



**FUSION
FOR
ENERGY**

DISCOVER
EUROPE'S BUSINESS
POTENTIAL IN ITER



ITER: the way to abundant, safe and sustainable energy for the future

Fusion for Energy (F4E) offers the possibility to companies and R&D organisations to participate in ITER—the biggest scientific collaboration on the path to fusion energy. Manufacturing Europe's share of components and providing the infrastructure to this international project means working with suppliers from all over the world, becoming more competitive by acquiring new skills, and learning today the way to deliver the energy of tomorrow.

What is ITER?

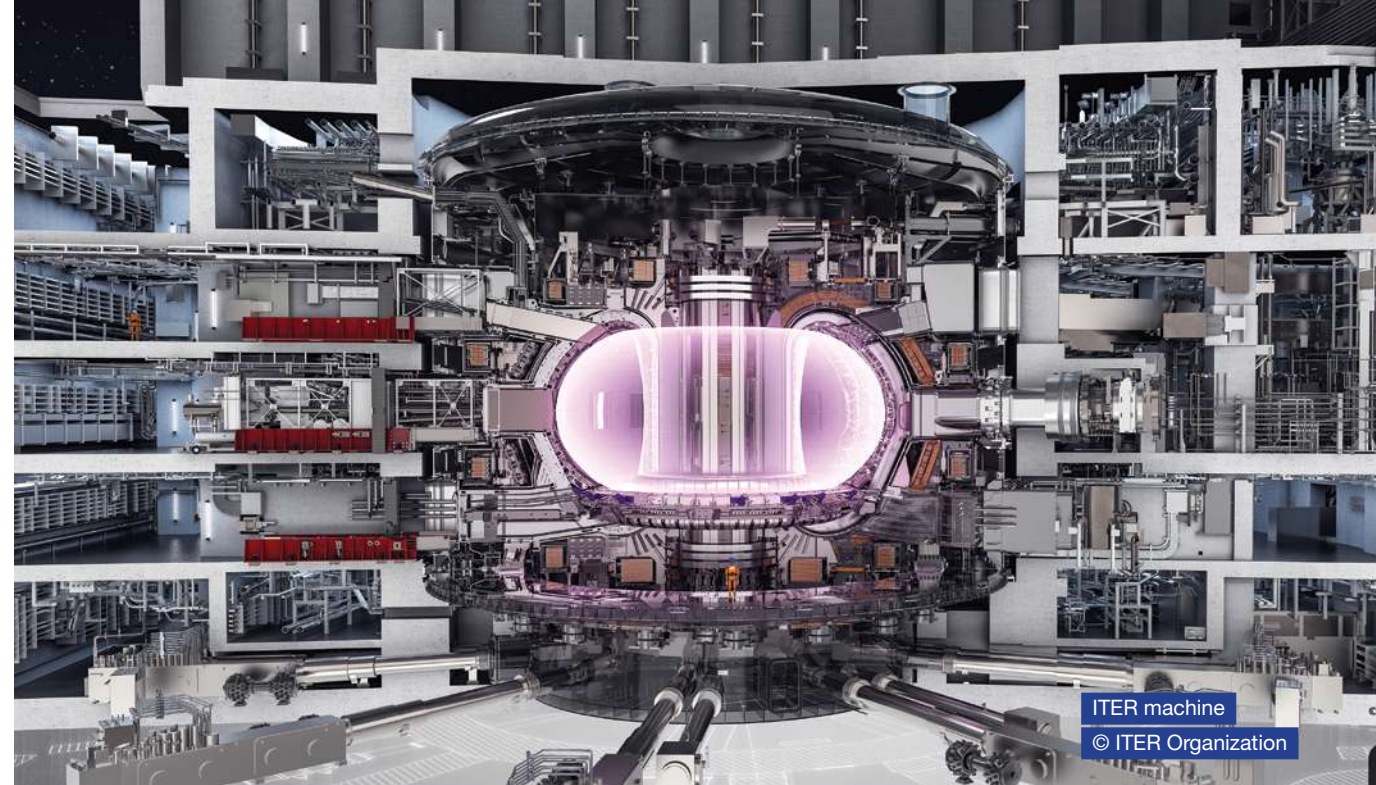
ITER will be the world's biggest experiment on the path to fusion energy. It brings together seven parties which represent half of the world's population (China, Europe, Japan, India, the Republic of Korea, the Russian Federation, US) and 80% of the global GDP.

