

New Evidence From
Private Nuclear Industry Study

'Nonproliferation' Costing U.S. Billions In Jobs And Profits

Exclusive to the Executive Intelligence Review

The Administration's ongoing war against nuclear power exports will cost this country's economy more than 2 million man-years of high-skilled jobs, over \$4 billion in steel orders, and more than \$20 million in export dollar earnings over the next few years. This is the conclusion of a private marketing study, based on extremely conservative estimates, made recently by a leading U.S. nuclear industry supplier.

In recent weeks nuclear industry publications have been filled with story after story about the grim prospects for the years ahead. While most of the world's nations are looking to nuclear sources to solve the globe's medium- to long-term energy needs, top nuclear firms in this country are on the verge of bankruptcy, the result of an increasingly harsh government policy of "environmental" obstructionism and "nonproliferation."

An internal marketing study made available to this news service gives new evidence, in dollars and cents specificity, the plight of the U.S. nuclear industry is undermining the entire economy, by depriving it of both domestic energy supplies and the jobs and profits from nuclear exports. Yet at the same time the official organizations of the American labor movement are begging for leaf-raking public works jobs, while the steel and other industries plead for protectionism and price hikes. What is astonishing is that U.S. labor and industry are not together waging their most aggressive congressional and public-forum lobbying effort ever on behalf of an immediate turnaround of government nuclear policy, to support for rapid resumption of the U.S. nuclear industry's role as world leader in terms of both size and technological advancement.

What's at Stake for the U.S. Economy

Using only the most "practical" current estimates, the marketing study reports that between 1978 and 1982, there will be an export market for construction of 88 nuclear power reactors, totaling approximately 83 megawatts of electric power production capacity. This of course excludes the United States' domestic power needs. The study shows that, even assuming growth in the nuclear export capacity of West Germany, France, Italy, Canada, and several other countries, the U.S. share of the total market is at least 64 out of the total of 88

nuclear power plant installations.

What does this mean in terms of jobs and orders?

Nuclear power plants incorporate the highest-technology inputs of steel, machine-tooling, and construction of any export sector outside aerospace-defense. Exports of 64 reactors over the next five years would mean orders for more than 6.4 million tons of stainless, low-grade, and equipment steel, the industry study reveals. The dollar value of this steel, leaving out the inflation factor, comes to approximately \$4.2 billion.

Total export dollar earnings for these 64 reactors, based on an average U.S. share of \$353 million per plant, would be a substantial \$22.6 billion over that five years.

And jobs? Again taking a rather conservative estimate of 2.5 indirect jobs resulting from every new job created in the nuclear industry directly, these 64 export reactors would over the same five-year span give construction, steel, transport, electrical, and other workers an estimated 2,180,000 man-hours of the most advanced, high-wage, skilled jobs in the labor market.

What the Nuclear Industry is Up Against

When Congress reconvenes in January, one of the first items of carried-over business to be taken up will be the Senate vote on the so-called Percy-Glenn Nuclear Anti-Proliferation Act of 1977, S. 897. That bill has already been passed unanimously by the House and even its firmest opponents regard Senate passage as certain, especially in view of the feeble opposition to the bill mounted to date by national labor unions and industry.

A statement issued by Westinghouse, the world's leading nuclear reactor manufacturer, says, "If the Bill is passed in its current form it is likely that no nuclear export orders will be obtainable by U.S. nuclear manufacturers, with the exception of the few instances when there may be other overriding political — defense factors involved." Further, says Westinghouse, "Even these few export orders could be lost because of the tangled and uncertain export processes and procedures required by the pending legislation. There is little in the legislation which restores the reliability of the United States as a supplier."

