State Energy Resources Coordinator

1985/86
ANNUAL REPORT

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
ENERGY RESOURCES COORDINATOR'S OVERVIEW

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Introduction

As the Energy Resources Coordinator (ERC) for the State of Hawaii, it is my pleasure to present this annual report on the progress of energy activities undertaken in the State by both public and private sectors during the 1985-86 fiscal year. This annual report is mandated under provisions of Section 196-4(11), Hawaii Revised Statutes (HRS).

My responsibility as Energy Resources Coordinator includes formulation of comprehensive plans and specific proposals for the optimum development of Hawaii's energy resources, the conservation of energy, the allocation and distribution of fuels, and the coordination of Federal, State and private actions taken in support of the State's energy objectives. The DPED Energy Division, established in 1981, provides staff assistance in carrying out the responsibility assigned.

We are grateful for the strong support provided by the Governor, the State Legislature, our Congressional delegation, many agencies of the Federal, State and County governments, and private industry. Their support contributed significantly to the accomplishments and progress achieved during the year.

International and National Developments

The most significant energy development during the past year was the precipitous drop in world crude oil prices since the beginning of 1986. From an average price of $26 per barrel in December 1985, crude oil prices plunged to below $10 per barrel by July 1986, reflecting a serious imbalance in the supply and demand of this primary energy source.

Currently, there appears to be a growing national and local perception that petroleum is no longer in short supply, that it will be available at
reasonable cost indefinitely, and that the energy crises of the 70's won't recur. Such perceptions have been followed by significant cuts in Federal programs which encourage energy conservation and the development of alternate sources of energy. The public seems willing to overlook the realities of the world supply and distribution of oil, and to forget the painful lessons learned over the past 13 years. This makes it more difficult to accomplish our work, especially since there has been no change in the long range need for energy conservation and alternate energy development.

Except in price, the fundamental statistics of world and domestic petroleum supplies have not changed since the politically motivated oil shocks of 1973 and 1979. U.S. production of crude oil peaked in 1970 and has steadily declined. Of the estimated 700 billion barrels of proved oil reserves in the world, 476 billion are under the control of OPEC nations, and 84 billion barrels are held by communist countries. U.S. proved oil reserves have declined to 27 billion barrels. Expressed in present rates of production, worldwide oil reserves equate to about 35 years' supply, with 16 years in communist nations, and only 8.5 years in the U.S. These figures present a far different picture than the current state of abundant supplies and depressed prices indicates.

Energy and the Economy

Since our State is nearly 90 percent dependent upon imported fuel, energy has a significant impact on our local economy. Expenditures for fuels and...
desired social and environmental conditions in the provision of energy facilities and distribution systems; and management of the petroleum-based energy supply.

**Energy Emergency Planning**

Planning to deal with sudden and severe shortages in the supply of oil is an important element of the State's energy program. The objective is to ensure that essential public services are maintained during a shortage and that provisions are made to alleviate economic and personal hardships which may arise. Nationally, the U.S. Department of Energy (DOE) has stored nearly 500 million barrels of crude oil in the Strategic Petroleum Reserve (SPR) in salt caverns of Texas and Louisiana. This reserve is unlikely to be available to Hawaii in time to meet local needs in the event of an energy emergency.

Energy emergency planning during the past year emphasized two key areas: efforts to draft and adopt rules governing fuel set-aside and retail sales of gasoline during an emergency; and efforts to persuade the DOE to place a component of the SPR in Hawaii. With respect to the former, an important accomplishment was passage by the 1986 State Legislature of an Administration-sponsored bill to permit the promulgation of rules in advance of an emergency. Legislation as earlier enacted permitted adoption of rules only upon declaration by the Governor of an energy emergency.

Efforts to persuade DOE to locate a small part of the SPR in Hawaii consisted of not only working directly to persuade DOE officials, but also of enlisting the support of other States in the western region. This led to the approval of a resolution by the Western Governors' Association urging the Federal Government to establish regional reserves as necessary in order to assure equal access by all States to the SPR.

**Renewable Energy**

Highlights of the year in the development of the State's renewable energy resources included the announcement by Puna Geothermal Venture and the Hawaii Electric Light Company of a power purchase agreement for up to 25 megawatts of geothermal electricity; the installation of a 9-megawatt windfarm by Hawaiian Electric Industries at Kahuku, and a 2.3-megawatt windfarm by Earth Energy Systems at Lalamilo; and construction of a geothermal research center, the Noi'i O Puna, at the HGP-A geothermal plant site at Puna.

Ethanol became the first locally-produced liquid fuel in the State upon completion of a $3 million ethanol plant at Campbell Industrial Park on Oahu. Using molasses provided by Oahu Sugar Company as feedstock, the plant has a capacity to produce two million gallons of fuel-grade ethanol per year. In June 1986, a six-month test of the use of ethanol-blended gasoline was started by the Department of Accounting and General Services, using the State's fleet of nearly 200 passenger vehicles. An earlier test in January 1986 using imported ethanol by a local marketeer was terminated after a brief period because of technical difficulties.

Continued progress was made in other major projects such as in the Hawaii Deep Water Cable program and in the establishment of a biomass-to-energy
research program by the Hawaiian Sugar Planters' Association. The HGP-A geothermal plant produced and sold over 18 million kilowatt-hours of electricity in 1985, demonstrating the reliability of this energy source and technology.

**Energy Conservation**

Impressive gains in the conservation of energy by all sectors of the State since the energy crises have led to an economy which is at least 20 percent more energy efficient today than a decade ago. For example, in transportation, the number of motor vehicles in the State increased 48 percent between 1975 and 1985, while total fuel usage increased by only 16 percent. Fuel use per vehicle in 1975 was 28 percent greater than in 1985.

In 1985, State and Federally funded energy conservation programs were responsible for saving 22.1 trillion Btu's of energy. This exceeded the Federal target by 61 percent, and saved the State 3.7 million barrels of oil worth $90 million.

Energy conservation is one of the most effective means of reducing Hawaii's dependence on imported petroleum, while lowering the operating costs of public and private facilities and improving the efficiency of energy use throughout the State. In this report is a review of a multitude of programs and activities undertaken during the past year. Broadly speaking, most of these activities have been Federally funded and can be categorized into the following programs: State Energy Conservation Program (SECP); Institutional Conservation Program (ICP); Energy Extension Service (EES); and Solar Bank.

Of special concern is the fact that Federal appropriations for energy conservation have been reduced by 50 percent in the last four years and are expected to be zeroed out by the Congress in fiscal year 1987. On the other hand, the State has received $14.5 million in oil overcharge funds for conservation programs. Unfortunately, none of this $14.5 million is available for administrative expenses necessary to run our conservation programs. It appears that the State will have to increase its own funding for personnel and other costs in order to formulate and administer programs using the oil overcharge funds.

**Conclusion**

Energy will continue to be of serious concern to the State for many years to come, despite the conflicting signals being received from the international oil market. Hawaii's high vulnerability to economic and social disruptions as a result of sudden adverse shifts in the availability and cost of petroleum requires continued vigorous efforts toward conserving energy, developing alternate sources and technologies, and planning to deal effectively with a future energy crisis. Energy development can also make a significant contribution to economic development.

Energy is too vital to our society to be taken for granted. All of us have important roles to play in assuring a satisfactory energy future for the State. Now, when oil is abundant and the price is low, we can take bold action to develop the resources and technology which will serve us so well when oil supplies diminish and oil prices rise again.