

World News

[>> Home](#) [>> World News](#)

Michael Richardson: Win for France over fusion reactor a big blow to Japan



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05.07.05

The quest to find a clean, cheap and abundant way to meet future global energy needs took a big step forward last week when six of the world's leading powers agreed that France, not Japan, should be the site for an experimental nuclear fusion reactor.

But the choice was a loss for big science in Asia and will fan Japanese resentment of China.

Tokyo blames Beijing for siding with France in settling the long-running squabble over which country should host the revolutionary energy project known as ITER, the International Thermonuclear Experimental Reactor.

Due largely to China's opposition, ITER will be constructed in France at an estimated cost of US\$13 billion (\$19 billion). At stake were billions of dollars of research funding, construction and engineering contracts, and the creation of thousands of jobs.

China supported France apparently because Beijing believes it can get more from Europe in scientific and technological co-operation - including collaboration in space, satellite, energy and bio-technology research - than from Japan.

But the tussle was also another aspect of the intensifying rivalry between China and Japan.

The 500-megawatt ITER reactor is due to start operating by 2015 and to run for 20 years.

If all goes to plan, it will be the first large-scale demonstration of nuclear fusion, the reaction that makes the sun such a prolific source of energy, heat and light.

Some scientists say fusion is the best option for abundant, environmentally friendly power.

They believe it can help to wean the world off pollution-producing fossil fuels.

But critics point out that it will be decades before ITER has any impact and that the money and effort would be better spent on other energy technologies that can reduce global warming more quickly.

In the ITER contest, France was also backed by the European Union and Russia, while Japan was supported by South Korea and the United States.

The ITER reactor, to be built at Cadarache in southern France, will use sea water as fuel because it contains the elements needed for nuclear fusion.

Unlike energy derived from coal, oil and other fossil fuels, fusion produces no environmentally damaging emissions and only low levels of radioactive waste.

In contrast to nuclear fission, the reaction that drives the world's existing nuclear power stations, fusion poses no known danger of weapons proliferation or highly radioactive spent fuel.

China's opposition to Japan hosting the cutting-edge ITER experiment reflects their increasingly intense rivalry and mutual suspicion. The two countries have been at loggerheads in recent months over interpretation of history, Taiwan, offshore energy and maritime boundaries.

Japan has joined the US in urging the EU not to lift its arms embargo on China. Beijing has said it will block any plan for Japan to get a permanent seat on the UN Security Council.

Tokyo only agreed to give up its claim to host the ITER reactor in exchange for a bigger research and operations role in the project.

"Japan is happy and sad at the same time," said Nariaki Nakayama, the Minister for Science and Culture.

"We decided to overcome the sorrow and turn the sorrow into joy. Japan in the future will be ready to make a contribution to the development of fusion energy."

The EU plans to cover 40 per cent of the cost of the project, with France contributing an extra 10 per cent. Japan will also be compensated with top jobs at ITER and additional construction contracts.

But these will not hide the heavy loss of prestige for the world's second-largest economy and Asia's most advanced scientific and technological nation.

Nor will it help to ease the ire that Japan must feel towards China for sabotaging an Asian bid to harness the power of the sun.

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