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Brook Road, R.F.D. 1
Plymouth, Massachusetts 02360

July 14, 1979

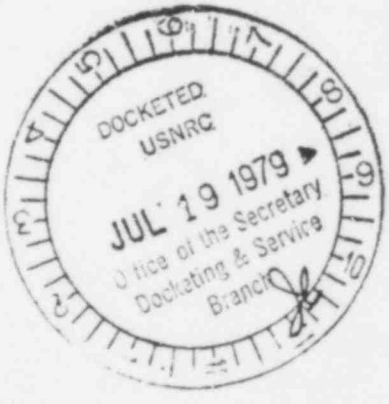
Dear friends:

Week after week the Boston and Plymouth newspapers gove deiatls about operational problems at Nuclear Plant Pilgrim here in Plymouth. and on radiation releases. We hope that you can mandate stricter supervision and contol of Pilgrim I.

And that you willsay NO to Pilgrim II

Sincerely yours,

Robert M Bartlett



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July 8 1979 Boston Globe

Electric generation on the ropes

Even before the Three Mile Island mishap, nuclear power plants were experiencing the sales problems.

By Jerry Ackerman
Globe Staff

To be sure, the Three Mile Island nuclear power plant accident could hardly help promote sales of more reactors.

But in fact, times already were tough, and things in the American nuclear business could not have gotten much worse than they already were.

Even before the Pennsylvania accident, the worst in nuclear power's history, the nation's four reactor manufacturers were rolling up nearly order cancellations at a rate nearly three times than of new orders.

The nuclear industry in 1973 received 41 new reactor orders and in 1974 another 26; but orders since Jan. 1, 1975 have totaled only 13 — and there have been 37 cancellations.

Beyond this, there have been more than three dozen "deferrals," or postponements, including in the past six months Boston Edison Co.'s Pilgrim 2 reactor and two other units planned by New England Power Co. in Rhode Island.

Even the industry's critics agree nuclear safety has had little to do with these woes, although times might be a little better had Three Mile Island not happened.

A deeper reason, industry sources and outside analysts say, lies in America's reaction to the 1973-74 Arab oil embargo.

Faced with higher energy costs across the board, the nation made 1974 into The Year America Turned Off, slicing in half an almost constant 20-year electricity sales growth trend of 7 percent a year.

For the nation's four reactor makers — Westinghouse, General Electric, Combustion Engineering and the Babcock & Wilcox division of J. Ray McDermott & Co., Inc. — a full appreciation of this was slow in coming.

"Everyone thought that the downturn was temporary," adds Theodore Heuchling, an Arthur D. Little, Inc., vice president specializing in energy issues. "Now there is no widespread agreement on what the electric industry's growth will be."

One nuclear-company executive, who in 1974 was a government energy specialist, recalls:

"When the embargo hit was expected that, well, this is really going to propel nuclear, because it would be a substitute for oil. Instead, the opposite happened. The high price of oil caused so much conservation that people not only shut off their lights and turned down their heat, they kept it down."

The Three Mile Island accident, of course, is taking a momentary toll in the nuclear industry. It now appears that months, even years, will be required to thrash out the doubts raised at Three Mile Island about reactor safety, operating procedures and the government's ability to regulate.

"Until some of these problems (posed by the accident) are resolved, I can't see anyone ordering another reactor for at least two more years," says Norman C. Rasmussen, the MIT nuclear engineering professor and Northeast Utilities Inc., director whose name has been associated with nuclear safety.

But ironically, in the face of this adversity, the reactor industry remains quite alive, in a position to wait for better days. Indeed, until Three Mile Island, many inside and out thought this might be "the turnaround year," as one securities analyst put it, particularly with the indications last winter that oil prices were about to skyrocket.

Despite the cancellations and deferrals, the four reactor manufacturers' domestic order backlog is estimated to be worth as much as $20 billion, with enough work to last through 1983.

NUCLEAR, Page 68

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The limits of the atom

No issue since the Vietnam War has divided America more than nuclear energy. It has provoked huge demonstrations. It has led to civil disobedience. It has spawned lawsuits. It has roused passions all across the country.

There are those who see nuclear power as crucial to solving the energy crisis and would push ahead with new and bigger plants. There are those who see nuclear power as the road to doomsday and would not only forbid the construction of new plants but also shut down all existing ones. And there are vast [illegible] energy in the atom but who are concerned about radiation, especially since the accident at Three Mile Island.

