Florida: An Energy Policy Emerges in a Growth State

Luther J. Carter

In matters of energy policy, public attention tends naturally to focus on the White House and Congress. In recognizing Washington's critical role, however, one must not overlook the 50 state governments and the major contribution that they can make to the development and implementation of policy in this field. Indeed, where it is a matter of "growth policy," to which energy policy is intimately related and in some respects subordinate, the states must play a key role.

In many state capitals there is now a special council, committee, or task force assigned to help cope with current energy problems and formulate policy. A report issued in December by the National Association of Attorneys General listed 42 such bodies, most of them having been created by executive order of the governor and (it is believed) staffed largely on a part-time basis with people from other state agencies. In a few states the legislature has established an energy committee by statute and appropriated substantial funds for its work.

Florida is among those states making an exceptional commitment to the search for an energy policy. Energy shortages are perceived by the governor and at least a few other major leaders as another disturbing manifestation of uncontrolled growth. With about 6000 people migrating to the state every week, many Floridians are afraid that, before long, everything they need and value will be running short—energy, clean water and air, attractive cities, uncrowded beaches, even peace of mind. Yet, even though the growth problem in Florida is extreme, the problems of energy policy there are in many ways generic.

In March of 1973, Governor Reubin O'D. Askew convened a conference to consider the then emerging energy crisis. Nearly 300 persons, including many from out of state, were invited to attend. They included energy consultants, environmentalists, utility and energy industry representatives, and state legislators.

In opening the conference, Askew posed the question whether the energy crisis was not as much the result of "habitual waste and inefficiency" as of fuel shortages. The energy problem, he indicated, was bound up with the problems of maintaining environmental quality and economic prosperity and should not be considered in isolation.

The recommendations of the conference included one calling for the establishment of an energy policy committee. The governor and legislature responded affirmatively, and on 1 July 1973 this new committee was formed, its 15 members consisting of eight legislators appointed by the leadership of the Florida Senate and House and seven citizens chosen by the governor. Its cochairmen were Representative Kenneth H. MacKay, Jr., of Ocala, the able chairman of the House Government Operations Committee, and Senator George Firestone, an articulate consumer-oriented legislator from Miami.

The committee's specific charge was to analyze in detail the problems of energy use, supply, and conservation, then to recommend a comprehensive policy for dealing with them. An appropriation of $400,000 was made for this 2-year study, plus $150,000 a year for staff salaries. By fall, Marvin Yarosh, a nuclear engineer who had spent 20 years at the Atomic Energy Commission's Oak Ridge National Laboratory (most recently as director of the laboratory's environmental quality program), was hired as executive director.

Alarming Projections

Recently, the committee issued an interim report that gave an alarming description of Florida's rapidly rising energy demands, especially the demand for electricity.

Gross energy consumption per capita is actually lower in Florida than in the nation as a whole because the state has relatively little industry and, because of its mild winter climate, comparatively little fuel is used there for space heating. Energy consumption per capita for transportation is, however, about 5 percent higher in Florida than nationally, and this differential may widen. Twenty-five million tourists visited Florida in 1972, the last year for which an estimate is available, with 80 percent of them coming by automobile and most of the remainder by commercial airline.

Florida's consumption of electricity, of which almost three-fourths now goes for residential and commercial use, has been increasing at an average annual rate of 11 percent, as opposed to 7 percent for the nation, the latter itself being a disturbingly high rate. Heavy use of air conditioning, both in private residences and tourist accommodations, is a major factor behind the exceptional rate of increase.

Another key factor in Florida's rising demand for electricity is the state's rapid increase in population, its present population of about 7.8 million being half again greater than that of 1960. Florida is already the eighth most populous state in the nation, and, if current projections are borne out, it will have a population of 14.5 million by the end of the century.

