

Iran and Foreign Enrichment: A Troubled Model

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In an attempt to resolve the Iranian nuclear crisis, Russia has proposed a compromise between Iran and the United States and its European allies. To meet Iranian concerns, it has suggested that Tehran be allowed to retain some elements of the nuclear fuel cycle on its territory. At the same time, to assuage the concerns of the United States and the European Union, Moscow has suggested that Iran renounce enrichment—the most sensitive element of the fuel cycle—and participate in a joint venture to enrich uranium on Russian soil. So far, Iran has been sending mixed signals in response to the second part of the offer. Behind Iran's reluctance may lie an often overlooked chapter in nuclear history: Iran's experience with Eurodif, a multinational enrichment facility based in France.

Eurodif was founded in 1973 as a joint venture between then-five participating partners: Belgium, France, Iran, Italy, and Spain. The idea was to place an enrichment facility in one country (France) and deliver the products (enriched uranium) to the co-financing partners, which would buy all their enrichment services from Eurodif. From a nonproliferation perspective, the model has distinct advantages. Because the financial partners do not participate in the actual operation of the plant, risks of diversion of technology or fissile materials are minimized. Co-ownership of the plant provides strong assurances of supply. Because France is a nuclear-weapon state, diversion of material to support a clandestine nuclear weapons program is not an issue.

Even though Eurodif is a multinational joint venture, its operation is governed solely by French national legislation. The only other multinational enrichment facility, Urenco, which is based in the Netherlands, operates on the basis of an international agreement among Germany, the Netherlands, and the United Kingdom. The Urenco arrangement avoids one disadvantage of the Eurodif model: the unequal status of partners participating in the consortium. Because access to enrichment technology is limited to the host state, other Eurodif partners are denied critical information. Thus, it may be difficult for them to make informed decisions about the operation of the plant, such as investments in new technologies.

Since its inception, Eurodif has gone beyond supplying its participating partners with low-enriched fuel for energy production and now exports such fuel to almost 100 reactors worldwide. Eurodif's provision of 8 million separative work units (SWU) of enrichment services makes it one of the world's four largest such organizations. Unlike Urenco, Eurodif is not involved in the development of enrichment technology. In the future, both enterprises will move closer together. On Nov. 24, 2003, Areva, the French government-owned company that runs Eurodif, acquired a 50 percent equity interest in Enrichment Technology Co., which owns Urenco.

The biggest hurdle to making Eurodif the prototype for a future extraterritorial Iranian enrichment facility, however, is the tangled history of Iran's involvement with the multinational venture. In 1974, Iran's ruler, Shah Reza Pahlavi, lent \$1 billion to the French Atomic Energy Commission to build the Eurodif plant. The loan would have entitled Iran to buy 10 percent of enriched uranium produced by Eurodif. In 1977, Iran paid another \$180 million for future enrichment services by Eurodif. After Iran's Islamic Revolution in 1979—ironically, the year Eurodif began its operation—Tehran cancelled its agreement with Eurodif and halted its payments for enriched-uranium deliveries because Ayatollah Ruhollah Khomeini initially was not interested in nuclear power. Eurodif never delivered any nuclear fuel to Iran.

A bitter legal dispute followed, during which time Iran demanded repayment of its original \$1 billion

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loan, plus interest. France argued that Iran owed it payments beyond the \$180 million for enrichment services ordered by the shah but which were subsequently cancelled. The legal suit was settled only at the end of 1991. Iran was reimbursed a total of \$1.6 billion for its original 1974 loan plus interest, and French firms were compensated for their losses, partly through an export insurance company. Iran remained an indirect shareholder through Sofidif, a French-Iranian consortium that has a 25 percent interest in Eurodif.

Ironically, the settlement came just as Iran had changed its position vis-à-vis Eurodif and demanded delivery of enriched uranium based on the old contract. Paris maintained that the contract had expired in 1990. By that time, Iran was already subject to Western sanctions. France refused to deliver the fuel even though Tehran still held an indirect share in Eurodif. Iran views this refusal as proof of the unreliability of outside nuclear supplies and uses the Eurodif episode to argue its case for achieving energy independence by supplying all of the elements of the nuclear fuel cycle itself.

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