

ENERGY

Slow death of the U.S. nuclear industry

Without a policy change, major suppliers will be out of nuclear business

The United States will be out of the nuclear business before the end of the next decade unless there is a radical change in the government's policy toward nuclear licensing and siting, and even toward the continued operation and future construction of nuclear power reactors.

In the last two months, two of the United States' four nuclear suppliers—General Electric and Babcock and Wilcox—announced that they will be shutting down part of their nuclear plant production facilities due to sagging demand for power plants. And the situation doesn't look any better for the two other nuclear suppliers—Westinghouse and Combustion Engineering.

Nuclear plants that had been planned by utilities are either being delayed or cancelled because of the lower than expected growth rates in electricity demand and the frustration which the utilities are experiencing in gaining approval in the siting and licensing of nuclear plants.

A similar forecast is being put forward as policy in a draft report, titled "The Viability of the Civil Nuclear Industry," a summary of which was leaked on Sept. 27 in the newsletter of *Nucleonics Week*. Unless substantial economic and political changes take place in the United States, says the report, the two weakest nuclear suppliers, GE and B&W, will be out of the nuclear business by 1985. Westinghouse and Combustion Engineering would follow by 1988.

Reactor vendors are faced with a 50 to 100 percent over-capacity through the 1980s. There is no way of coping with this over any extended period of time, the report continues.

Even though recent studies predicted that worldwide reactors will be ordered at the rate of 40 to 50 gigawatts per year, the authors of the draft report claim that an ordering rate of 15 to 25 gigawatts per year is a "more probable outcome."

The authors are in a position to know and to gloat. The study was done by Mans Lonnroth of the Secretariat for Future Studies in Stockholm, and by William Walker of the Royal Institute of International Affairs

in London. The report was prepared for the International Consultative Group on Nuclear Energy which is based in London and is sponsored by the Rockefeller Foundation and the RIIA. In its economic and political scenarios for the 1980s, the RIIA, like its offshoot the New York Council on Foreign Relations, predicts collapse, disintegration.

Thus, says the report, even the projected shortages of oil [which the RIIA has helped to mastermind] will not help the nuclear industry. Price hikes will only exacerbate inflation and the chances of a recession—no climate for nuclear investment. Their "pessimistic projection" says that lowered electricity growth rates of 2 to 6 percent per year will characterize the 1980s.

The predictions go on: B&W's future is in doubt due to the fall-out from Three Mile Island. GE has suffered a lack of orders since 1975 and will "probably be out of the nuclear business after the 1980 elections." Combustion Engineering and Westinghouse will have enough work to get through for a few years, but will face difficulties in sustaining design and engineering teams.

The draft report's assessment for the world nuclear program is as bleak as for the U.S.:

It seems to us that the Western world has around five years in which to improve the prospects for nuclear power if it wishes to remain confident that reactor supplies will be forthcoming. Thereafter, the fabric of the reactor industry in a number of countries would begin to disintegrate, leaving little chance for substantial expansion of nuclear power in the 1990s and beyond.

Nuclear shutdown

A decade of well-funded and well-organized antinuclear activity has brought the U.S. nuclear industry to a near shutdown. The Three Mile Island nuclear incident may very well have sounded the death knell.

The most recent indications concerning the state of the U.S. nuclear industry started in the second week in

September when Babcock and Wilcox announced that they were shutting their plant in Mount Vernon, Indiana because "business got too thin at Mount Vernon to keep that facility going." Six hundred workers will be laid off. The plant was opened in 1965 when expectations ran high about the role of nuclear power through the end of this century. It was planned to have a capacity to turn out 12 large reactor vessels each year.

B&W is shipping four uncompleted vessels to their plant in Barberton, Ohio, along with components of the steam generator and coolant piping systems, because the orders for these reactors have been delayed. B&W will reopen the Mount Vernon plant only if the orders come through. Barberton is not large enough for the assembly of completed plants.

