

- a. Adequate documentation to permit verification of the relationship between input and output data.
- b. The input assumptions.
- c. The output data.
- d. The basis for the input assumptions.
- e. A description of major simplifying assumptions, the limits under which those assumptions hold, and the effects of such simplifying assumptions.

Provision of the above information sufficiently in advance of testimony by witnesses using computer simulations to allow other parties to examine it, analyze it, and prepare for cross-examination is necessary in order to expedite the actual hearing process.

EDF has recommended that we issue findings identifying basic methodological, structural, and computational issues which have been resolved in this proceeding to avoid repetitive fact-finding in subsequent proceedings. We are reluctant to do this, not because we

wish to see every issue relitigated in each proceeding, but because we fear that the dynamic development of resource planning analysis by computer simulation may be severely hampered by such action. The potential for argument over whether a structural aspect of a model has changed and, if so, whether the change is major or minor, substantive or procedural, is all too obvious. We expect to see each presentation stand on its own merits, but counsel parties that we do not expect to see proceedings unnecessarily prolonged by repetitive examination of the individual parts of a computer program. As with any other testimony and related cross-examination, we expect presentations to be as brief and to the point as possible, with the bulk of the exploration conducted by data requests and prehearing exchange of information.

In its brief, EDF cited several distortions that it felt were inherent in PG&E's criticism of the ELFIN model. Since we are not designating any model as "valid" or "preferred" we find it unnecessary to address these individually. However, two deserve comment: that EDF wants its methodology, standing alone, to govern rate of return decisions; and that EDF wants its model to substitute for human judgment in the supply planning process. If any party believes these to be true, we wish to emphasize, in the strongest possible terms, that no computer program, methodology, or other analytic tool can, by itself, substitute for our informed judgment on any matter at issue. Both our staff and EDF emphasized that a computer model is simply one of many tools with which to explore various possible choices. The output of a computer model is not the choice itself. At most it is the technical or numerical support for a position or recommendation testified to by a witness and tested through cross-examination. In this respect it is comparable to any other analytic tool used by a witness and it will play a part in our judgment accordingly.



Repowering, Maintenance, Small Hydro, Wind and Solar

Testimony was taken during late 1979 and early 1980 in Phase I of this investigation concerning repowering, maintenance, and small hydro, and during late 1980 and early 1981 concerning wind as resource options for PG&E. Much of the information garnered during these hearings is now outdated. A major issue in Phase I was whether PG&E would or should pay full avoided cost for small hydro power produced by others. That issue has been resolved in D.82-01-103 in Order Instituting Rulemaking (OIR) 2, which, among other things, requires payment of full avoided costs to small hydro producers. The California Energy Commission (CEC) presented extensive testimony in this phase of the proceeding as to its estimates of the potential for small hydro development by PG&E. The CEC presentation included a proposal that PG&E should publish a "Standard Package" for small hydro producers which would include information concerning grid protection, permitting and maintenance requirements as well as an offer to provide preliminary feasibility assessments at no cost to the potential developer. The goal of this proposal was to remove constraints to the development of small hydro. The standard offer materials prepared in response to D.82-01-103 will substantially overcome any such constraints. Further, prior to observing marketplace response to the avoided cost price offerings resulting from OIR 2, we are not convinced that it is necessary to request or require that PG&E provide no-cost preliminary site feasibility assessments.

There was no dispute between staff and PG&E over the progress being made in the areas of maintenance and repowering and we find detailed discussion of those aspects unnecessary here. No other party participated in the issues of repowering and maintenance.

Conclusion

We believe that we have satisfied the purpose of OII 26 and will therefore conclude our investigation. In the decision instituting this investigation we set forth our purpose:

"In this investigation we want to explore the relative merits and cost-effectiveness of the entire range of options available to PG&E and its customers for providing energy services whether through energy conservation or through traditional or alternative supply technologies. We are particularly interested in the options that PG&E may have in such areas as repowering existing facilities, developing cogeneration, promoting end-use efficiency, as well as the use of renewable energy sources." (OII 26 mimeo, p.2.)

In OII 26 and other proceedings, we have already accomplished the major portion of this exploration, and we expect that efforts in this area will continue in specific proceedings. We have given vigorous and complete examination of PG&E's conservation and load management activities, both its plan and its accomplishments, through detailed reports submitted regularly by PG&E. The programs, plans, and results are scrutinized in rate and related proceedings not only by our staff but by all interested parties. We have further explored energy service options in Zero Interest Plan proceedings, Residential Conservation Service proceedings, the annual Conservation Cost Adjustment proceedings, and in the solar water heating demonstration program (OII 42).

Further, since this investigation was initiated the federal Public Utility Regulatory Policies Act (PURPA) and Federal Energy Regulatory Commission regulations implementing PURPA were enacted to promote the development of cogeneration and small power production at the national level. The general principles set forth in PURPA for the purchases of power from cogenerators are consistent with our decision on cogeneration in this proceeding (D.91109). We proceeded to establish standards in OIR 2 requiring payment of full avoided costs by utilities for power from cogenerators and other small power producers. Hearings are presently being held on several applications by large utilities, including A.82-03-26 and A.82-04-44 for PG&E, with respect to the contract terms for independent power producers and the determination of costs using both short-run and long-term marginal costing methodologies.