In its interim report, the Energy Committee offers three different projections of energy demand in Florida through the year 2000. The first represents a high growth case that assumes a continuation of past trends in population growth and energy usage. The second is a low growth case that assumes no per capita increase in energy use and a marked decline in the rate of population increase, with no further net increase from people migrating to Florida. The third is a "slowed growth" case that assumes that past trends for population increase will continue but that per capita consumption of energy will be half that projected in the high growth situation.

As for the high growth case, the amounts of fuel and electric generating

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capacity that would be required are mind-boggling. For instance, by the year 2000 a total of 129 new 1000-megawatt electric generating plants would have to be built, half of them nuclear, the other half fossil fuel. Seventy-two million tons of coal would be consumed each year, and three 100,000 deadweight-ton tankers would be delivering oil each day. Further, to meet the demand for petroleum products, a score of 100,000-barrel-per-day refineries would be needed, although not all and perhaps none of these would have to be built in Florida. (Florida now has no refinery except a small one producing asphalt and jet fuel.) Clearly, the environmental changes that would result from such energy use and development could destroy many of the living amenities on which Florida's tourist and retiree industries depend.

In the low growth case, only a modest addition to energy facilities and fuel deliveries would be needed—indeed, two more 1000-Mw generating plants and 50 additional miles of major transmission line would suffice to meet the increase in electricity demand. The slowed growth case is quite another matter. There would be 50 big generating plants, 1150 miles of transmission line, and 13 large refineries, to cite only the more visible energy developments to be required. The environmental impact could be massive, even though the numbers here are much lower than those in the high growth situation. In the opinion of the Energy Committee staff, the slowed growth case is the most realistic.

Shaping a Growth Policy

Fortunately, the energy crisis arises at a time when Florida is beginning to address itself to the task of formulating a growth policy bearing directly on energy consumption as well as land and water management, housing, transportation, and other problems. In 1972, after the threat posed by the onrush of development to Florida's delicate hydrologic and ecologic systems was pointed up by a severe drought, Governor Askew and the Florida legislature responded by formulating and enacting important new land and water management laws. (The Florida Environmental Land and Water Management Act of 1972 and its close relationship to national land use legislation now pending in Congress was discussed in detail in *Science*, 16 and 30 November 1973.)

Last October, Governor Askew, addressing a conference he had called on "growth and the environment," declared that growth is "the overriding issue of the future." He added:

> We are growing faster than any other large state in the nation. And the sobering fact is that Florida with its fragile and unique environment may be the state which can least afford to grow at such an accelerated rate. Let's look around and see what unchecked, unplanned growth has done to Florida. It [threatens] to create megalopolis along the entire length of the east coast and from Jacksonville across central Florida to Tampa Bay and down the south Suncoast. Its waste products have polluted our waterways from one end of the state to the other. . . . It has transformed vast estuarine areas and wetlands into waterfront home sites and canals. It has destroyed beautiful and valuable sand dunes and lined our beaches with hotels and high-rise condominiums . . . resulted in severe water shortages . . . intolerable traffic congestion in many urban areas . . . and threatened [public access to] recreational areas. . . . True, we have enjoyed economic prosperity. But [all can see] the warning signals and what they portend if we don't grab the reins of this galloping giant.

If one may judge from the 1972 land and water management laws plus the report that emanated from the governor's growth conference and a resolution already adopted this year by two legislative committees, Florida may soon adopt a growth policy containing most or all of these major strategies:

