

New England and the Energy Crisis: Summary and Policy Conclusions

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Since the passing of the days when wood and water were primary energy sources, New England has suffered from high energy costs; and while the region's relative disadvantage diminished considerably in the post-war period, these gains were eliminated by the 1973 oil embargo. Not only did the embargo result in a tripling in the price of oil, but it also awakened the region to the possibility of energy shortages, both man-made and natural. Will there be sufficient energy in the future, at an acceptable price, to provide the standard of living New Englanders have come to expect?

The conference, New England and the Energy Crisis, was an attempt to clarify the choices posed New England by this critical question and, where possible, to develop policy recommendations. The following is a summary of the conference findings.

The New England Energy Problem

Lacking local sources of coal, natural gas and oil New England consumers have traditionally paid high prices for energy. In 1947 costs to manufacturers in New England were twice as high as costs to firms elsewhere. Over the next 25 years this differential narrowed considerably and the region became less dependent on energy through increased specialization in the service industries and high technology manufacturing. However, the price increases following the oil embargo in the fall of 1973 more than offset these gains. Between 1971 and 1974 energy costs in New England rose 145 percent, compared to 56 percent elsewhere. The reason for this differential increase can be found in the mix of fuels in New England. The region is heavily dependent on oil and uses relatively little gas, the fuels with respectively the greatest and smallest price increases over this period.

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The Role of Oil

Oil is by far the most important fuel in New England. In 1972 petroleum products accounted for 79 percent of the region's energy consumption for nontransportation purposes, compared to less than 30 percent nationally. Consequently, the supply and price of oil is central to the future economic growth of New England.

The outlook is not promising. Unless consumption patterns change substantially, world demand for oil may surpass production capabilities from conventional sources within this century. Moreover, even if shortages do not develop, New England will probably continue to pay high oil prices. Most of the region's oil is imported and while the price reflects the actions of the cartel, the Organization of Petroleum Exporting Countries, rather than the scarce nature of the resource, there have been no important signs that the cartel is weakening. Unlike cartels of history this involves sovereign nations — nations which could, if necessary, resort to force to keep their fellow members in line. At the same time the consuming nations have developed no effective counter-measures and, in addition, have allowed this lack to become well known. In the face of such a situation there is little a region or state can do to protect itself. The best course is for purchasers to remain alert to possible weaknesses in the cartel and to take advantage of price shaving wherever it occurs.

At first glance the prospect of an oil discovery off the Atlantic coast appears to offer the New England region security of supply and relief from high prices. In fact, however, the possibility of a significant change is exceedingly remote. The largest find credible would not completely eliminate imports for a single year. Prices would be determined by the marginal barrel of oil which would continue to come from the OPEC nations.

However, although prices would not fall, the discovery of oil on Georges Bank would still be beneficial to the region. The substitution of oil from Georges Bank for high-priced OPEC crude would produce additional revenues for the Federal Treasury and increased profits for the oil companies. These would be shared in by New England taxpayers and investors. There would also be favorable employment effects, although these would probably be no greater than those resulting from any moderately large firm moving into the area. However, for individual communities such increases could be very important. Offsetting these benefits is the possibility of environmental damage, particularly from the onshore developments likely to be associated with the discovery. This is a real danger but one that can almost certainly be controlled if the state and local governments are given adequate planning time and resources.

Alternative to Oil

To some degree New England has already begun to reduce its dependence on oil. Only 30 percent of the new electric power capacity planned for the next ten years is oil-fired. The rest is all nuclear. With the rise

in fuel prices oil plants are no longer economically competitive for base-load power generation.

However, although nuclear power is the lowest cost alternative, some view this choice with alarm. There is concern over operating accidents, leakage of stored wastes, and more recently sabotage and terrorism. To date, the safety record of nuclear has been good and most experts appear to believe that with vigilant management the possibility of a serious accident is extremely low. There is, however, considerable disagreement as to whether the industry and regulatory agencies are capable of such vigilance.

