



**FUSION
FOR
ENERGY**

BRINGING
THE **POWER**
OF THE **SUN**
TO **EARTH**

Partnering with EU Industry to develop Fusion

Niels van de Ven
Commercial Manager

Big Science Sweden
26 November 2019



Fusion for Energy is the European Domestic Agency for ITER



Fusion for Energy or “F4E” is the European Union agency for ITER

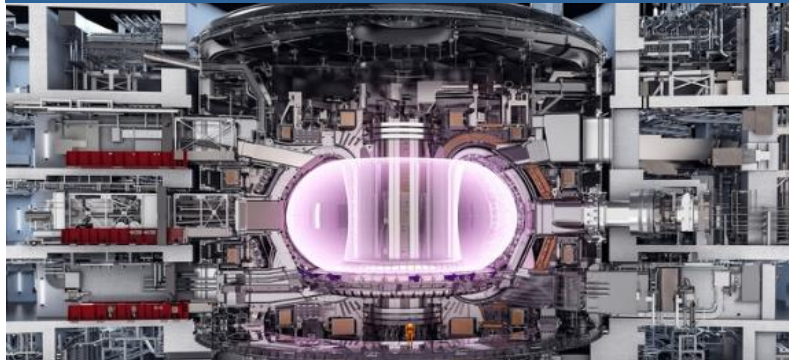
- ▶ **F4E is a EU public organisation set up in 2007 for 35 years**
- ▶ **Headquarters: Barcelona, Spain**
Offices: Cadarache, France
Garching, Germany
Rokkasho, Japan
- ▶ **Staff: 460 (mostly engineers)**
- ▶ **Budget: €6600m 2007-2020 (2008 values) and €7280m proposed for 2021-27 (current values)**



F4E is developing fusion through four main projects



ITER: Burning Plasma



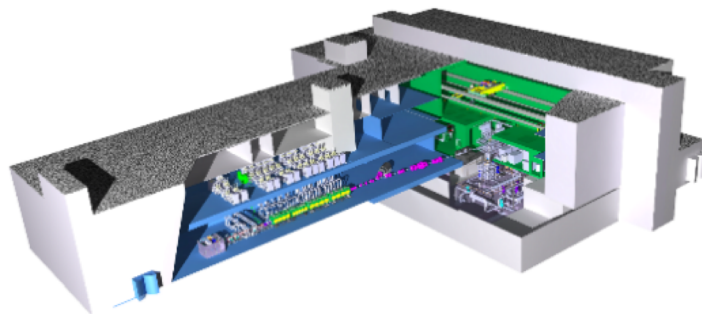
F4E is responsible for Europe's contribution to **ITER**, the world's largest scientific energy project

BROADER APPROACH



F4E is working with Japan on fusion projects known as the **Broader Approach**

DONES: Materials Testing



F4E is responsible for the design & future construction of the **DEMO Orientated Neutron Source**

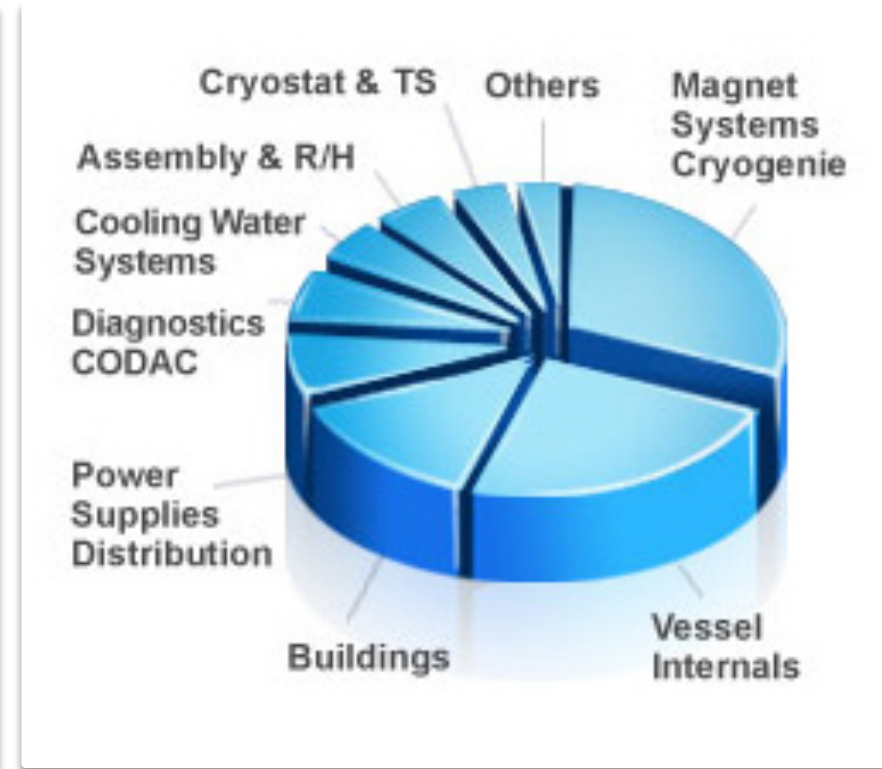
DEMO: Continuous Power



F4E will prepare a programme to build a power-generating **Demonstration Fusion Reactor**