How is Europe contributing to ITER?

F4E is the EU organisation responsible for Europe's participation in ITER. Its contribution, primarily financed by the EU budget, amounts to nearly half of the project's costs and translates into a wide range of business opportunities for companies and R&D organisations. Europe's involvement in ITER offers them the incentive to collaborate in an international context, to extend their know-how and to discover new business markets.

Why is fusion part of the solution?

A sustainable energy mix is essential for our well-being and prosperity. Fusion has the potential to play a significant role in the years to come. The fuels required are widely available and virtually inexhaustible. There is no production of greenhouse gases or long-lasting radioactive waste. Given the fact that the EU is the world's largest energy importer, at a cost of 1 billion EUR per day, it is in everyone's interest to explore alternatives.



F4E Business figures Since 2008



740

contracts signed with



532

main contractors



1600

subcontractors



70

R&D organisations



4.8

billion EUR of wealth generated for Europe's economy

Improving competitiveness and fostering growth

ITER will help companies and laboratories to join an international technology race. They will improve in the sectors they operate, work with suppliers from all over the world and tap into new business markets. Creating smart growth and jobs will help Europe become more competitive.



Giuseppe Tadia
OCEM

“ We are an SME... we are small but these projects help us think big. ”



Marianna Ginola
SIMIC

“ ITER has given us the opportunity to build international collaborations, access new markets and grow both in size and expertise. ”



Jean-Claude Cercassi
CNIM

“ Thanks to our participation in ITER we have improved our infrastructure, increased and trained our workforce, with new tools and processes, to manufacture our share of components. ”



Sergio Frattini
ASG Superconductors

“ The superconducting technology which has been developed in the ITER project has led to a number of innovative systems in the fields of medicine and energy. ”



Manufacturing the ITER Toroidal Field coils
Europe's Winding Pack inserted into its case coil, SIMIC, Port of Marghera, Italy © SIMIC



Technicians checking the installation of equipment in the ITER Cryoplant.

Europe's contribution results from the collaboration between F4E and Air Liquide.

© ITER Organization

Developing new skills and stimulating innovation

Due to the scale and complexity of the ITER project we need to think out of the box. This one-of-a-kind scientific partnership will help European companies to harness innovation by acquiring new skills and broaden their expertise.



Michael Krohn
Siemens

“ Our company is proud to be part of this international research project and to play an active role in the manufacturing of its equipment. ”



Suzanne Roy
Air Liquide

“ The scale of the ITER project allowed us to challenge our own methods, and to improve them, to be even more innovative and expert in our field, but also in others. ”



Michael Peiniger
RI Research Instruments

“ The cutting-edge requirements of this project are a motivation to keep pushing our technological limits further. ”



Jean-Michel Sanchez
ENGIE

“ Adaptability to the evolving requirements and the development of new skills, best describe the impact of the ITER project as experienced by Engie. ”



Aerial view of the ITER construction site, Cadarache, France
© ITER Organization /EFJ Riche



Oriol Ribas
Ferrovial

“ ITER has given us the incentive to invest in an energy market, at research stage, which is somehow pushing us towards innovation and technical excellence. ”



European real-size prototype of ITER Divertor Cassette
manufactured by Walter Tosto © Walter Tosto



Massimiliano Tacconelli
Walter Tosto

“ Customers from our core business have started requesting the skills and equipment we have developed the last ten years for ITER. It is gratifying to see our expertise fully recognised. ITER is a trip to the future and thanks to it we had to revise practices of the present. ”



Nick Roberts
Atkins

“ ITER is one of these projects that really excites the imagination of scientists and engineers. ”



Construction in progress, ITER site, Cadarache, France
© ITER Organization



François Genevey
Daher

“ For a mega project such as ITER, innovation is key for its success. Since the beginning of the project, Daher has invested in developing new tools such as a specific control room, artificial intelligence and an e-Roadbook. All applications will be used in future logistics operations. ”



The first pair of girders of the ITER Assembly Hall cranes delivered to Marseille. The logistics operation was financed by F4E and undertaken by Daher.