- Selected "critical areas"—such as wetlands, major areas for aquifer recharge, potential new town sites, or areas adjoining major public facilities (such as a highway interchange)—will be designated for special regulation by local government, subject to state guidelines and review. In addition to this regulation of critical areas is the special regulation of critical uses, as represented by large-scale private or public "developments of regional impact." Although mandated by the legislature in 1972, the regulation of critical areas and uses is only now beginning to be put to a practical test.
- Preparation of enforceable comprehensive land use plans by each Florida county and municipality would be made mandatory by a bill to be pushed at the current session of the legislature by the governor and some key legislators. The comprehensive local plans, which clearly will have to be made subject to state guidance and review if they are to add up to a coherent plan for Florida as a whole, would be the essential complement to the selective regulation of critical areas and uses.
- "Impact fees" would be levied on new development projects to the extent necessary to ensure that the cost of utilities and public services is borne equitably. Here, the principle is often expressed in the phrase "growth pays for growth." Some local governments already have begun imposing impact fees.
- The amount, kind, and rate of new growth in any particular place would be determined by what is vaguely referred to as the area's "carrying capacity." This term, borrowed from wildlife management, may be used to refer to the capacity of both natural and man-made systems to support new growth. Central to the carrying capacity concept, however, is the idea—now enjoying some currency in Florida—that it is unwise to depend on costly technology for tasks, such as advanced waste treatment, which can be performed by natural systems if the latter are not upset or overextended. An influential advocate of this point of view is Howard T. Odum of the University of Florida. Odum has argued:

> As growth of urban areas has become concentrated, much of our energies and research and development work has been going into developing energy-costing technology to protect the environment from wastes, whereas most wastes are themselves rich energy sources for which there are, in most cases, ecosystems capable of using and recycling wastes as a partner of the city without drain on the scarce fossil fuels. Soils take up carbon monoxides, forests absorb nutrients, swamps accept and regulate floodwaters. . . . [T]here is rarely excuse for tertiary treatment because there is no excuse for such dense packing of growth that the natural buffer lands cannot be a good cheap recycling partner. Man as a partner of nature must use nature well and this does not mean crowd it out and pave it over; nor does it mean developing industries that compete with nature for the waters and wastes that would be an energy contributor for the survival of both.

Great political and administrative difficulties stand in the way of successful adoption and implementation of the strategies cited above. One can only say that Governor Askew and some prominent state legislators (including Speaker of the House Terrell Sessums of Tampa) are seriously committed to an effort to try to bring growth under control.

To Curb the Rising Demand

To curb the rising demand for energy, especially in those regions under increasing environmental stress, the state government can pursue several courses that might reduce the rate at which the consumption of electricity and primary fuels is growing. These would include encouraging energy conservation through better building design, more consumer information, and changes in the regulation of utility rates; establishing more rational and energy-efficient transportation systems; and bringing about, through planning and control of land use, a better distribution of population within Florida and avoiding further overconcentration of people in places such as the Tampa Bay and Miami–Fort Lauderdale areas.

Conservation through better building design and consumer information. The Energy Committee, in its report, has recommended that an "energy life cycle cost analysis" be undertaken in the planning of all new state buildings. The report suggested that Florida, like other states, would be able to benefit from current studies by the National Bureau of Standards into ways to make new buildings more energy-conserving.

With the Florida population growing at its present dizzy rate, numerous schools and other public buildings are erected each year, and the energy savings possible from better design would not be negligible. If the legislature were to mandate energy-conserving building and architectural codes for all new construction in Florida, public and private, the results could be significant indeed. One effect might be to reduce the number of dwelling units in hotels and condominiums as well as to save electricity. Unrestricted use of air conditioning, summer and winter, has made it possible for developers to build huge warren-like structures, with low-ceilinged rooms, narrow corridors, and other features that allow maximum densities.

The Energy Committee also has recommended what is sometimes called "truth-in-energy" labeling for all electrical and nonelectrical equipment sold in Florida. For all appliances there would be a disclosure as to the amount of energy consumed under average operating conditions, the efficiency of use, and the annual cost of the energy. Similarly, the committee recommends that fuel economy information, expressed in terms of "miles per gallon," be required on the price sticker of all new automobiles sold.

Reform of utility rate regulation. Utilities all across the United States have generally been allowed by state regulatory bodies to charge customers less per kilowatt-hour as their use of electricity increases. Such "promotional" rate schedules are regarded by many students of utility regulation as not only unfair to the smaller users of power but as an inducement to wasteful use of energy. Some reformers would have regulatory commissions insist on inverse rate schedules whereby the price per kilowatt-hour would rise with increasing use, while others propose merely that rate schedules be "flattened out." Already the trend in Florida is toward a flattening of rates, this being largely the result of surcharges that utilities are now applying across the board to their customers to compensate for the rising cost of fuel oil.

