**ELECTRIC UTILITY RATE
DESIGN AND ENERGY MANAGEMENT
INITIATIVES**

1977 Annual Report

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Department of Energy

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**ELECTRIC UTILITY RATE DESIGN
AND ENERGY MANAGEMENT INITIATIVES**

Annual Report for 1977

Background

Title II of the Energy Conservation and Production Act (ECPA) directed the Federal Energy Administration (FEA) to undertake several major initiatives in the area of electric utility rate design and to transmit to Congress a report annually with respect to its activities. The first Annual Report, covering calendar year 1976, was submitted to Congress by FEA in April 1977. The 1977 Annual Report describes the progress of FEA in undertaking those initiatives specifically described by ECPA, prior to October 1, 1977, and provides a perspective on how these activities have since been carried forward under the new Department of Energy (DOE). These activities include: a report to Congress on alternative rate design concepts, followed by specific legislative proposals; financial assistance to State utility commissions and non-regulated utilities to field test or actually implement time of use rates; Federal intervention in State electric utility proceedings; financial assistance to State governments for utility consumer offices; and initiation of a technical assistance program for State utility commissions. In addition, DOE conducts a limited range of analytical activities to support these primary functions.

Rate Design Study

Pursuant to Section 203, Title II of ECPA, FEA undertook a comprehensive study of alternative measures to improve electric utility rate design. The proposals so studied included:

- Cost-effective load management techniques;
- Rates reflecting incremental cost-of-service or time-of-use of service, or both;
- Ratemaking policies which discourage inefficient fuel use and encourage economical fuel purchases; and
- Policies which encourage equipment and system reliability.

The analysis of these measures considered energy savings, capacity savings, capital savings, and changes in costs resulting from national implementation of each of these measures.

On March 4, 1977, FEA submitted to Congress an extensive Interim Report on Electric Utility Rate Design Proposals. The Interim Report, prepared by FEA staff with the assistance of several contractors and an independent ad hoc advisory group, represents the culmination of the less quantitative

part of the study, and is the first comprehensive and objective assessment of the full range of rate design concepts currently under consideration. The final report, to be submitted early in 1978, will cover the more quantitative analysis.

Rate Design Legislative Proposals

On April 29, 1977, the President submitted to the Congress proposed legislation to establish a comprehensive national energy policy. In keeping with the congressional intent reflected in both Sections 203 and 206 of Title II, ECPA, this proposed legislation included provisions relating to electric utility rate design.

The President's legislative proposals called for:

1. The development of broad standards for determining cost-of-service and allocating reserve responsibility;
2. The elimination of declining block energy charges, while allowing separate demand and/or customer service charges;
3. Utilities to offer optional time-of-use and interruptible rates, as well as load management systems;
4. State regulatory authorities to permit, but not require subsidy (below cost) rates for residential customers.

These legislative proposals were duly considered by both the House and the Senate, and as of December 31, 1977, compromise legislation had been agreed to, in concept, by the Energy Conference Committee. The need for further legislative proposals, pursuant to Section 206, Title II of ECPA, will be assessed after the final National Energy Act has been enacted and initial implementation experience gained.

Utility Rate Demonstration Projects

Section 204(1), Title II of ECPA, authorizes FEA, now incorporated in the Department of Energy (DOE), to fund a variety of rate design, load management and related projects.

In early 1975, FEA began to conduct, in cooperation with State and local utility authorities, a number of electric and gas demonstrations, under the more general provisions of the Federal Energy Administration Act of 1974. Twenty demonstration projects in 16 States have been initiated, seven in Fiscal Year 1975 and 13 more in Fiscal Year 1976. In addition, ten of the projects received continuation funding in Fiscal Year 1977,

with appropriations authorized under Title II. Funding for these demonstrations is summarized below:

<u>Regulatory Jurisdiction</u>	<u>FY 1975</u>	<u>Funding (\$000)</u>	
		<u>FY 1976</u>	<u>FY 1977</u>
1. Vermont*	360	-	-
2. Connecticut*	230	130	-
3. New Jersey	160	555	450
4. Ohio (Electric)* (Gas)*	220	168 137.5	-
5. Arkansas	210	160	42
6. Arizona (Electric)* (Gas)*	210	- 88.5	-
7. Los Angeles	170	350	276
8. Wisconsin	-	200	181
9. Michigan	-	200	-
10. New York (Electric)* (Gas)	-	237 146.5	-
11. California (Electric) (Gas)*	-	355 143	215
12. Puerto Rico	-	357	282
13. North Carolina	-	533	263
14. Edmond, Oklahoma	-	202	182
15. Washington	-	281	152
16. Rhode Island	-	275	125
	<u>\$1,560</u>	<u>\$4,518.5</u>	<u>\$2,168</u>

*Project completed

The Electric Utility Rate Demonstration program was established to fulfill three major objectives: (a) to demonstrate to utilities and to utility regulators the viability and customer acceptance of innovative electric rates; (b) to gather empirical data as to the impacts of such rates on customer and class electricity consumption patterns; and (c) to transfer the results of comprehensive analysis of these data nationwide.

