

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548OFFICE OF ENERGY
AND SPECIAL PROJECTS

B-178205

Go to Carter

AUG 15 1974

The Honorable John C. Sawhill
Administrator, Federal Energy Administration 75

Dear Mr. Sawhill:

We have surveyed the energy conservation practices being encouraged by State utility commissions and public utilities. Our objectives were to ascertain whether there were problems hampering the implementation of conservation practices and, if so, whether Federal action could be taken to alleviate such problems.

Our work was performed primarily at the Federal Energy Administration (FEA) and the Federal Power Commission (FPC) headquarters. In addition, we communicated with selected public utility commissions and public utilities in the District of Columbia, Michigan, and Washington and sent questionnaires to the State utility commissions of the 50 States, the District of Columbia, the Virgin Islands, and Puerto Rico.

Because of the short time frame available for Federal agencies to formulate and carry out long-range conservation practices, the rapid changes in organizational arrangements for carrying out the Federal responsibilities, and the planned programs by Federal agencies, we decided not to continue further with our survey at this time. We did, however, identify several problems which should be brought to your attention concerning the encouragement of energy conservation programs of the utilities and State utility commissions.

These problems involve the need for (1) evaluation of the effectiveness of existing or planned energy conservation practices of utilities, (2) additional authority for State utility commissions to require or promote energy conservation practices, and (3) intensification and coordination of the Federal effort.

NEED TO EVALUATE EXISTING
OR PLANNED CONSERVATION PRACTICES
OF UTILITIES

Although various energy conservation practices are being carried out or planned by some public utilities and State utility commissions, not

RED-75-253

BEST DOCUMENT AVAILABLE

702187

096739

all the practices have been independently evaluated as to their energy-saving potential. Without such evaluation, some other public utilities and State utility commissions were reluctant to attempt or to encourage such practices.

The Nation's energy consumption is increasing faster than the supply of available domestic energy is being developed. This situation has caused shortages in needed energy requirements, which are expected to continue for quite some time. An important method immediately available for reducing these shortages is an effective energy conservation program. The President and the Congress have expressed the need for such a program to help the Nation meet its increasing energy needs.

In April 1973 the President directed the establishment of the Office of Energy Conservation in the Department of the Interior to coordinate Federal energy conservation programs, conduct research on energy conservation issues, and educate the public on energy efficiency and costs. This Office--renamed the Office of Conservation and Environment--was transferred to the new EPA established by Public Law 93-275, May 7, 1974.

Federal and State agencies and utilities are encouraging consumers to voluntarily conserve energy through television and radio announcements, posters, brochures, pamphlets, and educational or informational meetings. Under these programs, the consumers are asked to sacrifice convenience or otherwise alter their living habits in the interest of saving energy. For example, consumers are requested to reduce heating and air-conditioning levels and to minimize the use of electric and gas appliances and lighting.

The public appeals have had some effect in reducing energy consumption. Interior's Bonneville Power Administration and other electric utilities in the Pacific Northwest reported that, on the basis of load forecasts, the region's electricity consumption was reduced by 7 percent from September through December 1973. Electric and gas utilities from other regions of the country have reported similar reductions.

Although voluntary action taken by the public has contributed to energy conservation, the effectiveness of such action depends on the continued motivation of consumers to conserve energy. A change in consumer attitude to conserve energy could eliminate the prospect of long-term savings through their voluntary efforts.

Several other conservation actions, in addition to the voluntary efforts, were being taken or planned by some State utility commissions and public utilities involving rate-structure changes and the installation of energy-saving devices. But there was not general agreement

between the utilities, State utility commissions, or Federal agencies as to the energy-saving potential of these practices.

Rate-structure changes

FPC and the State regulatory agencies, in approving utility-rate structures, have been primarily concerned that the rates were not unduly discriminatory to any class of customer and that they provided a reasonable rate of return to the utility. The design of the rate structures was left to the utilities.

Historically, declining rate structures have been prevalent in the electric and gas utility industries. This followed naturally from the cost of service concept under which the unit charge for energy decreases as the usage increases. This was justified on the basis of larger, more efficient generation and distribution facilities and increased use of capacity--the more units of energy sold, the less a unit costs to produce and deliver.

Rates based on this concept have been considered by many to be promotional and to encourage the widespread and growing use of energy. Also, many utilities have had marketing policies designed to encourage consumers to increase their use of energy, such as giving the consumer loans to purchase appliances and heating and cooling systems.

As energy shortages have become apparent, however, Federal agencies, State regulatory agencies, utilities, and others have been considering and, in some cases, introducing new power-rate structures which, hopefully, provide economic incentives for energy conservation.

