

The European Commitment to Nuclear Power

The present nuclear fission power commitment of major European governments and industry represents one of Europe's most heated political issues. Following the devastating impact on European industry of the 1973 oil price rise, the political commitment to develop fission energy got substantial impetus in several European countries. Already by 1976, national electric power from nuclear sources represents a proportionally significant share of total electric power:

Switz.—18% of total electric output in 1976
(1,006 Megawatt electric)

W.Germ.—15% (7,300 MWe)

Sweden—13% (3,180 MWe)

U.K.—10% (8,097 MWe)

France—10% (3,320 MWe)

These figures compare with a figure of 8.5% share for the U.S. derived from nuclear sources in 1976.

Under present national sector commitments up to 1985, nuclear power will account for 67 per cent of total French electrical output. In West Germany the present projected commitment nationally is for 30 per cent, while in Sweden it represents some 40 per cent.

Given the scale of the effort and the fact that such programs involve Europe's most advanced industrial, engineering and scientific resources, it is understandable that the fission issue in Europe is at the forefront of the growing fight for technology-intensive development of European industry. Mr. Leif Hjaerne, director of the Swedish ASEA-Atom reactor company writes in an Op Ed in the Svenska Dagbladet of Dec. 30 entitled, "Terrifying Green Ideology" that the concern of some political parties for ecology at the expense of nuclear development is "only a new anti-intellectualism." In the Italian daily l'Unita, Mr. Felice Ippolito, one of the earliest advocates of an Italian nuclear fission program, attacks "ecologists who want to suppress industrial civilization and regress to neolithic societies." In a number of European countries sensationalist press coverage of anti-fission groups such as Friends of the Earth, was coordinated with highly suspicious instances of sabotage at the French uranium extraction installation and at the Swedish Ringhals fission reactor in early November. These instances have been used by certain media to drum up scare campaigns against nuclear power.

This report will concentrate on the French and West German fission efforts, the two most substantial in Europe currently. Both are active in the international export of fission technology.

FRANCE

France presently has the world's second largest program for installed nuclear capacity by 1985 and the leading "breeder" reactor program, the Phenix in Marcoule, France. This program has been in operation for more than two years and has produced more than 3 billion KWh leading to the recent initiation of a Super-Phenix fast breeder reactor project to be built with the participation of West Germany and Italy.

In 1974 after the oil crisis, the decision was made to increase the national nuclear power program resulting in work begun in 1974-75 on 12 additional nuclear stations, all using Pressurized Water Reactors (PWRs) built by the French under license from Westinghouse. By 1977 construction is to begin on 12 more PWRs of the same size to be operational by 1982-3. The cost of the entire program is estimated at 73.9 billion Francs.

The entire French nuclear program is centralized under the state-owned Commissariat à l'Energie Atomique (CEA), including both military and civilian aspects of the program. Development of large reactors is centralized under Framatome which is owned jointly by the large steel group, Creusot-Loire (51 per cent), CEA (30 per cent) and 15 per cent Westinghouse, with the remainder of the Westinghouse interest to be transferred to Creusot-Loire in 1982 when the license agreement expires. The CEA has significantly formed the state-owned COGEMA to coordinate all vital "fuel-cycle" activities, with a reprocessing facility at La Hague and at Marcoule both of which are part of the major European nuclear reprocessing consortium, United Reprocessors involving in addition to the CEA, KEWA a West German industrial group and British Nuclear Fuels Ltd. Cogema is selling its reprocessing know-how abroad including plants in Japan, and proposals to sell reprocessing plants to South Korea and Pakistan. The latter two have reportedly been the subject of direct intervention by the U.S. State Department to stop the sales, though as of this writing the Pakistan deal is proceeding.