In his widely publicized visit to Washington last month,

NUCLEAR EXPORT MARKET, 1978-82
(By Year of Order)

	1978	1979	1980	1981	1982	TOTAL
Total Export Market*						
Units.....	22	11	26	13	16	88
MWe.....	18,580	11,280	24,330	12,800	16,050	
U.S. Share of Market**						
Units.....	16	8	19	9	12	64
MWe.....	13,700	8,200	18,150	9,300	12,150	
U.S. Jobs***						
(in man-years)						
Direct.....	221,635	52,118	178,860	78,741	91,620	
Indirect.....	554,087	130,295	447,150	196,852	229,050	
Total.....	775,722	182,413	626,010	275,593	320,670	2,180,408
						man-years
						of jobs

* This is the current estimated total world market based on the latest industry assessment of international demand for nuclear power construction.

** The U.S. share is based on an estimated 75 percent of total units, allowing for marketing presence of a number of other supplier countries.

*** Indirect jobs are calculated on the conservative basis of 2.5 jobs created for each direct job in nuclear power plant construction. The generally accepted range is one to three indirect jobs.

the Shah of Iran held up the international uncertainty caused by such legislation as the principal reason why Iran will not agree to purchase 8 nuclear reactors from the U.S. for its major industrialization plans. The same month, Iran successfully negotiated purchase of several billions of dollars worth of reactors from West Germany and France.

Five years ago, the U.S. nuclear reactor industry held 90 percent of the international export market, and this export margin was crucial in allowing maintenance of economies of scale in combination with domestic reactor construction. Today, the U.S. is scrambling to hold 40 percent of this international market, in the estimate of a top official of the Bechtel Corporation.

Between 1973-1976, when world nuclear demand in the face of the OPEC oil price rise expanded considerably, the U.S. nuclear industry lost reactor export contracts in 14 separate projects, even though worldwide there is a vast *undercapacity* to produce sufficient nuclear capacity to meet world energy needs. The primary reason for the loss of all but one of the 14 contracts was the lack of U.S. government support, uncertainty of U.S. export policies, and financing problems directly related to enforced policy changes in the U.S. government's Export-Import Bank for nuclear export credit guarantees. These lost sales included reactor agreements with Iran, Finland, Korea, Spain, Brazil, South Africa and Belgium. All of these contracts, according to industry estimates, could easily have been secured under pre-

vious U.S. government export policies prevailing as recently as five years ago. The lost contracts deprived the U.S. of, conservatively estimated, well over \$5 billion and loss of well over 100,000 man-years of high-skill jobs for American labor.

As one industry source commented, this "sharp decline in U.S. participation in the international nuclear market has dealt the industry a double blow." At the same time that Administration policies have all but destroyed the export possibilities of the world's most advanced nuclear supplier, parallel domestic policies, combined with the pernicious impact of recent federal "environmental" legislation, have all but killed expansion of the vitally needed domestic nuclear industry.

Domestic Nuclear Sector The Next Target

The United States currently receives 9 percent of its total electric generating capacity from 67 licensed and operating reactors. Additionally, 78 more reactors have been given construction permits, 16 have what are called limited work authorizations, and some 56 more reactors are on order, according to the Atomic Industrial Forum.

This is a picture of dangerous stagnation in the rate of growth of this vital sector of U.S. industry and hence, in employment for skilled engineers, technicians, and skilled workers. Despite the fact that Energy Secretary James Schlesinger has made considerable public relations efforts to convince the domestic nuclear and related industry and utilities that at heart, he strongly

favors expanded use of conventional light water fission reactors, his actions in the last year make the unescapable conclusion that he must be immediately removed from office before his "pronuclear" policies kill the entire industry.

An indication of how drastically the domestic nuclear industry growth projections have been forced downward is the fact that in the early 1970s, construction of 1,000 nuclear power plants was anticipated by the end of the century. The figure was scaled down during the Ford Administration to 500. Now it has been further slashed by Schlesinger to what is now regarded as an "optimistic" figure of 350 reactors.

collapsing future growth, entire subsupplier industries, who have embarked on year long capital expansion programs to meet expected demand, are now faced with collapse or bankruptcy.