In-kind Contributions build ITER

Pooling resources from around the world



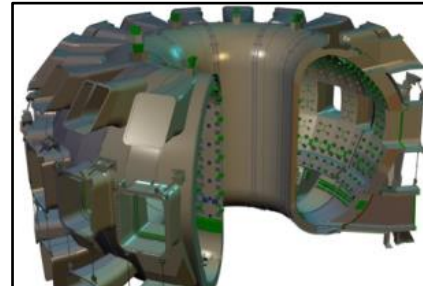
Europe contributes to ITER



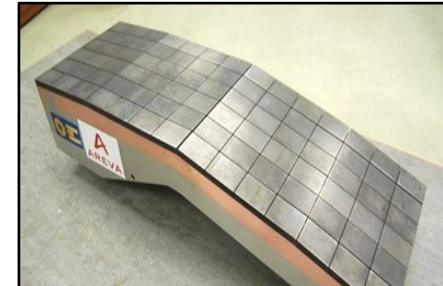
Site & Buildings



**Superconducting
Magnets**



**Vacuum
Vessel**



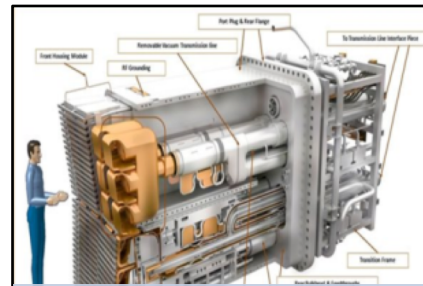
Wall Protection



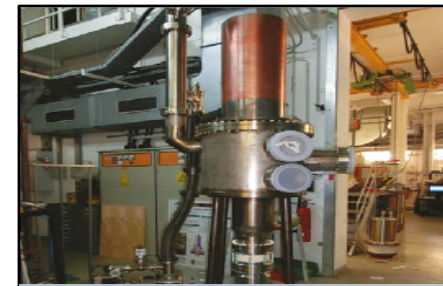
**Robotic Remote
Handling**



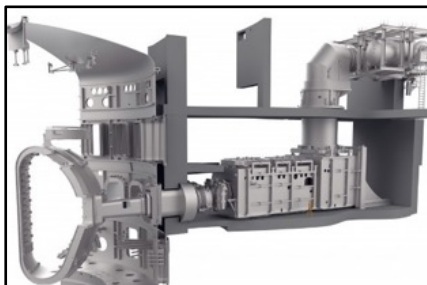
**Cryoplat
& Fuel Systems**



**Radiofreq (Ion)
Cyclotron Heating**



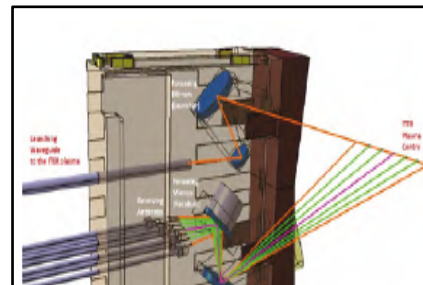
**Radiofreq (Electron)
Cyclotron Heating**



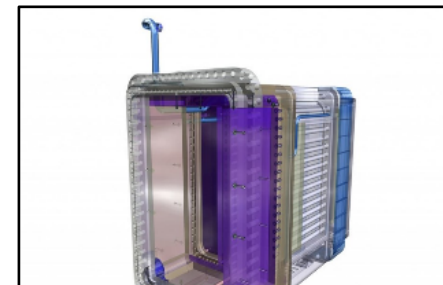
**Neutral Beam
Injectors**



**Neutral Beam Test
Facility in Padua (IT)**



**Measurement
Systems**



**Fuel Breeding
Modules (TBM)**

Europe invests in ITER to advance EU industry's capabilities



- ITER Organization (IO) and F4E co-operate with **industry** for
 - **Manufacturing**
 - **Assembling and**
 - **Commissioning** components and systems
- ITER is in many areas at or beyond state of the art, a first-of-a-kind project
 - needs **best skills** to find solutions
- classified "*Installation Nucléaire de Base*" by French regulator
 - **safety and quality** requirements applicable to IO, F4E and their industrial partners
 - Europe develops industry capable and interested to build the fusion energy infrastructure of the 21st century



