

## Plans for a European isotope separation plant

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## Plans for a European isotope separation plant

From the very start of the Euratom negotiations, France called on the Six to build a factory for separating natural uranium isotopes in order to guarantee Europe's nuclear independence. Enriched uranium increasingly appeared to be one of the keys for the industrial production of nuclear energy in the near future, and this plan for a European plant would ensure that uranium enriched with isotope U-235 was available as the basis for any civil or military nuclear programme. But the situation was complicated by the fact that the six countries were not at the same stage in their scientific research and did not share the same military ambitions.

In July 1955, the French Delegation to the Intergovernmental Committee set up by the Messina Conference first broached the possibility of France's building an isotope separation plant with its European partners. In doing so, Paris also wanted to have nuclear fuels available without depending on the Americans who had, for years, been refusing to share their knowledge or exchange U-235 for French plutonium. Although it was technically much more advanced than the Five in the nuclear field and its national nuclear budget was four times that of its partners combined, France hoped to win their backing for the construction of an isotope plant in Europe, at an estimated cost of around 50 billion French francs.

Euratom, at least in terms of its technical dimensions, appeared to be the best way of developing France's civil nuclear industry and making it economically viable. But the planned isotope plant was expensive, was extremely complex technologically and would consume huge amounts of electricity. It was also not expected to be operational for between five and seven years. European revival thus provided France with an opportunity to give fresh impetus to its plan for an isotope plant by putting it on the Euratom negotiating table, seeing this as a test of its partners' European goodwill.

The issue therefore came to take centre stage in the work of the Spaak Committee's Commission on Nuclear Energy, led by Frenchman Louis Armand, President of the SNCF, who would go on to be one of the Committee of Three Wise Men on Euratom. On 4 November 1955, the experts in the Commission on Nuclear Energy unanimously agreed that Europe urgently needed enriched uranium. Planning to contact the relevant manufacturers in the six countries, they immediately set up a working party to study the problems associated with the construction of a factory for separating uranium isotopes.

On 19 and 20 December 1955, the experts from the Six met in Paris to consider the progress of isotope separation techniques and the economic implications of the project for Europe. France wanted work on the construction of the plant to start in early 1957 at the latest. The experts decided that the isotope separation plant must be considered a single entity and constructed on a single site, which would probably be determined by the need to have the cheapest guaranteed energy supply. Things took their course. A month later, the French Delegation in the Euratom Group proposed that a joint fund be established in order to finance the studies to be carried out. On 28 February, the working party submitted, and the Heads of Delegation of the Six approved, a proposal to set up a study group. The Spaak Report, which the Foreign Ministers of the Six received on 21 April 1956 and approved at the Venice Conference on 29 and 30 May, called for the construction of joint facilities which individual undertakings or States could not afford separately. It particularly stressed the need to construct a uranium isotope separation plant as soon as possible, since that would allow the Six to produce the fuel needed to run their nuclear reactors.

Thereafter, however, the impetus began to be lost and things soon fell behind schedule. It was not until 7 September at Val Duchesse that the Euratom Group of the Intergovernmental Conference on the Common Market and Euratom actually set up the study group. Three months later, however, the Secretariat General at the Quai d'Orsay conceded that, given the price of uranium-235, it was increasingly likely that the Six would reject the construction of an isotope separation plant, despite the risk that this would deprive Euratom of one of its main attractions for France. France's fears were further exacerbated by the USA's decision in 1954 to ease the very strict controls on the transfer of fissile materials and nuclear information laid down in the 1946 McMahon Act. Under the Atoms for Peace programme, which, in 1954, started a move towards global nuclear *détente* and the development of the civil nuclear industry, Washington gradually removed the secrecy restrictions on knowledge relating to enriched uranium reactors and decided to make it easier to

export power plants and uranium-235 at a price that was less than half that estimated for the European plant. Determined to dissuade the Six, and particularly France, from building an isotope plant, US President Dwight D. Eisenhower declared on 22 February 1956 that the USA would sell or rent to the Six, on the basis of bilateral agreements or through the International Atomic Energy Agency, 20 tonnes of enriched uranium to fuel research reactors and civil nuclear energy plants. On 26 March 1956, Paul-Henri Spaak conceded that the US declaration made the possible construction of an isotope plant in Europe less important. In November, Washington confirmed to the Six that it intended to offer them low-enriched uranium at an advantageous price.

But Paris did not give up. On 13 December 1956, the Quai d'Orsay proposed to its five partners that they should jointly undertake to build an isotope separation plant, starting on 1 July 1957. The Six's negotiations on the plant did not get past the technical discussion stage, however. In May 1957, at the final meeting of the study group, France was the only country in favour of constructing the European plant immediately, but to no avail, since the Six proved unable to take a decision of principle in favour of the isotope complex. The Five were very reluctant to commit themselves to the huge expense of constructing a plant that, they felt, was unlikely to be profitable, particularly as the USA, which did not want to see Europe become a nuclear power, immediately published the enriched uranium prices which it was prepared to offer Western countries, provided that it could monitor its use. Eager to limit their spending, France's partners preferred to buy the enriched fuel that they needed directly from the Americans at what, they hoped, would become even cheaper prices. The prices charged meant that the joint European plant was never going to be profitable. The Five also feared that political problems could arise from the creation of a specifically European factory whose output could be used to manufacture bombs and nuclear weapons, which Washington openly opposed.

During the visit to the USA that they undertook in February 1957 in order to find out about the conditions under which the Americans might help the Six to establish Euratom, the Three Wise Men learned that Washington would supply the Six with the raw and fissile materials that they needed at advantageous prices and on very good terms. Three months later, their report, entitled 'A Target for Euratom', criticised the very high cost of a European isotope separation facility on an industrial scale and the amount of electricity that it would require. They were convinced that plutonium and natural uranium could be used in Europe's fast breeder reactors, which would avoid the risk of total dependence on the USA for enriching and importing fuels, and felt that the decision on whether or not to construct a European plant should not prejudice the launch of a major nuclear power programme. France's plans were virtually dead and buried.

In November 1957, however, France would still submit to its partners a lengthy memorandum stressing, one last time, the need to construct a uranium isotope separation plant in Europe as soon as possible. In vain.