

Planning Maine's energy future

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Response: Market failure requires aggressive action

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The global environment is being subjected to unprecedented assault from production, distribution and consumption of energy, particularly fossil fuels. Air pollutants threaten human health and the environment; the emission of greenhouse gases is linked to climate change and the resulting extinction of species, increases in drought, and rising sea levels; nuclear power threatens health and safety.

The challenge of the 1990s is to implement a comprehensive least cost energy plan that takes into account the total costs of energy resources, including environmental and health costs, for all energy consuming sectors. Maine's electric utilities have taken giant strides in this direction, and we have realized tremendous savings and environmental gains as a result. The Maine Public Utilities Commission and the state legislature should be thanked.

The authors of "Planning Maine's Energy Future" present a very good overview of Maine's energy situation, but a revisionist view of energy history. They have ignored critical historic facts and have failed to ask important questions. Moreover, they advance no policy or plan that will reduce the threat of global warming, unhealthy air pollution, and the many other environmental and health threats caused by our inefficient and profligate use of energy. Several policies Maine should "encourage," "pursue," or "promote" are advanced, and many of these are sound policies, but absolutely no action plan for their achievement is outlined. For example, additional natural gas availability is encouraged, but no mention is made of what we should do to increase natural gas supplies in Maine.

The article seeks reliance on the marketplace to encourage greater energy conservation by consumers, and we are told the market will work if only we better educate the public. This view totally ignores past history. Consumers have been told for years that conservation saves money, yet energy saving opportunities are passed up at every turn. The market is failing. Numerous barriers, including consumers' desire for extremely short payback periods, and lack of adequate information and capital, prevent penetration of cost-effective conservation. In the wake of market failure, aggressive utility and government action is needed.

Energy is relatively cheap. The price we pay does not reflect the true environmental and health costs of the energy's production, distribution, and consumption. When we purchase power from a dirty oil-fired power plant or buy gas for our automobile, the price does not include the costs attributable to unhealthy levels of ground-level ozone, such as the medical and lost time costs of those who suffer from asthma. When we buy power from a coal plant, the price of that power does not include the costs attributable to climate change, such as higher food prices as drought conditions worsen, the costs of agricultural land lost and coastal communities destroyed when sea level rises. When we build a nuclear power plant, the price we pay for that energy does not include the costs experienced in the event of an accident, such as the costs of cancers and deaths suffered and the costs of pain and suffering. While these costs cannot always be determined with

precision, a system that includes reasonable estimates of these costs is better than one that assumes they are zero.

Our energy is subsidized by the health care system, by environmental clean-up costs, and by the costs of environmental degradation such as the loss of visibility in Acadia National Park. If the price of energy reflected energy's external costs, the market would stand a better chance of working. While the authors want to rely on the market, they do not want to cure market imperfections by considering the true costs of power.

The article draws a connection between economic growth and the amount of energy used. There is little correlation. Since the early 1970s the country's gross national product has grown by forty percent, but energy demand has barely increased. Energy efficiency saves the U.S. \$150 to \$200 billion annually; we could be saving twenty-five to seventy-five percent more, however, Japan and West Germany reap the economic benefits of using one-half the energy per unit of economic output as the United States.

"Planning Maine's Energy Future" advocates that Maine become an "energy farm" for the rest of New England. Maine energy planners should discard this notion, because Maine people are not interested in selling the state's environment and quality of life. Maine people will not permit the littering of their landscape, the pollution of their air, the destruction of their forests, or the damming of their rivers to meet electric load growth to the south. The tremendous opposition that developed to proposals to site a coal-fired power plant in Bucksport and to a transmission line in western Maine are testament to this fact.

The U.S. Department of Energy, energy experts nationwide, environmental groups, and the majority of people who testified on national and state energy strategies, all reached the same conclusion: energy efficiency holds the key to our energy future and environmental improvement. Energy efficiency is cheap: saving energy costs one-half to one-third the cost of energy supplies. Efficiency is clean, unlike coal, oil, or nuclear power.

In this comment, I will outline a total least cost plan for Maine, and specific actions utilities and government can take to implement it.

Electricity generation

"Planning Maine's Energy Future" contains a particularly blurred historic review of electric policy in Maine. Since the late 1970s Maine's electric utilities have followed one guiding principle: least cost utility planning. Utilities are required to select those resources that minimize the total cost of providing projected demand for electricity. Cleaner and more economically beneficial conservation and cogeneration are to be given preference over Canadian sources, when alternative resources are "otherwise equivalent."