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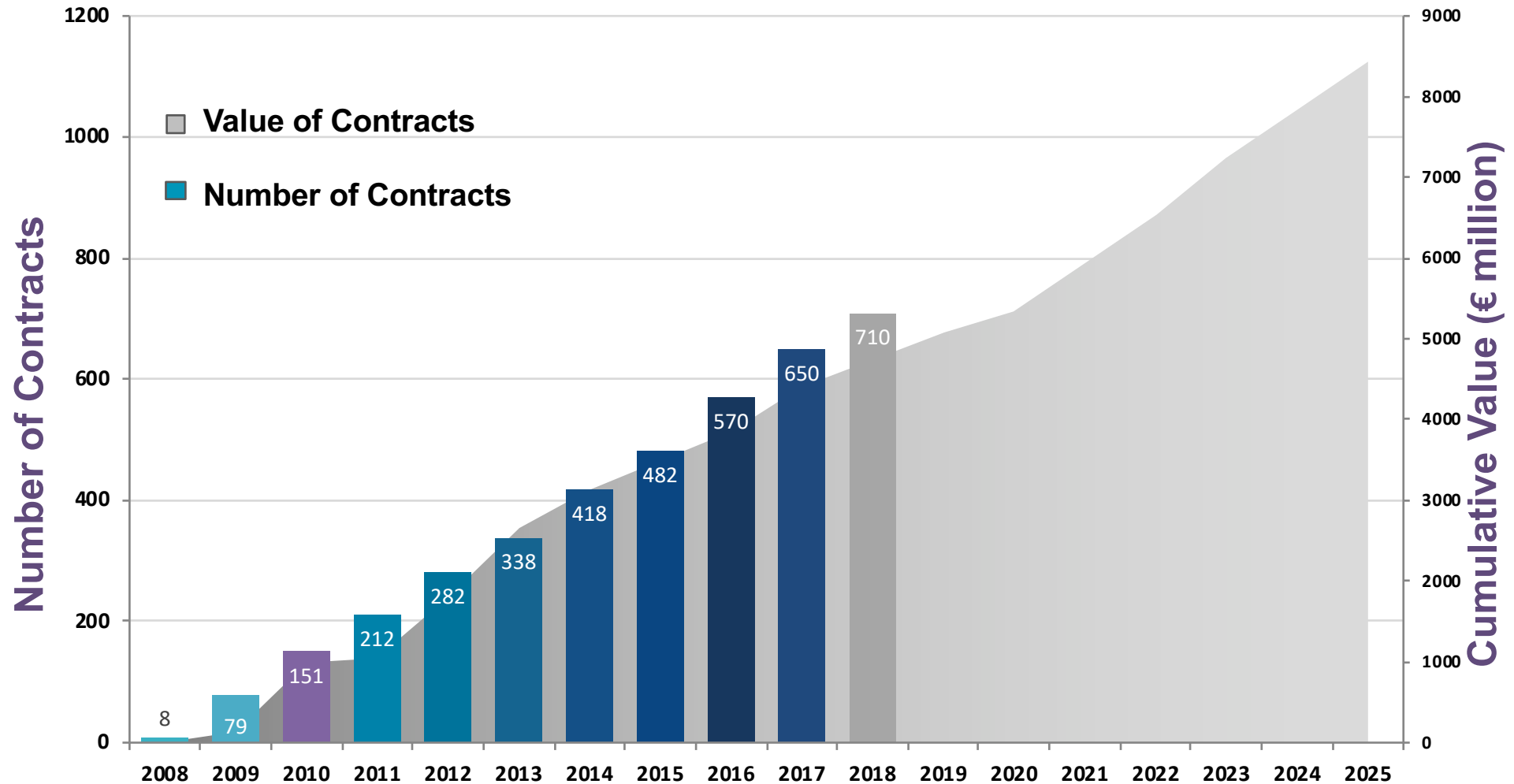
Opportunities for Industry & Research



F4E is approx. half way through its ITER mission in budgetary terms



To date: 4.75 B€, 450+ contractors, 1000+ subcontractors, from 22 EU States



4.1 B€ market exclusive to European companies until First Plasma (2025)

Upcoming F4E opportunities



Neutral Beam and Heating
~120 MEUR in 20+ contracts

Buildings and civil works
~700 MEUR in 10+ contracts

Diagnostics
~90 MEUR in 80+ contracts



Antennas
~60 MEUR in 30+ contracts

Cryogenics and Fuel Cycle
~180 MEUR in 20+ contracts

In-Vessel
~600 MEUR in 20+ contracts

F4E rules to engage industry



EU General Financial Regulation (based on Public Procurement Directive 2014/24/EU): wide competition, fair treatment, transparency, proportionality, non-discrimination

Geographical scope: **EU28 + CH** (extraordinary outside EU)

Threshold for publication: **144 k€**

Publication: website and OJEU <https://industryportal.f4e.europa.eu>

Types of contract: commercial procurement, research grants, innovation partnerships, framework partnerships, expertise

Procurement procedures: open call, restricted call, negotiation, competitive w/ negotiation, competitive dialogue, etc.