For example, one State utility commission approved a residential power-rate structure in January 1974 which did not provide for a declining rate for increased electricity consumption but, rather, provided for the same charge a kilowatt-hour regardless of the kilowatt-hours used. The commission said that, as a result of this new flat-rate structure, a customer using 200 kilowatt-hours of electricity a month would receive a 3.3-percent increase in his electric bill while a customer using 2,000 kilowatt-hours would receive a 9.2-percent increase.

The commission said that declining price and promotional rate structures were out of date and that price-rate structures no longer reflected the costs of producing and distributing electricity. The commission informed us that, because of (1) rising costs in labor, materials, and construction costs, including costs associated with meeting environmental standards, and (2) higher interest rates on money used to

finance expansion, every additional unit of electricity will increase the cost of supplying energy and the per unit cost of that energy. According to the commission, rate structures which promote the ever-increasing use of electricity do not best serve society's interests because they increase the supply difficulties already being experienced.

This change in the power-rate structure applies only to residential rates. The commission stated that, before it could consider making changes in the structure of commercial and industrial rate schedules, it would need facts to consider the impact of changes on the State's economy.

Another utility commission issued an order in November 1973, approving a rate increase for an electric utility company. The commission required the utility to eliminate from its proposed rate schedules any rate increase for residential customers using 400 kilowatt-hours or less a month and to transfer the revenue requirement that otherwise would be allocated to low-usage residential customers to high-usage rate blocks.

The commission stated that it was imposing this requirement because it had an obligation to assist and encourage the company and its customers to avoid unnecessary use of electricity without penalizing essential uses. According to the commission, the rate structure will be an added incentive to customers to turn down their thermostats and to reduce their use of nonessential electric appliances.

An official of this company was skeptical about the commission's approach of using the rate structure to conserve energy because of the lack of experience the utilities have regarding this approach as a sound conservation practice.

Another electric utility company started a conservation program in 1970 to reduce electricity use during peak hours. Under this program, the company requests 145 large commercial and industrial customers to reduce their use of electricity between 4:30 p.m. and 7:30 p.m. The company requests this when extreme weather conditions require large demands by other customers for electricity. If these 145 customers reduce their electrical requirements, the company compensates for it at an agreed rate. The company's statistics show that customers earned \$33,664 in compensation for the power they conserved during the 1972-73 winter season. Company officials estimated that this program could reduce peak energy demand by as much as 2 percent.

Two other State utility commissions expressed doubts concerning the use of rate structures to encourage energy conservation, as follows:

--"If the regulatory function were to use rates to achieve conservation program goals, it would require abandonment of the established concepts. We cannot abruptly desert this cost of service approach."

--"Considering the needs for energy in our present economy, we are not convinced, however, that rate structures by themselves--unless raised to punitive levels--will have an immediate and noticeable effect upon the consumption of energy."

The need for an evaluation of the influence of power-rate structures on consumer demand was emphasized in a November 14, 1973, letter from the Acting Chairman, Council on Environmental Quality, to the Chairman, Conservation and Natural Resources Subcommittee, House Committee on Government Operations. In that letter the Council pointed out that the current state of knowledge on the influence of power-rate structures on consumer demand for power is meager. The Council stated, however, that the National Science Foundation and others are now funding studies in this important area. As part of its energy leadership role, FEA should evaluate and disseminate to utilities and State utility commissions the results of these studies.

DIS 62

Installing energy-saving devices

Some gas and electric utilities have promoted home insulation programs. For example, one utility helps customers insulate their residences by

- providing a booklet explaining how to install insulation;
- urging people who are unwilling or unable to undertake the work themselves to contact a contractor; or
- making all the arrangements for insulating the customer's home, including assistance in financing the costs.

One commission was considering proposing investment tax credits for landlords as an incentive for them to better insulate their rental property. The commission indicated that the greatest obstacle in instituting a tax credit program is the lack of information on the effects of such credits.

Another commission, in a letter to all gas companies in the State, suggested that a subsidy toward the cost of installing energy-saving devices be provided to consumers in the form of a credit to the

customer's monthly utility bill. A few utility companies indicated a willingness to undertake such a program, but the willingness was contingent on establishing that voluntary efforts had not produced sufficient savings or that these voluntary savings were only short term.

