

Clock ticking on fusion decision

Europe has made it clear it will not wait beyond June to reach international agreement on where to site Iter, the experimental nuclear fusion reactor.

EU ministers said on Monday they wanted the matter resolved before the current Luxembourg presidency ends.

Europe believes Iter should be built at Cadarache in France, but other project members are backing Rokkasho in Japan.

The multi-billion-euro reactor will produce energy from nuclear reactions like the ones that power the Sun.

After the International Space Station, it would be the largest global research and development collaboration.

'Clear timetable'

But the six international partners - the EU, Russia, China, the US, Japan and South Korea - are deadlocked on a location decision.

Definitive decisions will have to be taken under the Luxembourg presidency

Francois Biltgen, Luxembourg research minister

Now, Luxembourg research minister Francois Biltgen has warned the impasse must end by July.

"In November 2004, [Europe's Competitiveness Council] took a fundamental decision and set out a timetable and according to this timetable, work on Iter should begin before the end of the year.

"If we want this to happen, definitive decisions will have to be taken under the Luxembourg presidency." On 1 July, the presidency is handed to the UK.

The EU has been doing its utmost to find a consensus among the six parties. We have been explaining our offer to the Japanese

Janez Potocnik, EU research commissioner

And the EU's research commissioner Janez Potocnik added: "We have to remember that we would like to start building the project at the site of Cadarache in the course of this year. If we take into account the fact that we would need half of the year to prepare for it, we need to find a solution very soon."

The EU and Japan have put proposals forward that they hoped would encourage the other stand down. But neither is prepared to do so at the moment.

Six still best

Japan is adamant that its Iter plans are superior - and has the backing of the US and South Korea; the EU has Russia and China in its corner.

Any solution that does emerge would see the "loser" take up a dominant support role, researching and supplying many of the key technologies that will be required in the reactor.

"The EU has been doing its utmost to find a consensus among the six parties. We have been explaining our offer to the Japanese. I have expressed my readiness to meet with my Japanese counterpart to find an agreement. I still believe that the best possible solution is to build this project at six," explained Mr Potocnik.

He has made it clear he would like to see high-level political discussions between the EU and Japan - but this approach appeared to be rebuffed at the weekend by the Japanese.

They dislike Europe's aggressive stance, which sees Cadarache construction as the only outcome in any negotiations.

"High-level political talks would be fruitless. If we were to hold such talks forcibly, we would only reach a deadlock," Satoru Ohtake, director of fusion energy at the Science and Technology Ministry, told the Reuters news agency.

The next European Competitiveness Council meeting on 18 April looks now to be a critical point in this drawn out process.

If no resolution is found by this date, it is possible Europe may begin to ask a smaller number of partners to join it in a Cadarache venture - even if that means leaving some of the six parties behind.

Final approval for this strategy would likely fall to Europe's senior research ministers meeting under the British presidency of the EU.

On to Demo

Unlike in fission reactions, in which atomic nuclei are split to release energy, fusion reactions release energy when nuclei are forced together.

The process is the same as the one that powers the Sun. Achieving stable and sustained reactions on Earth, however, present an immense challenge.

The Iter design is for the reactions to take place inside a 100-million-degree gas (plasma) suspended in an intense doughnut-shaped magnetic field.

ITER - NUCLEAR FUSION PROJECT

Project estimated to cost 10bn euros and will run for 35 years

It will produce the first sustained fusion reactions

Final stage before full prototype of commercial reactor is built

Iter will consolidate all that has been learnt over many decades of study . It is expected to produce 500MW of fusion power during pulses of at least 400 seconds.

If it achieves this and its technologies are proven to be practical, the international community would then build a prototype commercial reactor, dubbed Demo.

Fusion could help fill the void as the world moves away from oil, coal and natural gas.

The fusion fuels are plentiful and produce no greenhouse emissions when "burnt".

The systems are said to be inherently safe because they shutdown in a malfunction; and although radioactive materials are produced, they are not of the high-level long-lived variety that has so burdened nuclear fission

Story from BBC NEWS:
<http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/4328597.stm>

Published: 2005/03/08 11:31:55 GMT

© BBC MMV