WEST GERMANY

By any objective standards the West German nuclear industry should be at a take-off point for both domestic and foreign orders. The West German industry, which is concentrated in the Kraftwerk Union (KWU) includes the world's first operating 1300 MWe (mega watt electric) reactor unit, the Biblis "B" and a year's successful operation of the 1200 MWe Biblis "A" PWR. The German nuclear industry is, according to all professional estimates, among the most exacting in safety terms in the world.

KWU, which is now wholly owned by Siemens after AEG Telefunken sold its interest last month, has just signed a major deal to supply eight reactors to Brazil in a deal that initially will mean 12 Billion D-Marks for KWU and estimated some \$5 billion to the German economy over the next two years. Importantly, the size of the deal, which has provoked hostile political pressure from the U.S., will allow the minimum economically feasible

operation of the industry including a fuel cycle unit. Other KWU contracts are held with Iran, Argentina, Spain and Switzerland.

KWU in addition to participation in several other groupings, owns Interatom which has major responsibility for advanced reactors, including fast-sodium-cooled breeder at Bensberg.

Development of the West German nuclear program, despite the excellent safety requirements, has been somewhat slowed due to the mobilization of various "environmentalist" groups such as the "Citizens' Initiative" group, whose protest has been against the concentration of nuclear stations in areas especially the Rhine which already have high industrial density. These arguments are being answered by such efforts as ongoing experiments using thermal "waste" of reactors to heat soil making it "super-productive," as well as by demonstrations by trade-unions in support of continued fission plant construction.

Scientists, Governments Press France to End Fusion Blockade

Political and economic pressure has increased in Europe against widely acknowledged attempts by the French government of Giscard d'Estaing to stall development of the European Common Market (EEC) thermonuclear fusion research project, the so-called Joint European Torus or JET. Late last month the French government effectively blocked a decision on the location for the JET fusion reactor, causing widespread speculation that the project was effectively dead.

Il Fiorino, the Italian financial daily reports in its Jan. 5 issue that the West German government is pressuring France to stop its sabotage of the \$200 million JET project by offering, among other things, to locate a major radiotelescope project in France in return for agreeing to EEC majority decision as to the location of the JET.

A top U.S. fusion scientist told this press service that general sentiment in the European scientific community is to locate the JET at the already substantial Culham research Laboratory in Abingdon, England. The Culham facility, which has since 1973 been the location for the international JET planning group, has six different magnetic confinement systems, the only facility in the world with such an array in one location. Furthermore, it is near adequate large power supplies, necessary for construction of the large JET.

The U.S. source confirmed that there was firm agreement among West German, as well as French scientists to locate the JET at Culham and that it was "bureaucrats" of the French Atomic Energy Agency, recent Giscard appointees, who opposed the Culham location. Physicists generally agree that there are only three possible locations for the JET project: the Culham site, Garsching, near Munich in West Germany, and the

Ispra research facility in Italy near Milan. Further, the Culham location of the three is the only one which would not endanger the continuance of important alternative lines of research such as the current hi-beta magnetic confinement research ongoing at Garsching.

'Fusion Europe's Last Chance'

Der Spiegel: Jan. 3, "Last Chance for Europe" — Excerpts from an interview with fusion planning director Prof. Donato Palumbo:

Spiegel: Professor Palumbo, when in your estimate will the first fusion reactor produce current in Europe, and how much?

Palumbo: It could satisfy a considerable portion of Europe's energy needs. Most experts believe that it will get that far in 30 years. I am more optimistic: if fusion is possible at all, it can be done sooner than that.

S: Now the construction of the experimental fusion installation, "JET," is threatened with failure. Has the project gone down the drain with the French insistence upon a French location for the JET?

P: No. The conflict around JET is rather an "accident du parcours" — an accident in the course of a political hurdle race....

S: Wouldn't the team rather settle in Ispra (Italy) anyway?

P: Ispra has very definite advantages. It is already one of the community's research centers, and also the current supply is enough for the requirements. Other centers, such as Garsching and also Culham, have the experience in the area of plasma physics. But such