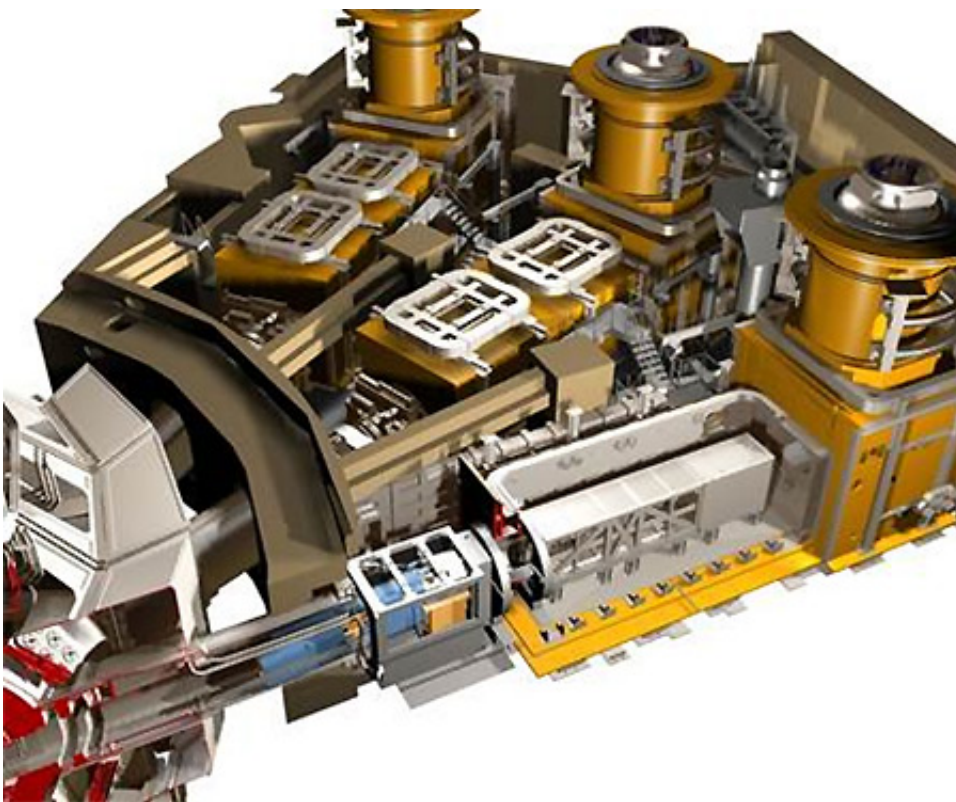


# F4E awards AMEC Foster Wheeler one of the largest robotics contracts ever in the field of fusion energy

May 13 2015

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Artistic impression of the ITER Neutral Beam Remote Handling system. Credit: Amec Wheeler Foster

ITER is the world's biggest international collaboration designed to demonstrate the scientific and technological feasibility of fusion power.

The machine will consist of an unprecedented number of high-technology components that will require a vast range of bespoke devices for operation and maintenance. F4E, the European Union's organisation managing Europe's contribution to ITER, has awarded one of the largest robotics contracts to date in the field of fusion energy to Amec Foster Wheeler, a UK innovation leader with a proven track record in energy.

All activities ranging from design, manufacturing, factory testing, delivery, on-site integration, commissioning and final acceptance tests for ITER's Neutral's Beam remote handling system will be covered through this contract as it unfolds progressively. Its value is in the range of 70 million EUR and it is expected to run for seven years. Under the leadership of AMEC Foster Wheeler, a group of laboratories and companies such as CCFE- the Culham Centre for Fusion, the UK's Fusion National Laboratory, Reel SAS of France, Wallischniller Engineering GmbH of Germany, Hyde Group of UK, Capula of UK, "KU Leuven-MaGyICs" of Belgium, VTT-the Technical Research Centre of Finland, and the Technical University of Tampere will share their expertise in robotics and contribute to the works.

F4E acting Director, Pietro Barabaschi, explained that "thanks to this collaboration, leading innovators will be joining forces to deliver high-end engineering for ITER's maintenance system and will push forward know-how in robotics, a field with many applications". Clive White, President of Amec Foster Wheeler's Clean Energy Business, said: "This contract reinforces our company's strong expertise in remote handling and robotics, and more generally in taking a key role in the design and development of future [fusion energy](#) reactors".



ITER, April 2015

## **What is remote handling?**

Remote handling helps us to perform a task without being physically present where it is being carried out. For example, it is widely used in space exploration missions, underwater repairs or challenging maintenance works. The operations require extreme dexterity and millimetric precision. Technical staff will be specifically trained to use the equipment that combines inbuilt intelligence and intuition, together with advanced robotics, tooling and virtual reality platforms.

## **Why ITER needs a remote handling system for Neutral Beam Cell?**

ITER's superhot plasma will reach 150 million °C with the help of powerful injectors and heating systems. The confined space in the machine together with the weight of the tooling and the exposure of some components to radioactivity will require the use of remote handling systems during maintenance. The equipment in the Neutral Beam Cell falls under this category due to the nature of the tasks performed. A Diagnostic Neutral Beam Injector will measure the temperature, density and other properties of the plasma; two Heating and Current Drive Neutral Beam Injectors will fire high energetic particle beams in the plasma in order to raise its temperature.

## **How will the ITER Neutral Beam Cell remote handling work?**

A sophisticated repair hub will use a 90m monorail that will spread over the Neutral Beam Cell, and will consist of transfer trolleys, beam line transporters and a variety of supporting beams that will operate in perfect coordination with tooling and manipulators. Some of the key tasks performed will include the maintenance work of the Neutral Beam Injectors, with the cutting and welding of myriads of pipes, and the transportation of heavy components coils to the Neutral Beam Cell storage area or to its main entrance for refurbishment and disposal.

Provided by Fusion for Energy (F4E)

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