Representative MacKay, cochairman of the Energy Committee, is keenly interested in utility regulation, and a subcommittee has been established that includes rate structures as one of its special concerns. Hearings on this subject are planned for later this year.

Greater energy efficiency in transportation. The Energy Committee has recommended that a new transportation plan for Florida be prepared after an analysis of alternatives in which energy costs and requirements are treated as a major consideration. Even now, the Florida Department of Transportation is moving ahead with studies of high-speed mass transit for two interurban corridors, one for the cross-Florida corridor from Daytona Beach to Tampa via Orlando, the other for the heavily urbanized Gold Coast corridor from northern Palm Beach County to Metropolitan Dade County (greater Miami).

Gold Coast Rapid Transit

The Gold Coast system—which would operate at speeds up to 100 miles per hour or more—would tie into slower speed local distributor systems such as the Dade Area Rapid Transit for which plans are now well advanced. If the regional system is in fact built, the present heavy dependence of Gold Coast tourists and residents alike on the private automobile will be reduced. Also, such a rapid transit service for southeast Florida would be a major link in a ground access system for a new south Florida regional airport that may be built late in this century by Dade County.

The question of where this new airport should be constructed itself raises important questions of conserving fuel (both aviation fuel and the fuel used in ground transportation) and encouraging desirable patterns of regional development. That is, the question goes beyond the concept that the site selected should be somewhere near the region's future population center, as reckoned from present trends as to population growth and distribution—which figured large in the rationale given for the Dade County decision last year to approve a site near Miami.

Already there are commercial airports along the Gold Coast, at Miami, Fort Lauderdale, and West Palm Beach that all offer direct service to numerous distant points. In addition, plans are afoot to build a new airport in southwest Florida to serve the fast-growing Fort Myers–Naples area. The question thus arises whether any major new airport built in south Florida should not be centrally located to accommodate all, or nearly all, long haul flights entering or departing the region (with long haul service at the other airports being phased out). If this were done, the airlines might achieve maximum fuel economies through use of their larger aircraft with nearly optimum passenger loads, and with little sacrifice of frequency of service.

A decision not to build another major growth-inducing facility near Miami and Fort Lauderdale might be justified if only because the problems of growth in this metropolitan area already are exacerbated. These problems of course often involve wasteful use of energy, as in the case of the tens of thousands of workers who drive considerable distances each day—30- or 40-mile round trips are common—between home and job.

Land use regulation to promote energy conservation. This is politically the most difficult of the various approaches to conserving energy, but it also is one of the most basic and potentially rewarding. For instance, the state's new role in the regulation of developments of regional impact (DRI's) has evident potential for discouraging large new projects that would do environmental damage and contribute to the urban sprawl that wastes energy and blights the landscape. DRI's are subject to environmental and economic impact analysis that calls atten-

tion to problems which in the past might have been overlooked or ignored.

To cite an example, the South Florida Regional Planning Council and the regional water management agency have pointed out major drawbacks to a proposed new community of 16,500 people that would be built west of Miami. This community, called Doral Park, would be built in a wet prairie area where developable land would be created with fill from a system of artificial lakes dug to a depth of 40 feet. Storm runoff from the development would flow into these lakes, where there would be direct exchange between ground water and surface water, without the latter passing through the natural cleansing processes of the wet prairie ecosystem. Other negative aspects of the project include the fact that, being several miles from the nearest spur of the proposed regional mass transit system, it would generate much automobile traffic—an estimated 56,800 trips a day. Also, the developer expects 40 percent of the dwelling units in this luxury-type project to be occupied by families who will migrate to Florida. Like hundreds of other projects now being built or proposed in south Florida, this one would do little to alleviate the housing shortage for families of low to moderate income already living along the Gold Coast and would simply attract more newcomers to the region.

