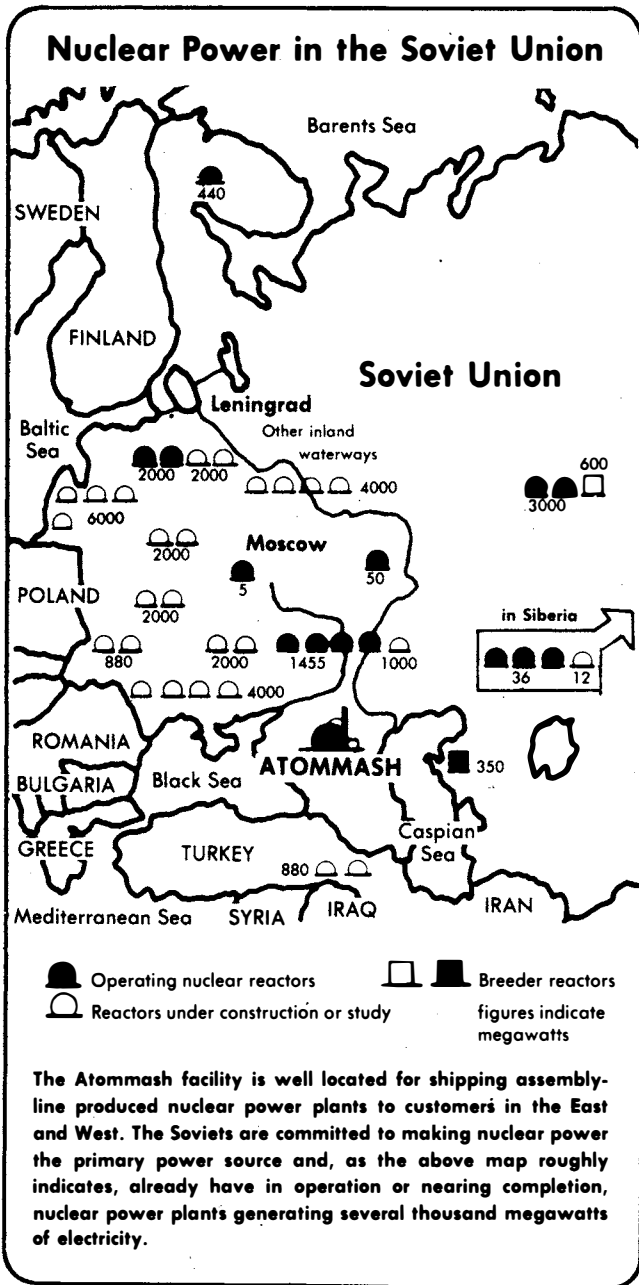


Atomash: assembly line nuclear plants

There are 16,000 people living in a new town on the banks of the Volgodonsk Canal, which connects the two great rivers of European Russia, the Don and the Volga, where they flow near each other in the south of the country. Most are workers and families of workers employed in a single complex of factories that has risen together with the town during this decade.

The complex, called Atomash for "atomic machinery," is the world's first assembly plant for nuclear power reactors.

From the production site, the standardized components of atomic power plants will be shipped by water all over the U.S.S.R. to Eastern Europe, and to customers in other countries. On barges, the energy-producing machinery may float down the Don to Black Sea ports and the Mediterranean, and via the Volga either upstream into an inland waterways network existing on the Baltic Sea or downstream to the Caspian.



An American approach

Atomash is the most modern example of a Soviet integrated industrial complex, utilizing and updating the mass production techniques invented at the beginning of this century by Henry Ford and perfected by other American manufacturers. When the U.S.S.R. undertook its first Five Year Plan in 1929, when the world economy was in the grips of the Great Depression, Soviet industry turned to the United States to learn. A team of Ford engineers, out of work in Detroit, traveled to Russia where they designed and helped to build the Soviet Union's first mass production plant: the Stalingrad tractor factory.

Today it is the Soviets who have carried the American principle of looking for always more highly automated, labor-saving industrial technology into the nuclear age. There is no American Atomash. Westinghouse developed a sophisticated technology for the mass production of floating nuclear reactors, but their Florida plant is idle. Its first two orders, from PSE&G in New Jersey, were canceled thanks to the slow growth and environmentalist-influenced policies of Governor Brendan Byrne's administration, and there haven't been any more.

Standardization of design

Atomash was taken from the drawing board at the start of the 1970s, when Soviet planners decided on an effort to increase several-fold the role of nuclear power in the Soviet economy and Eastern Europe. Work began on the first reactor in November 1977 and it will roll off the line at the conclusion of the 10th Five Year Plan in 1980. Each reactor will take approximately three years to build. The third year will be devoted to quality control and testing.

The key to the process is standardization. In the U.S., nuclear reactors are produced by four different suppliers and designed virtually from scratch as "one-of-a-kind" ventures. At Atommash, the design is standardized in several sizes. The complex will turn out 440 megawatt (MW) and 1000 MW light water reactors, and eventually a larger, 1500 MW model.

Atommash sits in the middle of the Donets coal basin, and is fueled by a 260 MW coal-burning power plant.

In addition to the reactor, the Atommash complex will produce the steam turbine systems to generate electricity and other types of equipment. It will also utilize scrap metal from nuclear plant production for the production of consumer goods.

For the early recipients of Atommash reactors, most of whom will be Eastern European, additional generators and auxiliary equipment will come from other member-nations of the Council for Mutual Economic Assistance (CMEA) which have a nuclear industry. Under the CMEA division of labor, Czechoslovakia is producing piping systems, steam generators, and reactor mountings; Bulgaria is turning out protective devices; Hungary contributes plant maintenance equipment; and Poland will build related diesel generators.

—Marsha Freeman

CMEA resolves to expand nuclear power 15 fold by 1990

Energy policy was at the top of the agenda for the annual meeting of the heads of member nations of the Council on Mutual Economic Assistance (CMEA), which includes six European nations, Cuba, and Mongolia, held in Moscow June 26-29. Of five 10-year plans for major branches of industry, the nuclear power program was readily called the most important by Soviet Premier Aleksei Kosygin in his reports to the summit (see below). The other programs depend on it to succeed.

The CMEA leaders approved a plan to construct 37,000 megawatts of new atomic capacity for electric power generation between now and 1990 in the Council's non-Soviet European members and Cuba alone.

USSR energy deliveries to European CMEA nations and Cuba

	Soviet production, 1978*	Average annual Soviet shipments to CMEA, 1976-80*	Percent of Soviet production shipped to CMEA
Oil (million tons)	572**	73	12.7
Natural gas (billion cubic meters)	372	18	4.8
Electricity (billion kilowatt-hours)	1202	13	1.1
Total (million ton-equivalents)	1800	163	9.0

* The average annual shipment is derived from current CMEA projections of the total USSR deliveries in the current five-year period (1976-1980); Soviet production for the middle year, 1978, is as reported by the USSR's Central Bureau of Statistics, except for the "total" figure, which is projected from previous years' reported ton-equivalents total and the known growth rates in the main branches of the energy industry.

** Equivalent to over 11 million barrels a day.