The facts are simple: There are 72 existing nuclear power plants in the United States; utilities have construction permits to build 94 others, and 34 more are in the engineering stage. If all the plans were approved we would nearly triple the number of plants in the country.

We believe that nuclear power has failed to meet its promise, so widely trumpeted in the 1960s, of cheap, reliable and safe electricity. But a sound energy policy steers a course between extremes. We should neither push ahead with all the new plants nor shut down all the existing ones. Sound policy requires the following:

1. The safety of all existing plants should be upgraded in accordance with recommendations of the presidential commission studying Three Mile Island. Plants that cannot meet such standards should be shut down.

2. The operating permits of the 94 plants with construction permits should be held hostage by the federal government until the stricter safety standards resulting from the Three Mile Island study are debated and approved by the Nuclear Regulatory Commission. And they should be built then only if they are clearly superior to all other feasible combinations of energy sources and conservation.

3. No new construction permits should be issued unless it can be demonstrated that there is a clear need for the additional energy and that nuclear power is a last resort. If other kinds of plants are feasible they should be built instead.

4. As safer and more constant sources, such as solar, are developed our reliance on nuclear power should be reduced. Nuclear power in its present form is only a temporary source of energy.

In New England, such a policy would mean the following: the twin reactors at Seabrook, N.H., and the third Millstone unit in Connecticut, which have construction permits, would have to be justified anew; and Boston Edison should not get a construction permit for a second Pilgrim facility until new safety standards are ordered.

We believe such a policy would be good for New England in the long run, and that the region could adjust to it in the short run. There are alternatives: natural gas right now, and hydro-electric power later on, if we invest heavily in them now. And above all, there is conservation.

Obviously, such a policy would injure utilities that have spent large sums on planned new plants under the old ground rules. It would be entirely appropriate for the federal government to compensate them for any losses they incur.

What would not be appropriate would be to dou-

America's energy crisis demar
an eight-part series, The Glob

ble or triple the national production of nuclear power on the flimsy excuse that money has already been invested and that it is too late to stop. It is never too late to change policy; what is required is that the tough questions be faced and answered, and that we deal forthrightly with the consequences.

There are safety measures that can be taken now. The Kemeny Commission has already commented unfavorably on some aspects of the personnel performance at Three Mile Island. And public confidence requires some real changes in the federal role in operating such plants. Even before the Kemeny report is out, the Nuclear Regulatory Commission could establish a special emergency team to fly immediately to any plant in the event of an accident.

In the longer run, NRC personnel should be stationed on a full-time basis at each of the 48 nuclear complexes around the country. That would represent no heavier an obligation than the placing of Department of Energy officials in the offices of many oil companies to supervise the operations of the oil allocation system.

Nagging doubts about nuclear safety dictate that the regulatory and permit processes function on the basis of President Carter's oft-repeated but never-

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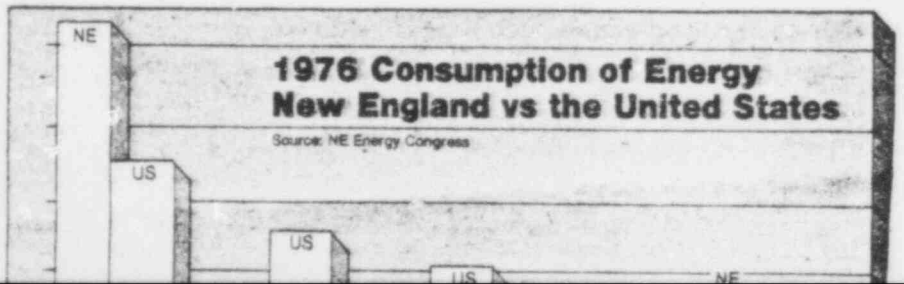

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discusses nuclear power.

realized principle of accepting nuclear plants only as a last resort.

Henceforth, new nuclear approvals must depend on rigorous study of other domestic fuel sources like coal, natural gas, hydroelectric power or even wood. Unless there is clearcut superiority of nuclear power over those other sources of energy, permission for the nuclear plant should be withheld.

In the future, regulators must also evaluate the impact of conservation in assessing potential demand for new power. It was exactly such a review in 1978 by the Massachusetts Energy Office, for instance, that produced questions about the proper timing for completion of Boston Edison's Pilgrim 2 nuclear plant in Plymouth. Those questions must be answered in the construction permit hearings scheduled to begin later this month.