Subsequent to initiation of this investigation, we examined a more current version of PG&E's resource plan than the one filed in this proceeding in the Harry Allen/Warner Valley proceeding in 1980 and early 1981. PG&E's resource plan has changed again since that time and it is now apparent to us that it is more efficient to analyze a resource plan in the proceeding in which it is pertinent so that we have the most current plan and most current cost estimates before us, rather than in a separate proceeding.

The advances made in our ability to analyze utility resource plans and the implementation of avoided cost pricing for small power purchases stemmed in large part from the initial phases of OII 26. Notwithstanding our decision not to adopt a particular approach to analyzing resource plans as Commission policy or to validate a particular computer model for use by staff and other parties, we concur with EDF that the phase of hearings in OII 26 regarding these topics was highly productive. The testimony and evidence presented by all parties greatly enhanced our knowledge of computer-based supply planning.

While resource planning issues are germane to certain proceedings before this Commission, it is not clear at this time what purpose might be served by further analyzing utility resource plans in OII 26. We have serious reservations about this Commission's attempting to mold utility resource plans. It is the responsibility of utility management to design resource plans. For us to assume that responsibility would result in the risk inherent in resource planning decisions being passed from the utility to ratepayers. In OII 82-04-02 we noted that "allocation of risk to utility shareholders has always been the central tool available under traditional regulation for encouraging efficient utility decision-making."

There are, however, important reasons for our staff to analyze resource plans continually and to fully understand available resource options. Our staff has completed development of the necessary expertise to make comparative analyses of the financial impacts of resource plans, has developed computerized data files on the plans of both PG&E and Edison, and has analyzed the plans using ELFIN and other computer models. We plan to continue to analyze the effect on ratepayers of utility resource plans or feasible alternatives in various proceedings as appropriate. Only with this ongoing analysis can we adequately evaluate issues such as rate and financial impacts of proposed facilities in certificate proceedings, current capital budgets in general rate proceedings, the

reasonableness of fuel expenses in fuel cost adjustment proceedings, and the validity of avoided cost projections in small power producer proceedings.

Comparison of economic and financial implications is necessary to allow informed choice among resource options. In cases where resource planning is at issue, the appropriate level of analysis should be determined by a consideration of the incremental benefits and burdens of such analysis. Such burdens may include personnel and budgetary constraints. The benefits would consist of the additional information which may be gained from the more detailed analysis. We expect that Commission staff will perform detailed economic and financial resource comparisons in appropriate Commission proceedings, unless it can be demonstrated that the burdens of such analyses clearly outweigh the potential benefit.

As previously indicated, we will not limit the scope of staff's, or any other party's, participation in any proceeding to use of the ELFIN model or EDF's approach to comparative financial analyses of various resource plans when evaluating utility resource plans. We expect all parties to use their best professional judgment about the appropriate approaches and analytic tools to use when making these evaluations.

We specifically invite EDF to use the ELFIN model, or any revision of it, to analyze utility resource plans and to offer comparative financial analyses in any proceeding in which such plans are an issue. We expect by using an actual resource plan rather than hypothetical numbers, and with the modification that EDF has made to certain portions of the ELFIN model, much of the controversy that surrounded the model in this proceeding will be sharply diminished in future proceedings.

#### Finding of Fact

1. EDF urges that evaluation of utility resource plans be done using a comparative financial analysis of alternative resource plans.
2. ELFIN is a computer model used by EDF to make comparisons of the financial impacts of utility resource plans.
3. As demonstrated in various proceedings, the ELFIN computer model is a valuable tool for analyzing utility resource plans.

4. Comparison of the financial implications of different resource options is necessary to allow informed choice among the options.

5. Past proceedings have shown that the type of comparative analysis supported by EDF is a useful approach to the evaluation of utility resource plans. ✓

6. Designation of a particular approach to resource planning analysis as Commission policy could prove unduly restrictive. ✓

7. Designation of a particular model as validated or preferred could create the impression that other computer models are to be excluded from use before the Commission. ✓

8. Analysis of a resource plan in the actual proceeding in which such a plan is an issue will permit use of the most current resource plan and cost data.

9. No clear purpose exists for continued analysis of utility resource plans in OII 26.

10. The Commission has no existing guidelines for computer simulations presented to it in various proceedings.

Conclusions of Law

1. The Commission should not designate a particular approach to evaluation of utility resource plans as Commission policy nor a particular computer model as validated or preferred. ✓

2. Economic and financial analysis, including computer analysis where appropriate, should be used by staff and other parties to the fullest extent possible in appropriate future proceedings, particularly those where resource planning is an issue.

3. The EDF approach represents one type of comparative financial analysis which has proven useful in various Commission proceedings and should continue to be useful.

