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Europe signs multi-million contract to heat up ITER plasma

Fusion for Energy (F4E), the EU organisation responsible for Europe's contribution to ITER, the international fusion experiment, has announced the signature of an important deal with [IDOM](#) and [Alsymex](#). The consortium of the two companies has been entrusted with the design and production of powerful heating systems that will help to raise the temperature of the ITER plasma up to 150 million °C.

The works are expected to run for six years and could reach a total amount of approximately 100 million EUR. The investment made by the EU through F4E will help companies to manufacture the cutting-edge components and ultimately, enable Europe's industry to become familiar with key technologies for future reactors.

Fusion holds the key to safe and clean energy for a future without greenhouse gas emissions. It will also make Europe more autonomous by relying less on third countries to meet its energy needs. For decades, scientists have been working on the idea of creating an artificial sun that will be able to generate baseload power. Yet, one of the biggest challenges is keeping the hot gas burning for enough time to maintain the fusion reaction. Any decrease in temperature will need to be compensated with extra heating, and any instabilities will have to be carefully monitored. Otherwise, the super-hot plasma will cool down and the reaction will stop. Europe is one of the ITER parties involved in the production of heating systems to gain first-hand experience in manufacturing them.

The consortium of IDOM and Alsymex will produce four Electron Cyclotron upper launchers, whose mission will be to deliver heating power to the plasma, and five ex-vessel waveguide systems, through which microwaves will be guided to travel to the heart of the machine to raise the temperature of the super-hot gas. ITER's Electron Cyclotron can be described as a sophisticated bazooka of microwaves that will heat the electrons of the plasma with high-intensity beams.

The consortium members state that "delivering such a complex and critical system for the first plasma operation of ITER is a challenging and exciting project. The strength of the IDOM-ALSYMEX consortium, the demonstrated experience of the project team and the close collaboration with F4E will allow us to make it happen."

"The signature of this important contract further strengthens F4E's collaboration with IDOM and Alsymex in delivering components as part of the European contribution to ITER. As we embark on the design and production of these powerful heating systems, we will use this opportunity to foster know-how and expertise so that Europe's industry gets ready to harness the energy of the future," stated María Ortiz de Zúñiga, Deputy Manager in F4E's Heating & Current Drive, EC Upper Launcher Programme.

Background

Fusion for Energy (F4E) is the European Union's organisation for Europe's contribution to ITER.

One of the main tasks of F4E is to work together with European industry, SMEs and research organisations to develop and provide a wide range of high technology components together with engineering, maintenance and support services for the ITER project.

F4E supports fusion R&D initiatives through the Broader Approach Agreement signed with Japan and prepares for the construction of demonstration fusion reactors (DEMO).

F4E was created by a decision of the Council of the European Union as an independent legal entity and was established in April 2007 for a period of 35 years.

Its offices are in Barcelona, Spain.

<https://www.fusionforenergy.europa.eu/>

ITER is a first-of-a-kind global collaboration. It will be the world's largest experimental fusion facility and is designed to demonstrate the scientific and technological feasibility of fusion power. It is expected to produce a

thermal output of 500 MW for about seven minutes. Fusion is the process which powers the sun and the stars. When light atomic nuclei fuse together form heavier ones, a large amount of energy is released. Fusion research is aimed at developing a safe, limitless and environmentally responsible energy source. Europe will contribute almost half of the costs of its construction, while the other six parties to this joint international venture (China, Japan, India, the Republic of Korea, the Russian Federation and the USA), will contribute equally to the rest. The site of the ITER project is in Cadarache, in the South of France.

<http://www.iter.org>

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