Least cost planning policies, regulations and directives of the Maine Legislature and the Public Utilities Commission have produced tremendous economic and environmental benefits for Maine. Over \$700 million has been invested in qualifying facilities in Maine, and thousands of in-state jobs have been created. A diverse, and thus less risky, energy mix has been produced, just ten years ago Maine depended on oil for forty percent of its electric generation, as did the

rest of New England; now that number is less than twenty percent. The rest of New England still depends on oil to meet forty percent of its electric generation needs.

Least cost planning led to a burgeoning biomass industry in Maine, an industry driven by market forces. While the authors conclude that Maine should "pursue" increased use of this resource, they forget that the very same policies which they soundly criticize did exactly that over ten years ago.

Maine utilities also now rely much more heavily on conservation and load management programs. These programs have saved ratepayers tens of millions of dollars. The authors express frustration that conservation raises rates, but the focus on rates is irrelevant. Conservation may raise electric rates, but it undeniably lowers electric bills for participating customers. Since consumers care about the amount of their monthly electric bill and not their rate per kilowatt hour, focusing on rates rather than bills is misguided. Utilities should be required to offer conservation programs for all ratepayers to avoid equity concerns.

The Maine PUC took several other bold steps that have produced substantial benefits for Maine ratepayers and Maine's environment: it ordered Maine utilities to disengage from an expensive and controversial nuclear power plant in New Hampshire, and it denied approval to import expensive, environmentally destructive power from Hydro-Quebec.

The review of these decisions presented in "Planning Maine's Energy Future" paints an extremely inaccurate picture of history. In the early 1980s, prior to the Seabrook investigation, Maine utilities were ordered to negotiate with cogenerators and small power producers (qualifying facilities) as required by state and federal law. Contracts for over 100 megawatts of power were signed, at competitive prices that were below the cost the utilities would have paid for Seabrook.

In retrospect, the prices paid in the early years of the bidding process may have been higher than necessary, and some contracts may have been signed that should not have been. However, the market was immature and these prices were probably necessary to stimulate it. It is, of course, this market that produced benefits noted by the authors: a diverse power supply and reduced reliance on oil.

Curiously, the authors of the article fail to ask the most important question: what would our electric mix and rates be today had we stayed in Seabrook and purchased power from Hydro-Quebec? Seabrook is expensive power: some utilities that remained in Seabrook are now bankrupt. Several New England utilities are rethinking their Hydro-Quebec contracts, given the glut of power in New England and the availability of cheaper power. Had we remained in Seabrook or signed a contract with Hydro-Quebec, rate increases larger than those experienced today would most likely have occurred.

While the Maine PUC was one of the first in the country to implement least cost planning, it has been lagging behind the efforts of nearly twenty other states when it comes to total least cost planning. Despite several proposals to require consideration of the environmental and health costs of supply and demand side resources, Maine utilities are still not required to do so. This can lead to perverse results: cheap coal may be selected over more expensive natural gas, because the

external environmental and health costs of coal are passed on to the coal miners and to those who breathe the plant's emissions, and are not considered when selecting the lowest cost resource.

The authors' position on inclusion of environmental costs is entirely inconsistent with their stated preference for natural gas and alternative transportation fuels. Both natural gas and alternative fuels cost more than other energy resources, so these fuels will not be pursued unless the environmental and health costs of traditional fuels are considered.

Industrial sector

Industry consumes roughly thirty-six percent of all energy used in the United States, down from forty-six percent in 1960. Burning fossil fuels and biomass for heat and power accounts for nearly half of industrial emissions, and purchased electricity accounts for most of the rest. Half of this electricity is used to run motors, most of which are inefficient. Many U.S. industrial firms are old and use antiquated processes as compared to the best technologies used by our foreign competitors.

"Planning Maine's Energy Future" fails to address the enormous energy-saving opportunities that could be harnessed in this sector. Nearly one-third of the energy used in this sector could be saved through process design and end-use improvements, according to some estimates. For example, an ice cream factory in Massachusetts recently reduced its electricity use thirty-three percent by improving the efficiency of refrigeration and other equipment. Central Maine Power offers many programs for its industrial customers, but market barriers remain. The demand for short paybacks on investments, the lack of energy efficiency expertise within the industrial firm, and the low cost of energy relative to the firm's total operating budget prevent optimal penetration of these programs.

Specific actions can be taken to improve industrial efficiency. These include:

- Government/privately funded research centers for energy-intensive industrial processes, which focus on ways to achieve energy savings and waste reduction;
- Improved electric utility conservation programs targeted to industry;
- Establishment of gas utility conservation programs;
- Facilitation of fully-integrated conservation analysis of industries through cooperation between electric and gas utilities where appropriate, and, through establishment of procedures to allow electric utilities to provide non-electrical conservation analysis and investments; and,
- A carbon tax on carbon dioxide producing fuels, so that the fuel more fully reflects the environmental and health costs of climate change.