In addition, the utilities themselves are far from happy with an economic situation which makes nuclear such an obvious choice. In building a nuclear plant they are subject to far more regulation than they would be with coal or oil, and the longer lead times of nuclear construction place unprecedented demands on their planning capacity. Most importantly, the construction costs of a nuclear plant are much higher than those for fossil fuel, and in recent years utilities have had great difficulty attracting investment funds.

Unfortunately, fossil fuel is simply not a viable alternative for base-load power in New England. Oil prices are too high and the supply too uncertain. If nuclear construction costs continue to escalate, coal might become a feasible fuel for the region — but only if environmental standards were relaxed: the need to install costly desulfurization equipment ensures that the cost advantage remains with nuclear. Indeed, scrubbers effectively eliminate coal from consideration for even intermediate-load plants. Here oil remains the lowest cost alternative despite its obvious drawbacks.

In the face of this dilemma — continued dependence on the vagaries of the international oil market or what some have termed the "Faustian bargain" of increased reliance on nuclear power — what policies should New England demand as part of the national energy program?

Policy Recommendations

1) Encourage Development of New Energy Sources

The worldwide demand for energy generated by a satisfactory rate of income growth is likely to outstrip the maximum feasible production from conventional sources, particularly oil, within this century. Even with a major expansion in the contribution of nuclear and coal, new sources must be developed.

In the short run, or the next 25 years, these new sources are probably limited to oil production from tar shales and sands and the gasification or liquefaction of coal. Solar energy will play a role in water and space heating, but many doubt that it will make a significant contribution within this time period.

In the long run the possibilities are many. Solar energy will undoubtedly become important not only for heating and cooling, but possibly also for the generation of electricity and the conversion of organic matter into fuels. Power from nuclear fusion may become a reality and we may learn to make use of the heat stored in the earth and the oceans.

The conference did not explicitly consider what role governments should play in developing these new energy sources. However, it became clear in several sessions, particularly that on coal, that there is a great need to clarify the circumstances under which development is allowed to take place. For example, an important hope for the near term is the gasification of coal. However, the cost of coal can be significantly affected by restrictions placed on mining. Thus, there is a trade-off between the availability of low cost fuel and the possibility of health and environmental damage. Not all the choices involve environmental goals. In many respects the problems of developing new energy forms are analogous to those faced today by the electric utilities. The capital outlays that will be required are enormous. Will the profits necessary to attract these investment funds be tolerated? The public, through its governments, must decide, and decide within a very constrained time period, where its priorities lie. Today's atmosphere of uncertainty and the fear of restrictions being imposed after development has begun may well be more inhibiting than the restrictions themselves.

2) Encourage Conservation of Energy

Conservation can postpone for several decades the time when energy from conventional sources will be unable to meet world demand. This provides us with valuable time in which new sources can be developed. For the United States, and New England in particular, conservation also means reduced dependence on foreign energy sources, and therefore reduced exposure to the actions of cartels and monopolies.

Most conference participants appeared to believe that the price system has already demonstrated considerable effectiveness in accomplishing our conservation goals. The high prices following the OPEC embargo had already produced significant cutbacks in demand before the first effects of the recession were felt. Important opportunities for further reductions remain. Energy conversion efficiencies can be improved significantly, particularly in automobile transportation, electricity generation and industrial use.

The great drawback to reliance on the price system is, of course, the impact on real incomes, and many believe that high energy costs fall disproportionately on those least able to pay. In general, the conference felt that holding down prices is an inefficient, and in the long run perverse, way of achieving social goals and in particular maintaining income standards. However, it also recognized that adequate protection for the low income consumer may not now exist.

3) Deregulate Natural Gas Prices

Nowhere is the need for conservation greater than in the consumption of natural gas. Since the late sixties additions to reserves have failed to keep pace with increases in demand and these shortfalls are now resulting in production shortages which in parts of the country could approach crisis proportions.

The regulated price of gas offers insufficient incentive for exploration and development at the same time as it encourages consumption. In addition the regulated price fails to recognize that gas as a fuel has many uniquely desirable characteristics which would cause it to command a premium in some uses. With regulated prices the customers prizing gas most highly are unable to bid it away from those users who could much more easily substitute other fuels.