Transferring know-how and generating new applications

To meet the ITER requirements, new applications will need to be developed which will influence the progress we make in various fields. The spin-offs resulting from this project will strengthen Europe's ability to be creative and boost its business potential.



Cock Heemskerck
**Heemskerck innovative
Technology**

“Because of our involvement in ITER and the technology we developed for remote maintenance tasks, we were able to enter the completely new field of care robotics.”



Stephen Sanders
**Veolia Nuclear
Solutions (UK) Ltd.**

“Transferring the technologies we have been developing into other markets, high-energy physics and nuclear decommissioning have been some of the benefits.”



Simon Keens
Ampegon

“With our roots in the field of broadcast transmitters, scientific projects such as ITER have challenged Ampegon to develop our technology to new scientific applications. Industry is now moving to adopt this for novel manufacturing techniques.”



Jens Verbeeck
MAGICS Instruments NV

“ITER has started an industry 4.0 revolution by helping us to innovate in the field of technology microelectronics, transferring our know-how to smart power plants and robotics for the fission industry.”



“This joint venture with F4E, Tamlink and Fluiconnecto has been fruitful. The digital hydraulic solution offers a unique combination of performance and reliability. The project is a good example of transferring research to an application.”

Matti Linjama
**Technical University of
Tampere**



ITER Worksite, February 2019
© ITER Organization

“ ITER has taught us how to integrate innovative codes specific to fusion, whilst ensuring full compliance with the French Nuclear Authority. ”

Christophe Gary
Apave

Building international collaboration and commercial partnerships

Working together is essential to make best use of know-how and expertise. Due to the size the ITER project, companies will be part of an unprecedented supply chain offering them the prospect of commercial partnerships with significant financial benefits.



Roberto Adinolfi
Ansaldo Nucleare

“ Fusion energy is the future. We are excited and proud to be part of this high level team, sharing expertise, improving our own technology and innovation standards with one common goal: building ITER—the world’s largest fusion device. ”



Stephane Aubarbier
Assystem

“ The knowledge we have gained has given us the opportunity to propose new services to the energy sector and to get better acquainted with the potential of fusion. This is why ITER is one of the greatest R&D projects of our time and we support its successful realisation until the very end. ”



Maria-Teresa Dominguez
Empresarios Agrupados

“ We have been given the possibility to work in an internal context with many companies, including SMEs, which wasn’t the case before. ”



Marcus Kind
R.Kind

“ ITER opened international markets for us. ”

Setting a new benchmark for fusion technology

Contributing to the biggest energy experiment means pushing forward the boundaries of science and technology. ITER invites research and industrial communities to join forces and become the pioneers that will bring fusion energy one step closer.



Ambrogio Fasoli
École Polytechnique
Fédérale de Lausanne

“It is a project that pushes innovation all the way into the future. It is important to be able to apply our research findings into real projects like ITER – a machine that will demonstrate that fusion is not a dream but a reality.”



Greg Willets
Wood Plc.

“ITER is giving Wood the opportunity to break new ground at the forefront of fusion technology.”