Governor Askew and the Florida cabinet—a body comprised of six elected officials—will be reviewing (on appeal) the decisions of local government in many cases such as the one involving Doral Park. The value of state-level review may ultimately depend on whether specific cases are consistently measured against a coherent growth policy or whether they are treated willy-nilly, on a purely ad hoc basis. Any serious effort to control growth must rest partly on some kind of settlement policy, with growth restrained in places such as Dade County but encouraged in places where it can be socially and economically beneficial, as in some of the more thinly populated counties of north Florida and the panhandle.

The foregoing matters are on the demand side of the energy equation, and that is the side where state policies perhaps can be most telling. But the state of Florida can play a significant role on the supply side, too. Greater use of solar heating and cooling can add at least marginally to energy supplies and make for a corresponding reduction in demand for energy from nonrenewable sources. As many as 60,000 solar water heaters are believed to be in use in south Florida today, nearly all having been installed in the 1930's and 1940's before all-electric living became the vogue.

The Energy Committee recommends that state tax credits be granted to companies investing in the production of solar energy systems. Also, sales tax exemptions are recommended as an inducement for people to buy solar heating and cooling equipment. The production of electricity in central solar power plants is a long-range possibility to which the Energy Committee may later address itself. But systems of this kind will entail research and development expenditures beyond the capabilities of any but the federal government to support.

The governor and the members of the Florida cabinet are responsible for issuing permits for oil exploration and development, and these officials often face a dilemma. On the one hand, there are the exigencies of the energy crisis, while on the other there is the vulnerability of biologically rich natural areas where drilling permits are increasingly sought. In many cases, the dilemma perhaps will be resolved after a fashion by granting the permit, but with strict conditions attached. Such an approach already has been adopted in the case of oil exploration in south Florida's important Big Cypress watershed.

Siting of Energy Facilities

The problem faced by state officials with respect to the siting of energy facilities admits of no convenient solution. In the aggregate, decisions made in such cases will bear importantly on what Florida will be like tomorrow.

Ultimately, the governor and cabinet must decide whether to allow some major oil refineries to be built. Already there are plans for refineries pending, including a tentative proposal by Ashland Oil, Inc., for a 250,000-barrel-per-day refinery 20 miles inland from Fort Pierce, a resort city midway along Florida's Atlantic coast. It would process foreign crude oil delivered to a deepwater monobuoy-type port installation 12 miles offshore. The Belcher Oil Company has actually received preliminary approval from Manatee County for a refinery on Tampa Bay.

Construction of such refineries, particularly if followed by the establishment of petrochemical plants, might lead—even though the oil companies insist that their projects can be environmentally compatible—to a degradation of the quality of life for areas heretofore highly attractive to tourists and retirees. Besides weighing the risk or likelihood of such degradation, the governor and cabinet must consider the alternative—and whatever risks it might entail—of having Florida remain dependent on petroleum products refined outside the state, with the present tanker deliveries supplemented with deliveries by pipeline.

The question of where to put new electric generating plants, and how many to allow, will be especially perplexing for state officials. Under the Florida Electrical Power Siting Act of 1973, all utilities must submit to the state Division of Planning, by 1 April of each year, a plan forecasting its power-generating needs for the next 10 years and disclosing the general location of the sites where new plants would be built.

The certification of sites will be done by the Department of Pollution Control board (a body named by the governor), but the advisory statements issued by the Division of Planning will count heavily in siting decisions. As chief state planning officer, the governor may often become directly involved.

The justification for a new power plant necessarily turns on estimates of future power demand, but the demand question is ancillary to the question of growth policy. Any tendency on the part of state officials to assess power demands simply on the basis of historical trends will be quickly perceived by many Floridians as a cop-out on the growth issue.

In sum, whether one looks at the demand or the supply side of the energy question, Florida is assembling a policy framework within which useful action can be taken, at least within the limits open to a state. Probably the most meaningful thing Florida can do is to restrain the rising demand for energy through sensible growth policies based on a careful evaluation of its own unique character and resources.