The most crucial single sub-component of a nuclear reactor is the nuclear steam supply system (NSSS). At this month's meeting of the Atomic Industrial Forum, the president of Bechtel Corporation, citing the lack of new nuclear plant orders, painted a bleak picture. The time is near, he warned, "when the technical and manufacturing capability of our domestic NSSS suppliers will have to be reduced and possibly abandoned." Orders placed in the 1973-74 period created a backlog that until now has somewhat hidden the seriousness of the imminent collapse not only of the direct nuclear industry, but of all the related steel, machine-tool, and other sub-industries. Now those orders have been substantially filled. In off-the-record discussions, several leading nuclear suppliers say that, short of a dramatic policy shift in the next six months, entire nuclear-related industries in the U.S. will be forced to begin layoffs of key — and irreplaceable engineers, development teams, and machinists.

In all of 1977, basically one new domestic U.S. nuclear order was placed. Further, suppliers estimate that total new U.S. reactor orders over the next three years for the domestic market may be as little as six, and in any case as "outer limit" of no more than 20. The U.S. reactor industry is able currently to supply 30 reactors per year, which would mean optimally 66 percent capacity utilization, assuming, as is reasonable under current conditions, that this gap would not be filled with any new export orders. At present levels of orders, the industry drops below economic breakeven.

The single most destructive factor in the collapse of domestic development of nuclear power is the *deliberately* insane maze of federal government licensing procedures. One top utility executive noted recently that the uncertainty and confusion created by the Carter Administration's policies is the main reason electric utilities are dropping plans to develop nuclear power generating capacity. "One of the greatest contributors to this occurring as much at state level as at the federal level."

In his national policy statement on nuclear energy last April, President Carter made much of the fact that top priority would be given to legislative reforms that would "streamline" the entire federal nuclear plant licensing procedure. Presently, a utility must spend fully 12 years to complete the full range of licensing requirements

Amount of Steel Included in One Nuclear Reactor Export to a Developing Country

(Based on a 1.100 Megawatt unit)

Low-grade Steel	43,000	Tons
Stainless Steel	4,000	Tons
Equipment Steel	53,000	Tons

Approximately 100,000 Tons

per Reactor

Low-Grade at \$250 per ton	=	\$10.7 Million
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Stainless at \$500 per ton	=	\$2.0 Million
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Equipment at \$1,000 per ton	=	\$53.0 Million
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Approximately \$66.0 Million

per Reactor

before the first watt of power can be generated from a nuclear plant. Industry officials estimate that if the Naderite National Environmental Protection Act (NEPA) were declared "null and void," and the well-established and fully proven design and quality assurance procedures used by the industry were assumed valid, this total time could be reduced to 7 and a half to 8 and a half years.

By comparison, according to a recent study done by the Nuclear Regulatory Commission (NRC) its NUREG-0292 licensing procedure "reforms" would *lengthen* the current 12-year time to 13-and-a-half to 14-and-a-half years! This, plus present rates of overall inflation and economic uncertainty, combined with the immediate prospect of escalating antinuclear media and other hysteria, it is little wonder that utilities are less than eager to commit themselves to increased nuclear power construction — even though nuclear power remains the cheapest, safest, and most reliable pollution-free energy source and an essential technological transition to fast breeder and fusion technologies that offer the only long-range global solution to energy needs.

The most blatant recent example of the capriciousness that is creating the regulatory mess was the unprecedented request last week by the staff of the Nuclear Regulatory Commission that the Atomic Safety and Licensing Board reopen hearings on the years-long proceeding to grant Virginia Electric and Power Company's two North Anna nuclear plants operational approval. This remarkable decision came only three days after the board had granted a full go-ahead to the embattled utility. Moreover, Deputy Energy Secretary John O'Leary recently told the nation's top utility and nuclear industry executives: in response to demanding questions on what the government plans to do to clear up the impossible federal regulatory bottleneck, the government intends to do "absolutely nothing" to shorten the licensing time, despite repeated public promises to the contrary.

A Forecast?