4. Basic guidelines should be established for presentation of computer simulations before the Commission so that extensive hearing time is not spent in discovery.

5. OII 26 should be terminated.

FINAL ORDER

IT IS ORDERED THAT:

1: Parties presenting the results of computer simulations in any matter before this Commission shall provide at a minimum to all parties the following:

- a. Adequate documentation to permit verification of the relationship between input and output data.
- b. The input assumptions.
- c. The output data.
- d. The basis for the input assumptions.
- e. A description of major simplifying assumptions, the limits under which those assumptions hold, and the effects of such simplifying assumptions.

2. OII 26 is terminated.

This order becomes effective 30 days from today.

Dated SEP 22 1982, at San Francisco, California.

JOHN E. BRYSON

President

RICHARD D. GRAVELLE

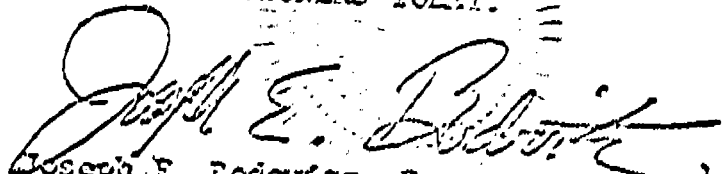
LEONARD M. CRIMES, JR.

VICTOR CALVO

PRISCILLA C. CREW

Commissioners

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

  
Joseph E. Bodovick, Executive Director

reasonableness of fuel expenses in fuel cost adjustment proceedings, and the validity of avoided cost projections in small power producer proceedings.

SS Comparison of economic and <sup>financial</sup> ~~final~~ implications is necessary to allow informed choice among resource options. In cases where resource planning is at issue, the appropriate level of analysis should be determined by a consideration of the incremental benefits and burdens of such analysis. Such burdens may include personnel and budgetary constraints. The benefits would consist of the additional information which may be gained from the more detailed analysis. We expect that Commission staff will perform detailed economic and financial resource comparisons in appropriate Commission proceedings, unless it can be demonstrated that the burdens of such analyses clearly outweigh the potential benefit.

SS As previously indicated, we will not limit the scope of staff's, or any other party's, participation in any proceeding to use of the ELFIN model or <sup>EDF's approach to</sup> comparative financial analyses of various resource plans when evaluating utility resource plans. We expect all parties to use their best professional judgment about the appropriate approaches and analytic tools to use when making these evaluations.

We specifically invite EDF to use the ELFIN model, or any revision of it, to analyze utility resource plans and to offer comparative financial analyses in any proceeding in which such plans are an issue. We expect by using an actual resource plan rather than hypothetical numbers, and with the modification that EDF has made to certain portions of the ELFIN model, much of the controversy that surrounded the model in this proceeding will be sharply diminished in future proceedings.

#### Finding of Fact

1. EDF urges that evaluation of utility resource plans be done using a comparative financial analysis of alternative resource plans.
2. ELFIN is a computer model used by EDF to make comparisons of the financial impacts of utility resource plans.
3. As demonstrated in various proceedings, the ELFIN computer model is a valuable tool for analyzing utility resource plans.



4. Comparison of the financial implications of different resource options is necessary to allow informed choice among the options.

SS 5. Past proceedings have shown that the type of comparative analysis supported by EDF <sup>can be</sup> ~~can be~~ a useful approach to the evaluation of utility resource plans.

6. Designation of a particular approach to resource planning analysis as Commission policy could prove unduly restrictive.

SS 7. Designation of a particular computer model as valid <sup>or</sup> ~~or~~ preferred could create the impression that other computer models are to be excluded from use before the Commission.

8. Analysis of a resource plan in the actual proceeding in which such a plan is an issue will permit use of the most current resource plan and cost data.

9. No clear purpose exists for continued analysis of utility resource plans in OII 26.

10. The Commission has no existing guidelines for computer simulations presented to it in various proceedings.

#### Conclusions of Law

SS 1. The Commission should not designate a particular approach to evaluation of utility resource plans as Commission policy nor a particular computer model as valid<sup>ated</sup> or preferred.

2. Economic and financial analysis, including computer analysis where appropriate, should be used by staff and other parties to the fullest extent possible in appropriate future proceedings, particularly those where resource planning is an issue.

3. The EDF approach represents one type of comparative financial analysis which has proven useful in various Commission proceedings and should continue to be useful.

4. Basic guidelines should be established for presentation of computer simulations before the Commission so that extensive hearing time is not spent in discovery.

5. OII 26 should be terminated.

#### FINAL ORDER

#### IT IS ORDERED THAT:

1: Parties presenting the results of computer simulations in any matter before this Commission shall provide at a minimum to all parties the following:

- a. Adequate documentation to permit verification of the relationship between input and output data.
- b. The input assumptions.
- c. The output data.
- d. The basis for the input assumptions.
- e. A description of major simplifying assumptions, the limits under which those assumptions hold, and the effects of such simplifying assumptions.