Demonstration projects in six states have provided DOE with at least interim, and in some cases final, test data. Econometric and statistical analyses of these data have yielded the following preliminary findings:

- customers have been found to respond significantly to changes in electricity price at all hours of the day, including peak periods;
- time-of-use rates reduce residential customer peak demands even on the hottest days of the year;
- customer attitudes towards time-of-use rates are largely positive.

Pilot Utility Implementation Projects

Section 204(1), Title II of ECPA, also authorizes DOE to fund regulatory rate reform initiatives to improve electric utility load management procedures. In addition to the 16 electric demonstrations, ten implementation projects were initiated in Fiscal Year 1977. Rather than serving experimental purposes, these projects are intended to encourage and assist permanent adoption of non-traditional, cost-based rates. Specifically, the new projects must involve either the elimination of declining block energy charges or the adoption of time-of-use rates, or both. Also featured in each project are at least two of the following measures:

- customer education and energy audits;
- customer conservation and load management financing;
- establishment of regulatory ratemaking guidelines, including prohibitions of master metering;
- energy efficiency criteria for new service hookups; and,
- promotion of district heating.

Federal funds will be used to defray such front-end costs as ratemaking design and analysis and customer education campaigns. Funding for these projects is summarized on the following page:

<u>Regulatory Jurisdiction</u>	<u>Funding (\$000) FY 1977</u>
1. California	426
2. Connecticut	381
3. Grand River Dam Authority (Oklahoma)	160
4. Iowa	284
5. Minnesota	489
6. North Carolina	275
7. Ohio	323
8. Seattle, Washington	376
9. South Dakota	292
10. Springfield, Missouri	<u>232</u>
	\$3,238

Technical Assistance

Pursuant to the authority of ECPA Section 204(1) to fund regulatory rate reform initiatives, DOE has also undertaken a comprehensive technical assistance program to help utility regulatory authorities and non-regulated utilities strengthen their capability to carry out rate reform, energy management, and related programs. DOE's assistance activities are directed toward both the gas and electric utility sectors.

Given the great diversity of utilities, it is important that any utility energy management program be sensitive to the particular local characteristics of the utility in question. DOE's technical assistance activities are designed to help each commission (and major non-regulated utility) assess its needs, formulate a new program which effectively meets these needs, and carry out the program in an effective and practical manner.

In order to effectively pursue these objectives, DOE has drawn upon the resources of the National Regulatory Research Institute (NRRI). Operating with DOE FY 1977 funding of \$1,070,000, the Institute is under the auspices of the National Association of Regulatory Utility Commissioners (NARUC), and is intended to provide professional assistance to the state

regulatory community. The NRRI will become a technical assistance center offering the staff and technical resource materials needed to effectively assist State and local utility authorities. Specifically, the center will provide technical teams for on-site assistance, a series of instructional case studies, computer simulation models, and a series of symposia addressing the practical issues of implementing utility energy management programs.

Regulatory Intervention

Section 204(2) of ECPA authorizes DOE, upon the request of a State, a utility regulatory commission, or any participant in any proceeding before a State utility regulatory commission which relates to electric utility rates or rate design, to intervene and participate in such a proceeding. To date, DOE (FEA) has participated in 24 utility rate proceedings in 24 States. Prior to the enactment of Title II, FEA had participated in rate cases in 13 States under the general authority of the Federal Energy Administration Act of 1974.

The purposes of the intervention activities, initiated in 1975, are (1) to advocate the utility rate reform and energy management initiatives consistent with established energy policy, and (2) to provide assistance to utilities and their regulators in the practical implementation of rate reform and allied energy management activities. The intervention activities are also designed to support the rate demonstration projects, by ensuring that the results of the projects are formally considered in the ratemaking proceedings of State regulatory commissions.

In some jurisdictions, DOE has been a full party to the proceedings while in others it has participated in an amicus curiae capacity. The Department has participated in both generic rate cases and specific rate application hearings. DOE intervention testimony was influential in many of the cases reaching decision.

