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Fusion reactor bid

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Losing the ITER project may be the best bet.

Battles to win projects to build public facilities are typically fierce, no matter where they are waged. Conventional wisdom holds that the competition grows even more ferocious when the prize is the right to host an international facility.

This holds true for the International Thermonuclear Experimental Reactor (ITER) project to build a facility for joint research in nuclear fusion, a field highly touted as the "energy of tomorrow." Japan's Rokkasho in Aomori Prefecture and France (the choice of the European Union) have vied for the right to host facility.

It now appears that Japan will scrap its hopes to host the project, with the reactor most likely to be built in Cadarache, southern France, according to a recent announcement by Francois d'Aubert, France's deputy research minister. One factor contributing to Japan's giving up the chase is the swelling financial cost of the bidding war.

But the Ministry of Education, Culture, Sports, Science and Technology, and a group of ruling Liberal Democratic Party members support the bid and continue to insist that Japan is determined to lure the project to these shores.

Considering the hefty cost and weighty questions about the ultimate feasibility of nuclear fusion, we see no reason for Japan to pursue this project. The EU and France also say that they still entertain the idea of building a fusion reactor independently.

Under the circumstances, the best move for Japan would be to concede the project to the French, and then lobby for Japanese participation in the research under favorable terms. In short, a defeat in the bidding war should be seen as a victory in the long run.

Generating atomic power typically relies on the nuclear fission of uranium. The ITER project, however, aims to harness nuclear fusion-creating energy by causing a nuclear fusion reaction. It's a process that would emulate the

sun's hydrogen reactions. Radioactive waste produced by fusion would be negligible, causing the idea to be heralded the ``trump card of 21st century energy."

Cooling such optimism, however, is the long list of technical problems that have yet to be resolved. Projections say that commercial use of nuclear fusion won't be possible until the end of this century at the earliest. Much more research is necessary, and the load is too heavy for any one country to shoulder alone. The ITER project seeks to align the United States, China, Russia and South Korea with Japan and the EU in the quest for fusion power.

Resource-poor Japan hopes that nuclear fusion would be an important source of future energy, with the government envisioning construction of a test reactor here as a means to lead development. But the EU is also eager, and both sides ratcheted up an ``out of pocket" bidding war with promises to shoulder even more of the cost if allowed to host.

Setting aside the question of whether it is correct to decide an international science and technology collaborative project by auction, Japan has been hard pressed to win against the entire EU.

The price tag for ITER construction is estimated at 570 billion yen, which when included in operating expenses over the next three decades brings the aggregate ballpark figure to 1.3 trillion yen. The plan requires the host country to pay half the construction costs, and more than half of the total operating expenses. And for nuclear energy, moreover, the rule of thumb is to expect costs to mushroom further on down the road.

The Japan-EU talks have turned to hammering out the final burden to be borne by the host country, and what perks to give the side that withdraws.

If Japan steps aside, its financial burden to construct the reactor will be greatly reduced. As quid pro quo, benefits are likely to include Japan-based construction of facilities to develop materials that are resistant to fusion reactions, the right to have more researchers involved in the project than other countries and other extras.

The bid to win the ITER project was a state policy blessed by both the government Council for Science and Technology Policy and the Cabinet. Yet the debate that went into that process, which included researchers, was low key at best. The question remains of how best to approach projects for which both the potential returns and the accompanying risk are high. Even if Japan pulls out of the battle to host the ITER, this is an issue that must be probed in depth.

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