

Energy Insider by William Engdahl

Assessing our nuclear future

One of Reagan's mandates was energy growth: how will he meet it?

Since the March 1979 incident at Three Mile Island, more than fourteen major nuclear reactor projects have been cancelled in the United States. In the first six months of 1980, domestic utilities scrapped plans to build some 11,000 megawatts of nuclear generating capacity. Aside from an estimated economic benefit to the stagnant economy of high-skilled jobs and orders totaling more than \$15-20 billion, the lost generating capacity represents the power needed to supply 11 cities of one million inhabitants with their entire electricity needs.

Dr. Sigvard Eklund, Director General of the International Atomic Energy Agency, noted recently with bewilderment the worldwide record with respect to nuclear development, especially in light of soaring oil and coal costs. His remarks single out the United States as the core of a major problem. "Until there is a resurgence of demand for new nuclear capacity," Eklund declares, "the fundamental question remains: how and how long can the nuclear industry hibernate or even survive without new orders?"

Several recent industry moves underscore the point. Combustion Engineering, one of the nation's major nuclear suppliers, has not received an order for a Nuclear Steam Supply System (NSSS), the heart of a nuclear reactor, in three years. And a company spokesman estimates that it could be three to four

more years before they get a new order. This stagnation, plus conflicting orders and demands from the Nuclear Regulatory Commission, have forced a shift away from work on their backlog of 19 NSSSs.

Westinghouse, once the giant of the world nuclear industry, has just announced it will phase out operations at its Tampa, Florida plant, which made components for nuclear steam supply systems. The plant was built in the early 1970s when the U.S. held 90 percent of the world reactor market.

Potentially more devastating than reduction of facilities is loss of skilled manpower. With the negative climate fostered by the only president to declare nuclear the energy of last-resort and fill his cabinet departments with avowed anti-nuclear advocates, the enrollment in engineering schools for nuclear engineers is falling catastrophically. Already, industry and government are finding it difficult to attract qualified new personnel. This is a manpower capability which took almost 25 years to establish.

In a recent remark, Kenneth Davis, a senior vice-president of Bechtel Corp., one of the world's leading constructors of nuclear and other power plants, noted that the United States cannot build more than the number of reactors already committed before the end of the century. Davis, who is a prominent spokesman for the nuclear industry, is also a leading member of

Reagan's Energy Transition Team. Let's look more closely at what his remarks would mean. I will state bluntly that they are not adequate to the job before us.

The U.S. now generates some 60,000 megawatts of electric energy from 69 nuclear plants. The current Department of Energy projections call for 260,000 MWe by the year 2000. This would provide us with an estimated 20 percent of electricity. By contrast, the Paris-based International Energy Agency estimates that Europe will have 236,000 MWe of nuclear capacity by 2000. Some 86 MWe of this will come from the French program, which unlike the U.S. and West German efforts has not allowed environmentalist "interveners" and legal challenges to delay their program.

Even with a very conservative growth domestically of 3 percent per year to the year 2000 in constant GNP, that would mean a needed increase of 740,000 MWe electric power production capacity from present over the next 20 years. Deducting the DOE nuclear target, and assuming declining use of oil and gas for electricity generation as a misallocation of that valuable resource, this means that coal-fired plants would have to generate 55 percent of the nation's electricity. To do this, we would have to mine, move, and burn an estimated 2,200 million tons of coal for utility use alone by the year 2000. Total national output today is hovering around 750 million tons.

So, going back to nuclear as the the only feasible long-range power alternative, to get to 260,000 MWe by 2000 would mean building an estimated 11-12 new units per year. Domestic industry capacity is 25-30 reactors per year.