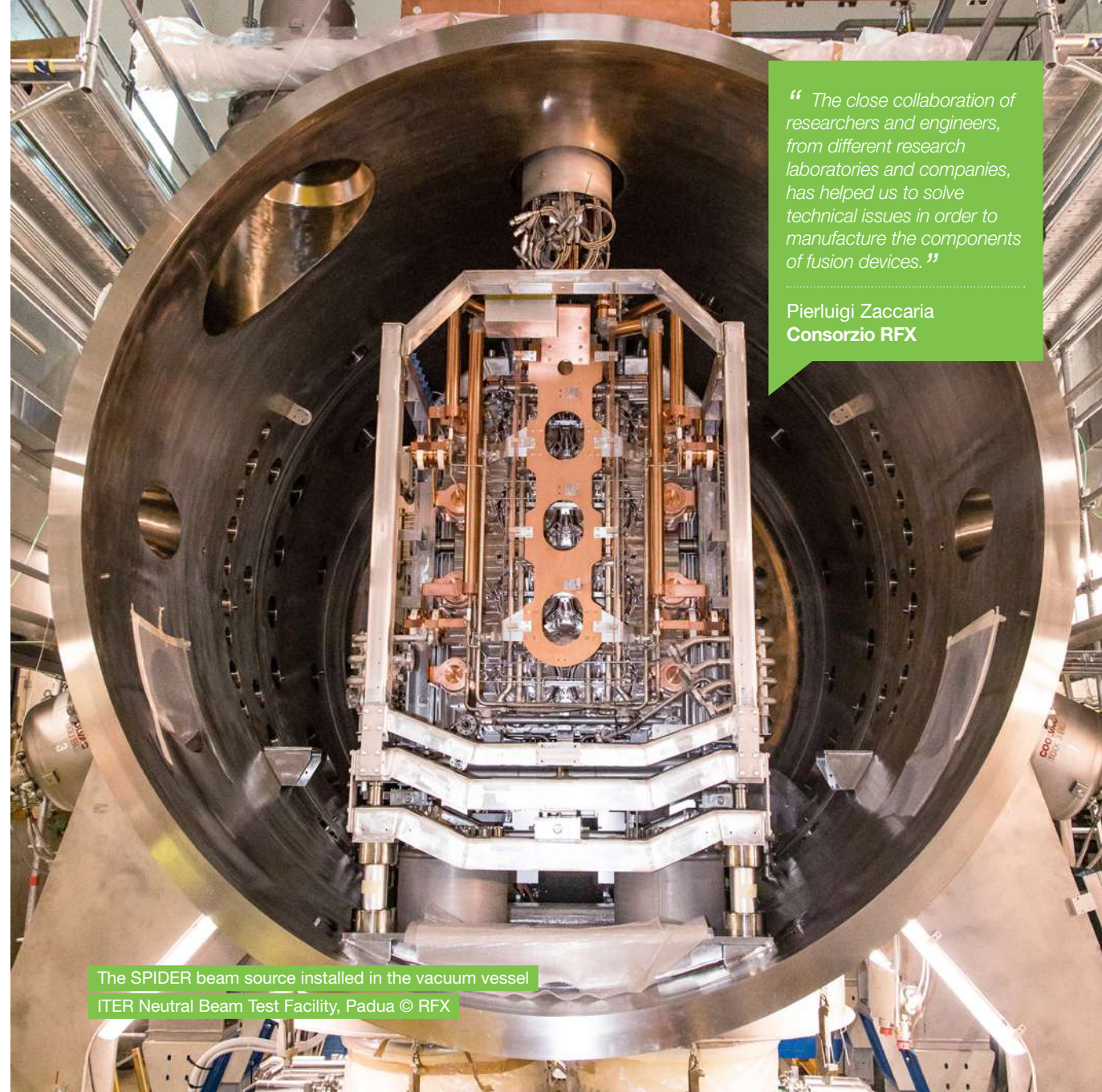
Luis Rodríguez Llopis
IDOM

“We are very proud of the opportunity that we have been given to collaborate in what most likely will be the most important research project of the XXI century in the field of energy and engineering.”



Julio Lucas
Elytt Energy

“We feel very proud and honoured that our work is going to contribute to the development of a future inexhaustible energy source for all mankind.”



“The close collaboration of researchers and engineers, from different research laboratories and companies, has helped us to solve technical issues in order to manufacture the components of fusion devices.”

Pierluigi Zaccaria
Consorzio RFX

The SPIDER beam source installed in the vacuum vessel
ITER Neutral Beam Test Facility, Padua © RFX

Fusion for Energy

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and the Development of Fusion Energy

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Fusion for Energy
receives funding
from the European
Union budget