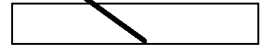
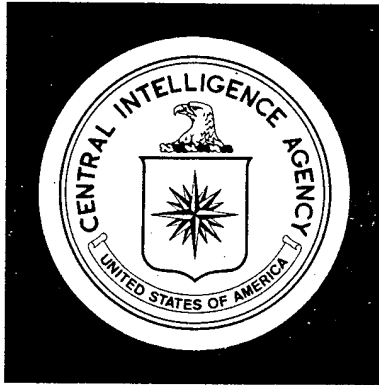


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THE FRENCH NUCLEAR POWER PROGRAM

[redacted]
OSI/CIA

SUMMARY AND CONCLUSIONS

France currently has a capacity of about 2,300 megawatts electric of nuclear power from seven natural uranium reactors which generate about 8 percent of the national production of electricity. France plans to have 47 power reactors completed by 1985. Of these, 38 will be pressurized water reactors and 9 will be boiling water reactors. An agreement was concluded with a French consortium in March 1974

for 12 new reactors with the option to purchase 4 more. The first of these plants is to go on stream by 1979. If all of the 47 reactors go on stream by 1985, France will be the largest producer of nuclear power (43,000 to 47,000 megawatts electric) in Western Europe, this representing about 70 percent of its total generating capacity. [redacted]
[redacted]

DISCUSSION

[redacted]
[redacted]

The first French reactors built specifically for electric power generation were enlarged versions of the G-2 and G-3 natural uranium fueled, graphite moderated, CO₂ cooled reactors. Six power reactors with a net electrical output of about 2,300 MWe were built prior to 1970. Five of these reactors, plus the G-2 and the G-3 reactors, are still in operation.

By 1969 France had phased out the production of these natural uranium reactors. In 1970, they chose to use the American pressurized water reactor (PWR), a type of light water reactor (LWR). The PWR is provided by French firms under license from Westinghouse.

On 1 March 1974 France announced that an agreement had been concluded with a French

consortium, Framatome-Creusot-Loire, for 12 new PWRs with an option to purchase four more. The first of these plants is to go on stream by 1979. Such a contract will require considerable expansion by Framatome. Information as of 29 March states that France's revised schedule calls for 47 LWRs ranging in power from 890 to 1,300 MWe. Of these, 38 will be PWRs while only 9 will be boiling water reactors (BWRs). Thus, it appears that France has more confidence in PWRs than in BWRs.

[redacted]
[redacted] tonnes of separative work units per year (SWU/yr—a means of expressing cascade capacity). Although Eurodif, the European gaseous diffusion plant, will have a capacity of about 9,000 tonnes SWU/yr, much of this capacity has been committed to export trade. Therefore France will have to rely to some extent, on imported fuel until sometime after 1985. [redacted]
[redacted]

France is committed to a large LWR program. Nonetheless the fast breeder reactor concept also is being studied; of the fast breeders, the liquid metal fast breeder reactor (LMFBR) system is being stressed while some research continues on the high temperature gas reactor system. [redacted]

[redacted]

[redacted] engineering design for a 1,200-MWe LMFBR is being continued. Two such reactors are being planned jointly with West Germany and Italy. The first, a 1,200-MWe LMFBR, is to be built in France using French technology; the second is to be

built in West Germany using West German technology.

At present, about 8 percent of the total French electric power is nuclear generated. It is expected that by 1985 about 70 percent of French electricity will be nuclear generated. The estimated net nuclear electricity generating capacity in megawatts electric for France is given below. These figures reflect consideration of an 80 percent plant factor in nuclear power stations.

1970	1975	1980	1985
1,500	3,800	13,440	32,500

If France succeeds in carrying out its present plans for nuclear power reactors, it will possess the largest such program in Europe and one of the largest in the world.

[redacted]