Support to locate **staff and facilities near ITER site** provided through *Agence ITER France* and *Welcome Around ITER* partnership

<http://welcome-around-iter.com>

F4E rules to engage industry



INDUSTRY AND FUSION LABORATORIES PORTAL

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LATEST CALLS

[No new published calls](#)

Welcome to the F4E Industry and Fusion Laboratories Portal

Important!

As of 1 November 2018, all tenders to F4E must be submitted via the [E-submission tool](#).

Having your Company registered in the Partners Database is not sufficient to submit a tender. For doing so your Company must be registered in the E-submission tool at least 48 hours before the submission deadline of the tender.

For further information, please consult the following tutorials [Supplier registration](#) and [How to submit a tender?](#)

The **Partners Database**, previously known as Company Database, remains as your point of entry to be notified of upcoming business events and opportunities (market surveys, Information Days, business forums, etc.), to search potential associates for creating a consortium, and to guarantee your visibility when F4E is looking for potential candidates. We have also simplified the registration process to the Database to make it more user friendly. The Call for tender documentation can be found as usual on the F4E Industry and Fusion Laboratories Portal. Other aspects of the bidding process are unchanged. For further information on how to prepare a tender, please consult our tutorial on [How to prepare a tender for F4E?](#)

ANNOUNCEMENTS

SOFT Innovation Prize 2020 NEW

20/11/2019 16:43

by F4E Business Intelligence Group

Building on the success of SOFT Innovation Prize in 2014, 2016 and 2018, the European Commission launches the fourth edition of the SOFT Innovation Prize under Euratom Work Programme 2019-20. Prize contest is open to the world and invites international...

PARTNERS DATABASE

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LINKS

[> F4E](#)[> ITER Organization CALL FOR TENDER page](#)[> Euratom](#)

In-Vessel

- **OMF-1033:** High Heat Flux tests of First Wall components (Worldwide CFT)
- **OPE-1036:** DIV CB Remote Handling Flangesn (CFT target: Q4 2019)
- **OMF-1019:** CuCrZr material for first wall (CFT target: Q1 2020)

Remote Handling

- **OMF-1034:** Engineering Services (target CFT: Q4 2019)

Cryoplant & Fuel Cycle

- Radiological and Environmental Monitoring System (REMS) (CFT target: Dec/Jan)
- In Pipe Inspection Tool (IPIT) (CFT target: Q3 2020)

Neutral Beam & Electron Cyclotron Power Supply & Sources

- Pressure Vessel and Magnetic shielding (Market survey under preparation)
- 6 gyrotrons of 1 MWe and associated components/services (CFT target: Q1 2021)

Diagnostics

- **OPE-1055:** IDES (RH Connector) (including shunt, socket) (CFT target: Q4 2019)
- **OFC-0847:** CPTS Prel. & Final Design (2 task orders) (Market survey: Q4 2019)
- Collective Thomson Scattering (CFT target Q1 2021)
- CXRS Camera system (CFT in 2021, if necessary for first plasma, or 2026)
- Clips, clamps and junction boxes for the MIC cables (CFT target Q1-Q2 2020)

Site and Buildings and Power Supplies

- **OFC-1006:** Claim management support services (CFT target: Q4 2019)
- Nuclear doors (TB20) (Market survey closed, CFT target: Q1 2020)

Broader Approach

- **OPE-1045:** Pellet injector pacing JT60SA (CFT target: Q4 2019)
- **OPE-1043:** Optical Fiber for Thomson Scattering JT60SA (CFT target: Q4 2019)
- **OMF-1048:** Global Logistics provider in support of BA Agreement
- **OPE-1051:** Solid State Power Amplifiers IFMIF
- Polychromators for JT60SA
- Cryopumps for JT60SA

Supporting Activities (PM & Technical)

- Project Management support service in CE marking
- Support for nuclear safety inspection (Low value, tenderers acknowledged by ASN)
- Material Characterization (Framework contract)



www.f4e.europa.eu



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