The review must also take into account, but not necessarily be governed by, the issue of whether nuclear plants actually displace oil. The choice between nuclear energy and excessive oil imports will not be easy. Neither is intrinsically desirable. But the 1.8 million barrels of oil now burned each day to generate electricity is almost exactly the amount the nation should eliminate from imports to meet a daily ceiling of 6 million barrels. Nuclear power could make up that difference.

The review does have other questions to consider. While Three Mile Island raised questions about nuclear safety, regulators must also weigh the health and safety hazards associated with other energy sources. Coal, the most prominent alternative in much of the country, must pass its own rigorous exam on health and safety questions. Many scientists fear massive coal burning will put too much carbon dioxide into the atmosphere, creating a "greenhouse effect" that might melt polar icecaps and flood low-lying coastal regions.

In the interests of safety and efficiency, there should also be major efforts to standardize as many features of plant design as possible.

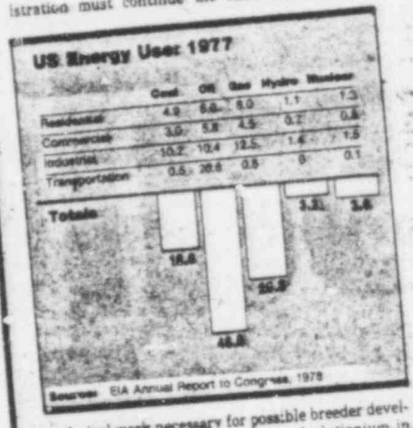
Finally, the problem of selecting a safe repository for nuclear wastes must be solved. Problems of groundwater, heat dispersion and security have cast doubts on the potential for storage in salt domes. But the Department of Energy is still pursuing its study and now says it hopes to have selected a new "permanent" storage facility site by the end of the 1980s or early 1990s, probably in New Mexico.

Even critics are reasonably confident that a solution can be found. Indeed, that is crucial to the acceptability of nuclear power. Whatever the final plan, it is important to retain the option of recovering wastes for reprocessing if that becomes desirable.

Meanwhile, President Carter has acted wisely in pursuing a policy designed to minimize the danger of nuclear proliferation by electing to forgo the reprocessing of spent fuel from power plants in order to recover fissionable uranium and especially plutonium that might be fashioned into nuclear explosives.

Breeder reactors, using plutonium, represent the most uncertain policy question. President Carter has already called for abandonment of the Clinch River demonstration project and he finally won his first congressional battle in that effort just after the Three Mile Island accident. Congress must accept the President's leadership in the matter by setting that particular project aside.

At the same time, both Congress and the Administration must continue the basic scientific and technical work necessary for possible breeder development. Given the extensive use of plutonium in such projects (unless, as is theoretically possible, less hazardous fuels are developed), remote and highly secure sites must be identified and set aside for future use.



Avoiding development of breeder reactors will depend on the development of other large-scale sources, of which solar and fusion power are the most promising. But it is possible they will not be developed in time to fulfill the needs of industry. It would be foolhardy, even while hoping the reliance on breeders will be unnecessary, to ignore that possibility.

In one respect, the nuclear business is like the oil business: Its raw material, uranium, is in limited supply. Sometime in the next century, depending on how many plants there are but probably in 40 to 60 years, the world will run out of uranium.

At that point, either reprocessing or the breeder will take over, or the nuclear industry as we know it will gradually die.

The nation is unavoidably dependent on the nuclear plants it has now. Nuclear power provides 13 percent of our electricity nationally — 30 percent in New England. Critics have not put forward evidence to warrant shutting them down.

For the long-term future, however, such dependence is avoidable. Using the concept of last resort, it is hard to believe that the nation is incapable of getting the electricity it will need from other sources — water, sunlight, steam and, ultimately, fusion.

It is also hard to believe that sensible conservation cannot significantly greatly reduce the need itself.

One of the great strengths of the United States is that it has the option of a literally bright energy future in the next century with neither increased oil imports nor greatly increased reliance on nuclear power.

Let's exercise it.

(NEXT: The limits of coal.)

OUR CHOICES:

1. Limit OPEC imports.
2. Ration gasoline.
3. Subsidize conservation.
4. Tax windfall profits.
5. Limit expansion of nuclear.
6. Go slow on coal.
7. Expedite synthetic fuels.
8. Develop biomass and solar.