SUMMARY OF REGULATORY PARTICIPATION

<u>Commission, Docket Number and Utility</u>	<u>DOE Status</u>	<u>Requested By</u>	<u>Testimony Filed</u>	<u>Brief Filed</u>
Arizona CC #U-1345 (Arizona Public Service)	Party	Commission	9/19/77	10/26/77 11/18/77
California PUC #54279 et al (Pacific Gas & Electric)	Amicus	Environmental Defense Fund	-	4/ 2/75
California PUC #56408 (So. Cal. Edison)	Party	Commission	8/30/76	12/16/76
Colorado PUC #935 (Colorado Public Service)	Amicus	Commission	10/ 8/75	10/30/75
Colorado PUC #5693 (Generic Hearings)	Party	Commission	9/ 9/77 11/10/77	-
Connecticut PUCA #760204 (Generic Hearings)	Party	Commission	10/ 1/76 10/13/76	4/30/77
Dallas, Texas (undocketed) (Dallas Power & Light)	Amicus	City Council	2/14/76	-
Delaware PSC #829 (Delmarva Power & Light)	Party	Commission	2/ 2/76	-
Hawaii PUC #2793 (Generic Hearings)	Party	Commission	11/20/77	-
Iowa CC #RPU 76-34 (Peoples' Gas)	Party	Iowa Legal Services Corp.	10/28/77	2/15/78
Kentucky PSC #6723 (Louisville Gas & Electric)	Party	Attorney General of Ky., et al	3/23/77	-
Maryland PSC #6806 (Generic Hearings)	Amicus	Commission	2/27/76	9/ 2/76
Massachusetts DPU #18810 (Generic Rulemaking)	Amicus	Commission	9/15/76	-
Minnesota PSC #ER2-1 (No. States Power)	Amicus	Commission	-	9/23/75

<u>Commission, Docket Number and Utility</u>	<u>DOE Status</u>	<u>Requested By</u>	<u>Testimony Filed</u>	<u>Brief Filed</u>
Nevada PSC #579 (Sierra Pacific Power)	Amicus	Commission	-	5/17/76
New Hampshire PUC #DR 75-20 (Generic Hearings)	Amicus	Governor's Office	1/20/76	-
New York PSC #26806 (Generic Hearings)	Party	Commission	8/11/75 1/27/76	3/20/76 4/ 9/76
North Carolina UC #E-100, Sub 21 (Generic Hearings)	Party	Commission	12/10/75 12/16/75 8/31/77	-
Oklahoma CC #25897 (Oklahoma Public Service Company)	Party	Oklahoma Sierra Club, et al	3/31/77	-
Pennsylvania PUC #76-PRMD-7 (Generic Hearings)	Party	Commission	2/ 7/77	10/18/77
South Dakota PSC #F-3062 (No. States Power)	Party	Commission	4/26/76	7/12/76
Tennessee Valley Authority (Generic Invest.)	Particip- ant	TVA	6/ 7/76	-
Virginia SCC #19827 (Virginia Elec. Power)	Party	Commission	*	-
Wisconsin PSC #01-ER-1 (Generic Rule Making)	Party	Commission	9/ 6/75	-

*Participant in case, but DOE testimony not due until later date.

Utility Consumer Offices

Section 205, Title II of ECPA, authorizes DOE to make grants to provide for the establishment and operation of State offices to represent residential and other consumer interests in electric utility proceedings before Federal, State and local regulatory commissions. All States, territories, the District of Columbia, and the Tennessee Valley Authority are eligible to apply for such a grant. However, grants made pursuant to this section may be provided only for consumer service offices which operate independently of utility regulatory commissions, and which are empowered to: (1) assess the

impact of proposed rate changes and other regulatory actions on all affected consumers; (2) provide financial or technical assistance to aid consumers in their presentations before utility regulatory commissions; and (3) advocate a position which they determine represents the position most advantageous to consumers.

The \$2 million authorized under ECPA for this program was appropriated in May 1977. Program Guidelines were published and grant applications solicited by FEA in July 1977. Forty-one applications were received and evaluated in accordance with the selection criteria contained in the Program Guidelines, and grants were awarded to the 12 applicants who received the highest scores in this evaluation process.

Grant awards were made in September 1977 to the following jurisdictions:

<u>Grantees</u>	<u>Funding (\$000)</u> <u>FY 1977</u>
1. Arkansas	186
2. District of Columbia	126
3. Georgia	188
4. Guam	60
5. Idaho	193
6. Illinois	182
7. Indiana	200
8. Massachusetts	195
9. Michigan	200
10. New Hampshire	40
11. New Mexico	200
12. New York	<u>200</u>
	\$1,970.

ECPA Support Activities

In addition to the programs described above, DOE conducts a limited range of activities to provide analytical support to the ECPA Title II program functions. These activities include comprehensive analysis of data from the demonstration program, analysis of efficiency improvements attainable with commercially available technology in the design and operation of utility

systems, continuing analysis of electric and gas rate design issues, and analysis and development of associated utility regulatory energy management initiatives. Funding for these support activities is shown below:

<u>Activity</u>	<u>Funding (\$000) FY 1977</u>
Analytical support related to rate design implementation activities.	270
Development and implementation of a comprehensive analytical plan for analyzing data from the rate demonstration projects.	250
Technical and economic assessment of district heating and commercially available technologies for reducing transmission and distribution losses of gas and electric utilities, and the development of implementation strategy for qualified options. Analysis of the effect of residential insulation retrofit on electric utility load factor.	202
Economic and technical analysis of gas utility rate design issues.	122
Economic and technical analysis of electric utility rate design issues.	70
Case studies on utility home insulation retrofit programs to support technical assistance effort.	25*
	<hr/> \$939

*Office of Utility Systems portion of a \$75, 000 ERDA contract resulting from an interagency agreement between the former FEA and ERDA agencies.