It was against this backdrop that antiprogress crusader Ralph Nader announced not long ago that his Critical Mass Energy Project is hiring new staff to

launch the next phase of its campaign against nuclear power. Confident that they have succeeded in checking the expansion of nuclear power, the Naderites now plan to "contain existing nuclear commitments" — including the rapid phase-out of the 67 existing nuclear plants, with resulting financial losses to be borne directly by the utility stockholders. This would bankrupt the country's major utilities if successful. Nader has worked with Congressman Bingham, the House sponsor of the Percy Anti-Proliferation Act of 1977, for the bill's domestic

counterpart, the Nuclear Reappraisal Act, which would impose a five-year moratorium on all nuclear power generation pending further governmental assessment of safety, efficiency, and national security. According to one nuclear industry publication, cocky Nader is boasting that "it is very problematic whether there will be a thriving nuclear industry by 1985. There may be fragments and survivors of what once was called the nuclear industry..."

Sakharov:

Political Freedom Depends On Nuclear Development

What follows are excerpts from a statement by Soviet dissident and Nobel Prize winning nuclear physicist Andrei Sakharov, published in the Dec. 19 issue of the West German weekly magazine Der Spiegel. Sakharov's article, titled "Political Freedom Only Possible Through Nuclear Energy," should be closely scrutinized by the AFL-CIO and other organizations which have lionized Sakharov as an anti-Soviet spokesman, but which advocate zero growth and dismantling the nuclear energy industry.

For quite a long time I have been amazed at the stormy demonstrations of thousands of people, at speeches from well-known and unknown politicians, and at every conceivable kind of campaign launched in the Western countries, all aimed at halting the development of nuclear energy and the construction of nuclear power plants and "fast breeders." I also felt somewhat provoked, but I held back from taking any position in public, especially since there was naturally nothing comparable going on in the USSR. Nevertheless, I have gradually come to the conclusion that this question deserves to be addressed directly and that I have some things to say about it.

The reason for this antinuclear attitude probably lies in people's lack of adequate information about complicated technical questions. It's not easy to explain to the layman that a nuclear reactor is not a nuclear bomb, or that a coal- and oil-burning power plant is much more dangerous to public health and the environment than a nuclear power plant with the same capacity, or a "fast breeder."

Only recently have many responsible politicians in the West, along with many leaders of industry and nuclear researchers, somewhat belatedly recognized the necessity to make the basic technical data in this field comprehensible to the broad public.

They have now recognized the importance for extensive scientific-technical information; and in fact this is quite important. A wonderful, well-argued article entitled "The Necessity of Nuclear Energy" has been written by Nobel Prize winner Hans Bethe. He is the

author of many significant theoretical works on nuclear reactions inside stars, quantum electrodynamics, and nuclear physics. The European reader may also be familiar with the name of a physicist now working in Sweden, Frantisek Janouch, who has dealt repeatedly with this question. I fully agree with the arguments of these and of many other competent authors.

The development of nuclear energy has called for greater attention to be paid to questions of safety technology and environmental protection than was called for by the development of such industrial branches as metallurgy and coking, mining, industrial chemicals, coal-fired power plants, modern transportation and agricultural chemicals.

The fundamental difference between nuclear energy and energy from conventional fuels is, first, the extremely high concentration of the nuclear fuel, and second, the small scope of the dangerous waste materials and of the overall process. This simplifies and cheapens the solution of safety and environmental problems in comparison to coal- or oil-generated energy.

At the same time, it is obviously a vital necessity to speed up the expansion of nuclear energy, since it is the only economical substitute for oil in the coming decades. According to most estimates oil will already start getting scarce by the end of this century.

Furthermore, it is not enough to build only "normal" nuclear power plants using the rare isotope of uranium isotope U-235 which is contained in enriched uranium. It is also important to solve the problem of producing fissile material from uranium's basic isotope (U-238) and in the future also from thorium. This gives us, on the one hand, the possibility of economically utilizing ores with a low uranium content, while in the future it will open up the use of thorium reserves which are even more plentiful.

It is well known that the reactors which are based on fast neutrons (the so-called "fast breeders") represent one possible solution to this problem. Good progress has also been made there in regards to safety technology. In the coming years it may become necessary to build industrial reactors on this basis, naturally with the greatest care devoted to safety questions.