Deregulation would increase supply by encouraging exploration and by making the continued operation of the less profitable fields more attractive. At the same time the higher prices would ration demand and reallocate it to those uses where it is most valued. In addition, for New England, deregulation offers important beneficial side effects.

In the fall of 1975 the cost of natural gas per million Btus was less than a third that of residual oil. However, in New England oil accounts for close to 60 percent of industrial energy consumption and gas only 20 percent; nationally oil is slightly over 20 percent of total consumption and gas almost 50 percent. Thus any change which raises the price of gas will affect the rest of the country much more than New England and will tend to equalize energy costs.

This improvement in New England's competitive position is not without cost to the region's one million gas customers, most of whom are residential. Moreover, in the very short run there will be no quid pro quo in the form of greater security of supply. The firms supplying New England have already made adequate provision for this winter; and in any event current Federal allocation priorities ensure that our residential customers will be the last cut back. However, even a substantial increase in the field price of gas is likely to have a relatively modest impact on final costs since the wellhead price now accounts for only 10-15 percent of the price actually paid by New England end-users.

Some feel that New Englanders should be cautious in advocating deregulation because of the possibility of a gas discovery on the Georges Bank. Gas from such a find could be landed in New England at a cost, in today's dollars, significantly below the present wholesale price in the region. Consequently, if New England received a large share of the find, under regulated prices the cost of gas in the region would fall. If prices were not regulated, gas from Georges Bank would still be less costly than that from any other source; but the unregulated price of Georges Bank gas would probably be more than today's regulated wholesale price.

While the benefits from continued regulation could be substantial if gas is discovered, they are subject to a high discount rate. There is great

uncertainty surrounding the potential size, and even the existence, of gas reserves on Georges Bank; and if gas is found, it will not be commercially available for eight to ten years. Moreover, it is not clear how much gas will actually come to New England. With no controls proximity would give New Englanders a great advantage in bidding for the gas. However, with regulation the allocation will probably be determined by the Federal Power Commission, and while efficiency will certainly play a role in the Commission's thinking, it will not be the only factor.

Lastly, some feel that deregulation is a moot issue. The high prices now prevailing in the unregulated intrastate market amount to defacto deregulation, as increasingly reserves are dedicated to these uses. However this offers small comfort to New England, for it means that industries willing to pay a premium for the special features of natural gas will gravitate to those areas where gas remains available.

4) Higher Rates of Return for Electric Utilities

Like the natural gas shortages, the problems of the electric utilities demand a choice between the present, obvious needs of the consumer and the region's longer-run self-interest. Utilities have staggering capital requirements. Because of recent additions to capacity New England firms have somewhat more flexibility in scheduling new units than their counterparts elsewhere. However, their investment needs remain very great. Costly borrowings to finance the expansion programs of the late sixties and seventies, together with stable or declining earnings, have severely eroded coverage ratios, limiting issues of new debt and preferred stock. At the same time the rates of return on common equity have fallen relative to the yields on competing investments with the result that stock prices have dropped below book values. In such a situation further stock issues dilute the value of the shareholder's investment.

Restricted in raising capital, the utilities have cut back construction programs substantially. Some of these cutbacks are called for because consumption appears to have levelled off; but further cancellations and deferrals could jeopardize the future supply of electricity or force the utilities to make very high cost stopgap additions to capacity. The answer is higher returns to equity. This, of course means higher rates today for the consumer although greater security of supply and lower costs tomorrow.

Regulators are understandably reluctant to accede to the necessary rate increases not merely because of pressure from the public but because they believe, often with good cause, that the utilities are not sufficiently aggressive in cutting costs or imaginative in reducing capacity needs through rate schedules. Thus a corollary of higher rates is well-funded, professional regulatory bodies. These would vigorously scrutinize costs, question demand projections and set efficiency goals. However, the utilities efforts at compliance would be rewarded with competitive rates of return. In this manner the public's immediate and long-run interest may be reconciled.

The conflict between short- and long-run goals is the heart of the energy problem. Each of the policies advocated by the conference implies an immediate sacrifice for the region's, and the Nation's ultimate prosperity. This will be painful and, some will feel, unfair; but unless action is taken the future could be sad indeed.