



ITER site contest counts down

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The process of choosing the site for the International Thermonuclear Experimental Reactor (ITER), an international project to use nuclear fusion energy for electric power generation, is counting down with Rokkashomura, Aomori Prefecture, as one of two key candidates.

The ITER plans have been referred to as the realization of a dream project for the sun's power to be used on the Earth for peaceful purposes.

Rokkashomura and Cadarache, southern France, are competing fiercely to host the project.

Canada, China, the European Union, Japan, Russia, South Korea and the United States are taking part in negotiations on ITER's construction, which is expected to cost 10 billion dollars or more.

Representatives from each party met in December to finalize the location of the project, but failed to reach an agreement.

Another ministerial meeting is scheduled for late February when participants hope to agree on a site for the project.

The ITER project envisions using thermonuclear fusion to generate huge amounts of energy as atomic nuclei are fused at a temperatures in excess of 100 million degrees centigrade.

When heavy hydrogen and tritium used for fuel in the fusion reaction are heated in a vacuum receptacle at 100 million degrees or more, their atomic nuclei and electrons are separated into a plasma. When the nuclei collide in such a state, they transform into heavier nuclei in the same phenomena that takes place in the sun. Therefore, the planned ITER is called a sun on Earth.

One gram of the combined fuel of heavy hydrogen and tritium obtained through this method would be able to generate an amount of energy equivalent to that produced by burning 8 tons of crude oil, according to experts.

As its name suggests when it is translated as "the way" in Latin, the project will provide a way to use fusion energy for practical purposes.

Construction of ITER would take about 10 years, and its trial period would continue for about 20 years, the experts said.

Nuclear fusion studies in Japan have been undertaken mainly by the governmental institution, the Japan Atomic Energy Research Institute, since the 1960s.

In 1985, a basic accord was reached on a modern interpretation of ITER in summit talks between then U.S. President Ronald Reagan and Soviet leader Mikhail Gorbachev.

The two countries, Japan and the EU, joined the agreement before Canada, China and South Korea.

The United States under President Bill Clinton's administration withdrew from the ITER agreement in 1999 mainly for financial reasons, but the current administration under George W. Bush decided to rejoin last year.

Japan had three candidates for the ITER site, which were Tomakomai, Hokkaido, Nakamachi, Ibaraki Prefecture, and Rokkashomura. But a formal decision was made to make Rokkashomura the nation's only candidate for reasons including the region's solid ground.

Cadarache of France, Clarington on Lake Ontario, Canada, and Vandellos of Spain were the other proposed sites.

After Clarington dropped out of the running, Cadarache was eventually selected as the EU's candidate, which turned the selection process into a two horse race.

At the last ITER ministerial meeting, Russia and China were in favor of Cadarache while the United States and South Korea backed Rokkashomura. Canada was absent, and a final decision had to be postponed.

The reasons France cited for insisting on the selection of Cadarache, where a research complex on nuclear fusion has already been established, were:

- Rokkashomura is situated in a region with a high incidence of earthquakes.
- Japan's prices, including electricity charges, which are necessary for ITER studies, are very high.
- The climate in the Rokkashomura area is very cold in winter and is too severe for nuclear fusion researchers from around the world.

Japan refuted the French arguments and sought to obtain the support of other ITER negotiation members by saying the area where Rokkashomura is situated is known for its low incidence of major earthquakes, while saying power charges in Japan were certain to fall as the industry was deregulated.

The local government in Aomori Prefecture has offered to make the ITER site available for nothing, in addition to establishing an international school for the families of ITER researchers.

However, Russia favored Cadarache in light of Japan's high prices, while China stressed that Cadarache has a considerably more comfortable climate than Rokkashomura.

In a bid to ensure support for Rokkashomura, Education, Science and Technology Minister Takeo Kawamura made a tour of South Korea, Russia and China from Jan. 14 to 17.

In a meeting with China's Science and Technology Minister Xu Guanhua, Kawamura stressed the high significance for the Asian region of positioning one of the world's most advanced research facilities in Asia, according to government sources. Xu responded that he understood Japan's perspective, they said.

Russia, however, has proposed that any country that is not selected as the site of ITER should be allowed to create research facilities for analysis of ITER data by means of computer.

Some experts said a compromise may be reached at the next ITER negotiations in line with the Russian proposal.

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