Buildings sector

Buildings and appliances consume forty percent of the nation's energy and two-thirds of gas and electric utility output, and produce over one-third of all carbon dioxide emissions, at an annual cost of \$180 billion. Cost-effective technologies can cut this cost by fifty percent to seventy-five percent.

The authors' proposed energy rated homes program and funding for energy saving investments are the tip of the iceberg only. Specific government actions that should be taken include:

- More aggressive appliance efficiency standards;
- Energy efficient building standards for all homes (such a bill was passed last session, but was pocket-vetoed by Governor McKernan);
- Sliding scale hook-up fees and rebates to spur efficiency investments in new buildings; and,
- A carbon tax.

Maine's electric utilities can also play a major role in reducing energy use in this sector through greater penetration of demand side management programs. Utilities in other New England states have dramatically proven that higher penetrations are possible. Wisconsin Electric Power has reduced total demand by about sixty megawatts by collecting and disposing of 200,000 older refrigerators and air conditioners. A group of utilities from across the country are developing a program that offers financial incentives to manufacturers of refrigerators that exceed 1993 federal efficiency standards by more than twenty-five percent.

More efficient lighting in the residential and commercial sector provides enormous opportunity. If every American converted to compact fluorescent lightbulbs, we would eliminate the need for twenty-four 1,000 megawatt power plants (equivalent to the capacity of 133 AES plants). Central Maine Power Company's "Operation Lightswitch" is a step in the right direction. Southern California Edison has given away more than a million compact fluorescents in the past six years, saving low income customers about \$11 million annually.

Transportation sector

The article's discussion of transportation is especially troubling, given this sector's significant contribution to oil dependence, air pollution, and global warming. As the authors correctly point out, growth in this sector has driven our reliance on oil. While Maine has halved its reliance on oil for electric generation, total oil consumption has increased thirty percent; two-thirds of all oil used in Maine fuels motor vehicles.

The problem is serious. Nationally and in Maine, the automobile is the leading cause of unhealthy air pollution and contributes nearly one-third of the primary greenhouse gas, carbon dioxide. The health costs attributable to air pollution are estimated to be between \$40 and \$93 billion annually. The costs of global warming are perhaps incalculable, but the devastating effects of climate change are very real. The "hidden" costs of gasoline have been estimated at between \$.96 per gallon and \$3.34 per gallon.

Detroit holds the largest remaining undrilled oil deposit. Raising fuel efficiency standards to forty miles per gallon by the year 2000 will save 2.5 million barrels of oil daily by the year 2005. This is ten times the estimated production potential from the Arctic National Wildlife Refuge. Increasing the fuel efficiency of motor vehicles will save \$20 billion annually and provide a 483 million ton reduction in carbon dioxide emissions. The authors are correct that we need vehicle fuel efficiency legislation desperately.

However, federal vehicle efficiency legislation and the new Clean Air Act standards alone will not reduce oil use and air pollution sufficiently to alleviate global warming and human health concerns, especially if the dramatic increases in vehicle-miles traveled that were experienced in the 1980s occur again. The conclusion is inescapable: just as we have taken giant strides to use electricity more efficiently, we must use our vehicles more efficiently.

The single occupant vehicle is not an efficient mode of transportation. Yet, for commuting trips, vehicle occupancy averages only 1.2 people. Specific measures that should be incorporated into an energy efficient transportation plan for Maine include:

- Increased availability of high capacity transit, carpool and vanpool programs where cost effective;
- A "gas guzzler" tax/"gas sipper" rebate program that provides financial incentives for the purchase of more efficient vehicles;
- An increase in the gasoline tax to help reflect the true costs of driving, with the proceeds to be used to fund air quality improvements and high efficiency transport;
- Incentive mechanisms (*e.g.*, congestion pricing, parking fees/restrictions) designed to encourage the more efficient use of the automobile;
- An evaluation of traffic management alternatives before increasing roadway capacity;
- A state constitutional amendment to allow highway fund monies to be spent on all transportation modes, not just road and bridge construction; and
- Land use planning that limits sprawl.

Conclusion

Maine people care deeply for and are especially concerned about their environment. This concern makes the siting and licensing of new electric power plants, of new and wider roads and bridges, and of new or expanded industrial facilities costly, disruptive and difficult. There is only one solution to this dilemma: the development and implementation of a least cost energy plan for all energy-consuming sectors, a plan that takes into account the environmental and health costs of alternative energy resources and efficiency improvements. A least cost plan would encourage Maine people to invest in energy efficiency and cleaner power sources like wind, solar, and natural gas.

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