✓ The Tennessee Valley Authority (TVA) has been advertising the energy savings that can be achieved through heat pumps. Heat pumps are energy-saving devices which move heat from the outside to the inside of a home during the winter; the process is reversed during the summer to cool a home. For an all-electric home TVA estimates that, in its region, about 7,000 kilowatt-hours of electricity a year can be saved compared to other forms of electric heating and cooling appliances. In addition, TVA has developed a certification program for heat pump dealers which meet TVA's standards for installing heat pumps.

The effects of such programs on energy conservation should be evaluated and disseminated to utilities and State utility commissions.

NEED FOR ADDITIONAL AUTHORITY
FOR STATE UTILITY COMMISSIONS TO
REQUIRE OR PROMOTE ENERGY
CONSERVATION PRACTICES

The authority and responsibility of the State utility commissions (regulatory agencies) to require or promote energy conservation practices differ widely. Some commissions do not have authority and responsibility to carry out energy conservation practices through the regulatory process and, thus, had not done anything to promote energy conservation. Others, as previously discussed, had taken steps to require or promote rate-structure changes and the installation of energy-saving devices.

In response to our questionnaire, 27 of the 38 regulatory agencies responding said they considered energy conservation a part of their regulatory responsibility but 11 agencies said they did not. Five of the 11 indicated they had not done anything to promote energy conservation. The other six said they were promoting voluntary conservation efforts or encouraging and supporting such efforts by utilities.

Of the agencies that consider energy conservation a part of their regulatory responsibility, 12 had no regulatory authority over publicly owned utilities--mostly municipally owned systems--and 8 did not regulate cooperatives. Also, four of the other agencies had only partial regulatory authority over publicly owned utilities, and two had only partial authority over cooperatives. This partial authority involved such factors as plant siting and environmental or safety considerations but

B-178205

generally did not include rates or type of service. In these cases, the utility or cooperative was generally under the jurisdiction of a local government in the area served or under a board of directors.

In addition to commenting about the varying degrees of authority and responsibility to promote energy conservation at the State or local level, several regulatory agencies expressed differing views concerning the use that should be made of the regulatory function as a vehicle for encouraging energy conservation, as follows:

- "* * * energy conservation as a regulatory function should be on a national level to prevent one state from having an unfair economic advantage over another."
- "Regulatory agencies were never intended to achieve conservation goals. The commission indicated, however, that with proper funding it could do a good job."
- "Statutory limitations prohibit this Commission from using the regulatory function as a tool for implementing or encouraging conservation programs. It is our general opinion that the regulatory function should not be so used."
- "The regulatory power of government should be used as fully as possible to implement conservation programs."
- "* * * regulatory authorities, especially federal regulatory authorities, have an almost unparalleled capability for influencing the energy situation for better or for worse by their actions, inactions or interventions."

Some State regulatory agencies indicated, and we concur, that there is a need for a uniform Federal energy policy and guideline for the States so that they can work toward a common goal. The Office of Conservation and Environment can assist States by devising and advocating model laws for States to help regulatory agencies carry out energy conservation practices.

NEED TO INTENSIFY AND
COORDINATE THE FEDERAL EFFORT

The Office of Conservation and Environment has the responsibility to provide an active leadership role in coordinating Federal energy

B-178205

conservation efforts, to conduct research on major policy alternatives available to conserve energy, and to educate consumers on conservation measures.

Many problems which the State regulatory agencies have in identifying and implementing conservation practices--as discussed previously--involve matters which we believe could be alleviated by the Office of Conservation and Environment. It should intensify its efforts to carry out the evaluative and guidance aspects of its responsibilities as they relate to utilities.

FPC is carrying out activities, and is considering additional activities, which are closely related to the Office's responsibilities. Therefore, the Office's leadership role in advocating specific energy conservation practices should be in consonance with any standards that FPC may establish involving its regulatory function.

Intensifying evaluative and guidance
activities related to utilities

An FEA official advised us in June 1974 that the equivalent of two employees were assigned to conservation activities involving utilities. These activities involved such functions as organizing meetings with representatives of Federal agencies, State regulatory authorities, electric utilities, and experts from industry and universities to discuss possible changes in rates and rate structures, and electrical load management. In addition, several research and development contracts have been initiated by FEA which the agency believes will provide more substantive information about the impact of rate changes. According to the official, more resources needed to be devoted to conservation activities involving utilities, including additional technically qualified staff members, and that FEA is considering elevating the organizational role of the utility sector.

The potential for energy conservation by electric utilities is indicated by the fact that in 1970 electric utilities used about 25 percent of the total national energy resources in generating electricity and this use was projected to increase to about 37 percent by 1985.

In view of the potential for energy conservation and the information we received from State regulatory agencies and utilities indicating a need for the design and evaluation of conservation practices and for Federal guidance, we believe that you should increase the efforts of the Office of Conservation and Environment to evaluate and advocate energy conservation practices by utilities.