One week later, General Electric and Chicago Bridge and Iron, partners in CBI Nuclear, Inc., announced they would be taking in nonnuclear work at their plant in Memphis due to sagging orders for nuclear power plants. The plant fabricates reactor pressure vessels and does the final assembly.

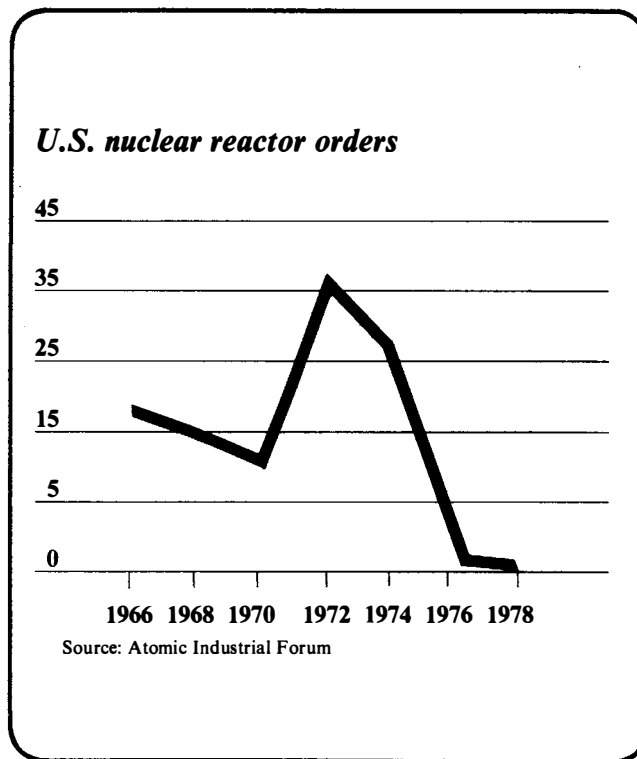
CBI Nuclear will be trying to pick up oil-related business, such as the construction of offshore platforms, in order to "preserve" their highly skilled workforce. CBI expects to finish the three uncompleted vessels in the pipeline, the two in storage ready for shipment, and the six awaiting installation of internal parts. When this work is completed in mid-1982, that's it. General Electric has had no orders since 1975.

Most people will recognize the environmentalist movement as behind the industry decision to move out of nuclear. It was environmentalists like Ralph Nader who were behind legislation like the Environmental Protection Act that places so many restrictions on the industry. It is the environmentalists who have tied the industry up in court, delaying completion of nuclear plant construction for years.

But this is only the tip of the proverbial iceberg that has stalled nuclear power development in this country. Antinuclear sentiments pervade the upper echelons of the scientific community and the nuclear industry itself. Take Roger Sherman, the current chairman of the Atomic Industrial Forum, the industry lobby for nuclear suppliers and users. Sherman has taken a promoratorium stand in response to the Three Mile Island incident. The president of AIF, Carl Walske, is not even involved in the civilian nuclear industry. His nuclear expertise is in weapons development and he has advised four defense secretaries and NATO.

The way it should have been

Going back a few years, the U.S. government did have plans for nuclear power. In 1962, the Atomic Energy Commission began making projections for civilian nu-



clear capacity to the year 1980. In 1964, 1966 and 1967, they revised their projections upward, noting that public acceptance of nuclear power was greater than they had projected.

"The upward trend is an indication of the unexpected speed with which nuclear power is becoming a major source of electricity in the United States," reports the AEC in their 1967 "Forecast of Growth of Nuclear Power." The upward trend is dramatic. In 1962, the AEC projected 40,000 megawatts of installed capacity by 1980; in 1964, 75,000MW; in 1966, 95,000MW and in 1967, 145,000MW.

According to a May 21, 1979 study by the General Accounting Office, titled "Questions on the Future of Nuclear Power: Implications and Trade-offs":

While nuclear reactors account for only 9 percent of U.S. installed capacity, nuclear power has been the major growth factor for U.S. electricity. Since 1972, nuclear facilities have accounted for over 20 percent of new capacity additions and over 50 percent of the increased electricity output. Nuclear power has also been the largest single growth factor in domestic energy supplies, exceeding coal by 25 percent.

