

All I want for Christmas...

...is limitless energy without carbon emissions. Dream on

FUSION power is only 40 years away. No surprise there then: as the old joke goes "fusion has always been 40 years away – and always will be". All of which might be amusing if fusion research was racing ahead. But negotiations over the next great hope for fusion have stalled, making 40 years look more optimistic by the day.

Huge amounts of energy are released when hydrogen isotopes are raised to such high temperatures that their nuclei fuse. The dream is to tame this process and use the energy to generate electricity. The planned International Thermonuclear Experimental Reactor (ITER) should tell us once and for all whether this will ever be possible. If the answer is yes, it could mean limitless energy with no carbon emissions and none of the long-lived radioactive waste that dogs today's fission reactors. But it is a long shot and the price tag is large – 4.6 billion euros over 10 years – so it makes sense to spread the risk and the cost.

Six partners have opted in: China, the European Union, Japan, Russia, South Korea and the US. But for a year the project has stagnated while the EU and Japan battle over

where the reactor will be sited. The EU, supported by Russia and China, favours Cadarache in southern France. The rest prefer Rokkasho in northern Japan.

Last week, European officials raised the stakes, threatening to go ahead without Japan if no agreement is reached by the end of the year. Japan has refused to budge. The US, meanwhile is keeping a low profile, which is odd given that ITER tops the US Department of Energy's wish list of major projects for the next 20 years. Also, the US withdrew from ITER in 1998 because it was too costly, and rejoined only after it was scaled back. Yet any split in the partnership is bound to push up the price for the remaining members.

One gambit tried by Europe and Japan has been to offer concessions to whoever does not get the reactor, such as hosting an institute for finding and testing materials that can survive inside a reactor. But even this ploy has failed.

The negotiations have reached deadlock and fresh ideas are badly needed. With climate change threatening, the need for carbon-free power has never been greater. Let's stop the posturing and put fusion to the test. ●