Coordination with FPC

FPC has taken action to identify energy conservation practices used by electric utilities and is considering more actions which would provide a methodology for evaluating and disseminating information on the practices.

In FPC Order 495, issued November 13, 1973, FPC requested all electric utility systems--investor owned; publicly owned, including Federal systems; and cooperative owned--to voluntarily adopt and report annually on:

- Policies for conserving and efficiently using natural resources.

- A research and development program on conserving and efficiently using natural resources.

- A general implementation plan on achieving continually increasing efficiencies in generating, transmitting, distributing, and using electricity, including increased consumer knowledge of conservation potential and present or proposed rate incentives for more efficient energy use.

The order stated that the reporting system was to facilitate the widest possible dissemination of information on the conservation of natural resources in producing and using electricity and was directed to the Nation's 3,500 electric utilities serving 200 million consumers. Although FPC asked 3,500 utilities to respond by December 31, 1973, only 136 had responded as of July 12, 1974. The responses could give the Office of Conservation and Environment useful information on sales practices initiated by electric utilities encouraging energy conservation. However, because of the small number of replies, a more effective means to identify such practices may be needed. We were advised that FEA has made arrangements with FPC to assemble a task force to reexamine the questionnaire so that information received from the utilities can be of greater value.

In addition, FPC is considering plans to monitor utility conservation practices for technical and economic content, to develop conservation guidelines, and to devise a means to evaluate the practices, including consumer acceptance. The plan states that the evaluation will necessitate establishing energy conservation standards and, thus, model conservation programs will have to be drawn up.

According to the plan, the information developed in drafting the model conservation programs will be disseminated to the utilities, public utility commissions, and other interested parties but will not be designed to serve as minimum standards with which the utilities must comply. The model programs would incorporate measures which utilities might adopt, the estimated costs and potential effectiveness, the managerial and financial burdens, and the local regulatory implications.

The plan indicates that, though its use can offer leadership in formulating a comprehensive approach to energy system development, there is also a compelling requirement for FPC to undertake advanced studies of this area to carry out its regulatory responsibility. This is so--according to the plan--because the influence of rising energy prices alone may be expected to stimulate innovative proposals for new energy sources and for more efficient use of energy; many proposals may eventually appear before FPC as evidence to be considered in connection with regulatory actions.

The Office of Conservation and Environment should carry out its leadership role for energy conservation in consonance with any standards that FPC may establish involving its regulatory function.

We were told that representatives of the Office of Conservation and Environment meet frequently with FPC officials to coordinate conservation activities. We believe, however, that FEA should initiate a memorandum of understanding with FPC setting forth the roles of the two agencies regarding energy conservation practices and providing for clearing with each other proposed conservation practices involving electric or gas utilities.

RECOMMENDATIONS

In view of the impact that conservation practices by electric and gas utilities could have on alleviating the energy shortage and the need for more knowledge in this area, we recommend that you intensify the evaluation and guidance of the Office of Conservation and Environment relating to electric and gas utilities. The Office should:

- Obtain, evaluate, and disseminate information on energy conservation practices which the utilities and State regulatory agencies use and advocate those practices which prove to be effective.

B-178205

--Provide technical assistance to utilities and regulatory agencies in establishing standards for evaluating the results of energy conservation practices.

--Devise and advocate model laws for enactment by State legislatures to strengthen the capability of State regulatory agencies to carry out energy conservation practices.

We also recommend that you coordinate your leadership role in energy conservation with FPC and initiate a memorandum of understanding with FPC setting forth the roles of the two agencies regarding energy conservation practices and providing for clearing with each other proposed conservation practices involving electric or gas utilities.

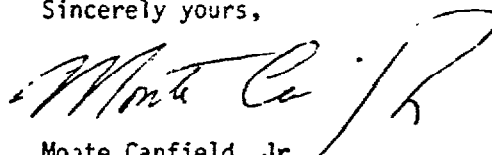
We discussed this report with your Acting Assistant Administrator for Conservation and Environment, and he generally agreed with our conclusions and recommendations.

We appreciate the cooperation received during our survey and would appreciate being informed of action planned on our recommendations. We would be glad to discuss this report with you or your staff.

We are sending copies to the Director, Office of Management and Budget; the Secretary of the Interior; the Chairman of the Board, TVA; the Chairman, FPC; and the appropriate congressional committees.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the date of the report, and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

Sincerely yours,


Monte Canfield, Jr.
Director

BEST COPY AVAILABLE