Among nuclear engineers in the field, it was a policy of 2,000 by 2000—2,000 operating nuclear power plants by the turn of the century.

But from the mid-1970s on, those projections have been declining. Utility orders for nuclear power plants peaked in 1973. At the point that policymakers were calling for energy independence in the aftermath of the 1974 Arab oil embargo, the U.S. nuclear industry began to sense its first serious problems. Hoping the environmentalists would just go away, the industry consoled itself with the illusion that the orders from the early 1970s would carry the industry through a "temporary" lull.

Then came the Carter administration and energy policymaking by James R. Schlesinger and the Department of Energy. The latest DOE projections, issued in the past two weeks, see no more than 150 gigawatts of nuclear energy by the year 2000. In addition to the 68 operating reactors, approximately 120 plants are projected and these are already under construction or on order. No more domestic orders can be expected.

What a nuclear slowdown means

The General Accounting Office report makes it clear that nuclear energy has exhibited the highest growth rate of all U.S. electricity and general energy production in the past half decade. They are equally clear on what the effect would be if little or no nuclear capacity were added in the next decade.

The GAO concludes that if the nuclear growth rate were to continue at the rate of the last five years, in terms of installed capacity, it could increase the U.S. domestic energy supply by the year 2000 by the equivalent of *10 million barrels of oil a day* over 1978 levels. It is doubtful, however, that that growth rate will be maintained given current energy policy.

Even continuing nuclear growth rates at the current level, the GAO remarks, the growth in electricity consumption will have to be curtailed since supply is, in fact, not keeping up with demand. If nuclear power were to peak at 340 gigawatts, then annual growth must be held at below 4.25 percent. If it is held at 150 gigawatts (the current DOE projection), then the annual growth rate would have a ceiling of 3 percent. (These figures assume a steady rate of growth in coal availability for electricity.)

The U.S. economy can not maintain a 3 percent per year growth rate for long, before using up existing raw materials and drastically cutting the standard of living

of most Americans. Furthermore, the cumulative effect of a drastic reduction in planned operating nuclear power units is already portending serious electric supply problems in the next two to three years.

According to the National Electricity Reliability Council (NERC) the U.S. faces the "grim prospect" of power shortages in the early 1980s. "The prospects for future power supply in the long-term have grown materially worse within the passage of one year," NERC said in its 1978 report.

Of the base-load capacity planned to be added in the U.S. between 1978-1987, 118 gigawatts are nuclear. More than 50 nuclear units scheduled to be in service through 1987 have already experienced delays, averaging about 1.5 years per unit. Continued "constraints" against the electric supply industry, NERC warns, can result in a very serious problem.

The consequences of the likely slippage of two to three years in the service dates of planned nuclear and coal-fired plants will be an inadequacy in the supply of electric power starting in the early 1980s and increasing in severity in the years beyond...These shortages will initially cause short-term curtailments of electric power and ultimately lead to some form of rationing with its serious economic consequences.

The NERC report warns that if the situation deteriorates to that point, recovery would take many years. It is inconceivable that an advanced industrial economy could run even for one year in a situation of unreliable and intermittent electricity supplies.

It is U.S. policy to destroy the nuclear option in this country. That policy was formulated by the already mentioned Royal Institute of International Affairs and its U.S. offshoot, the New York Council on Foreign Relations. The policy is for a "controlled disintegration." That disintegration has already begun, the assumption is that it can be controlled. Not only will this policy mothball the nuclear industry's advanced plant and equipment, unemploy skilled workers and engineers, but will force supply shortages on the nation's electrical grids starting a process of rolling brownouts and blackouts. At that point, there is no control.

It is such decisions on U.S. energy policy that are being made right now which will determine whether there will be any energy in the future.

—Marsha Freeman