

international news

THE Atomic Energy Commission (CEA) in France has reached the most important turning point in its history since its creation in 1945. On August 6, in a decision running counter to demands expressed by industrial syndicates that the total nuclear sector be placed under public responsibility, M Valéry Giscard d'Estaing approved the separation of the production side of the atomic energy industry in order to form a limited private company, a wholly owned subsidiary of the CEA.

In practice, the Directorate of Production constitutes a homogeneous entity with a wide range of activities, providing the military sector with strategic nuclear equipment and the public sector with all the services required for the fuel cycle—ores, enrichment, fabrication of fuel, treatment of irradiated fuel, storage of waste and so on. With the acceleration of the French nuclear programme, the resources of this department of the CEA have grown rapidly during the past few years, and in 1974 it even managed to defray 59.2% of its own costs. Because of budgetary and human imbalance in this sector as compared with the whole of the CEA, it follows quite naturally that it should become an industrial company.

At the same meeting, President Giscard d'Estaing agreed that the CEA, through the new company, should buy a stake in Framatome, now the sole construction company for nuclear reactor steam generators in France. Since 1973, two companies making nuclear generators have been competing for the French market, Framatome (a multinational corporation, 51% of which is owned by Creusot-Loire, 45% by the American Westinghouse group, and 4% by the Empain-Schneider group) and

Restructuring the French nuclear industry

from the staff of La Recherche

the General Electricity Company (CGE). The former is licensed by Westinghouse to use the pressurised water method. The government, going back on its two-year-old decision to go nuclear, decided at the beginning of the year to slow down the projected generation of nuclear energy. Since then, profiting partly from its former position in the French market and partly from a larger slice of the French industrial cake, Framatome has come through as the sole constructor of nuclear reactors. The government now has to negotiate the purchase of some of the interests of the American company. Although nothing is known about the talks in progress with Westinghouse, it seems that it might be persuaded to keep only an 11–12% stake in Framatome, which would give the CEA a minority block (with veto power) within the company.

Another industrial rearrangement adopted at the August 6 meeting is the setting up of a common structure between Framatome and the two companies making turbo-alternators in France, CGE and CEM (the latter a subsidiary of the German-Swiss group Brown-Boveri). As a result they can offer the world entire nuclear reactors, complete and ready to go.

The official arguments behind the new decisions are clear. The arrangements provide independence from the American license, gallicise the electro-

nuclear industry, create a powerful, competitive company to compete in the world construction market, and provide control over exports.

Industrially, the arguments are also very clear, but present distinctly divergent points of view, reflecting three main lines of thought. First, in gallicising American technology, and thereby raising France to the rank of a partner, the result will be to make available the multinational Empain-Schneider-Westinghouse group the scientific, technical and financial potential of a public body.

Second, the creation of a production subsidiary actually prolongs the gradual breaking up of the CEA, already initiated several years ago in the field of computing. The government has formed a limited company with state capital from a body which, having obtained resources for 20 years from the public sector, had arrived at a peak as regards work done on the fuel cycle. Though the principal client in France will still be the EDF, the French electricity authority, there is no benefit, either technical, industrial or even commercial, in forming this subsidiary company, unless it is derived from a progressive entry into the multinational market and from the involvement of other private groups, in particular of the Pechiney-Ugine Kuhlmann group, which is already a rival in the fuel cycle area.

Finally, the industrial groups view this gradual movement towards the formation of private companies with concern, lest the laws governing profit should impinge on production matters. In a phase of fast industrial development, where considerations of profitability and production predominate, the position of workers will remain at risk.

A DISCOVERY which, if confirmed, would rank as a major milestone in physics and which would upset some of the most sacrosanct physical equations, was reported in the United States last week. Physicists at the University of California at Berkeley and at Houston University believe they have detected a magnetic monopole in the upper atmosphere.

The evidence comes from a track made in a package of plastic sheets and a photographic plate flown from a balloon at 130,000 feet in 1973. The belief is the track was made by a magnetic monopole with a magnetic

charge of 137 and a mass of more than 200 times that of a proton, which was travelling toward the Earth at

Monopole evidence

about half the speed of light.

One of the team, P. Buford Price said last week that "from any piece of our evidence you might conclude a different particle passed through our detector. But all the findings put together force the conclusion that it was

a monopole. There is no other known explanation".

First predicted by Dirac in 1931, magnetic monopoles have been hunted intensively and their possible existence has been hotly debated ever since. Physicists have anticipated confirmation of their existence with mixed feelings, since although they would add symmetry to the world of particle physics—they would be the magnetic equivalent of electrons and protons—their existence is incompatible with the Maxwell's equations, which have stood since 1865 as the basic equations of electromagnetism.