



**FUSION  
FOR  
ENERGY**

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

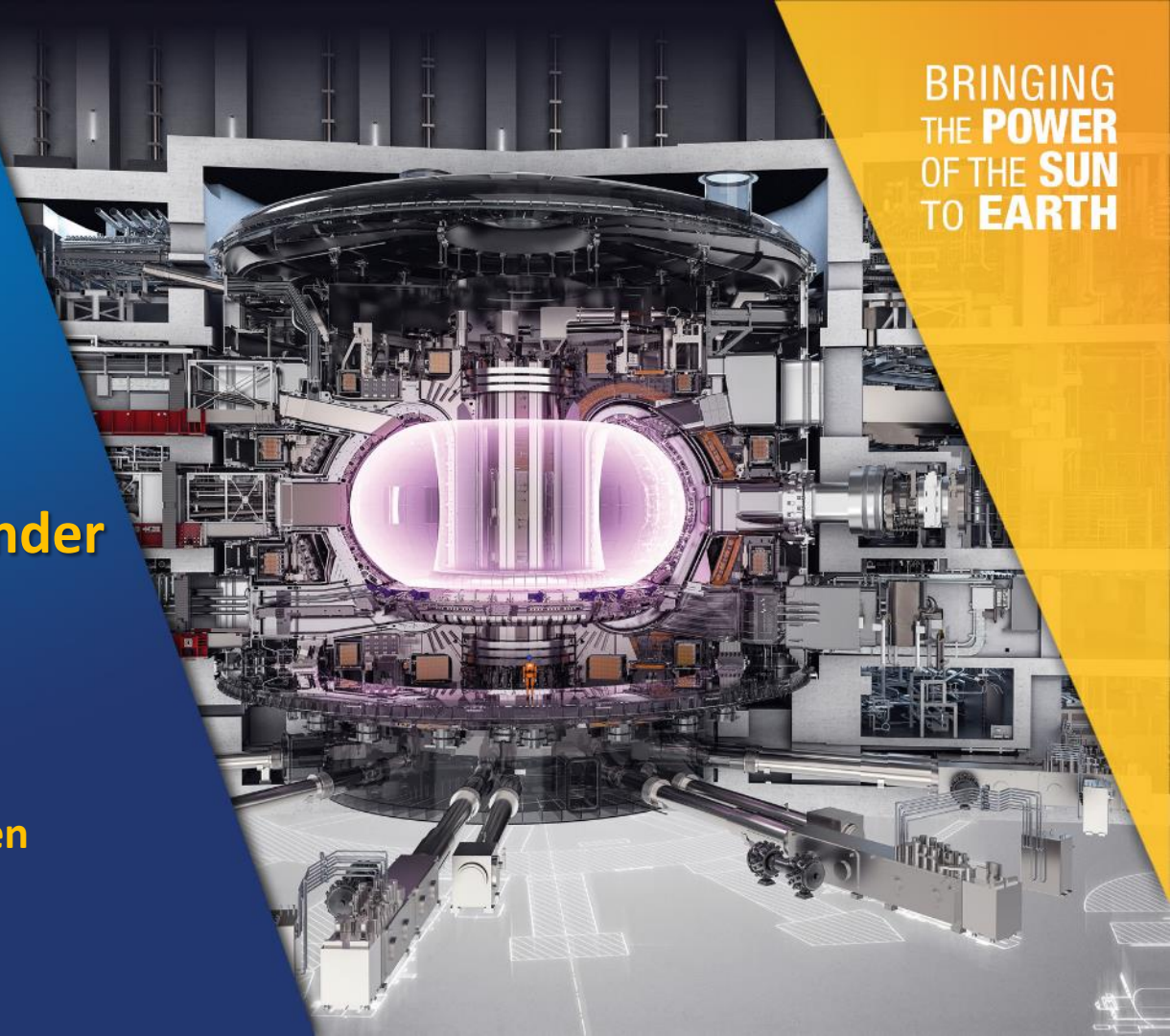
# **F4E**

## **Forthcoming Calls For Tender**

Mehdi Daval  
Market Analysis Officer

**Online Big Science Sweden**

**24 November 2020 - Online**



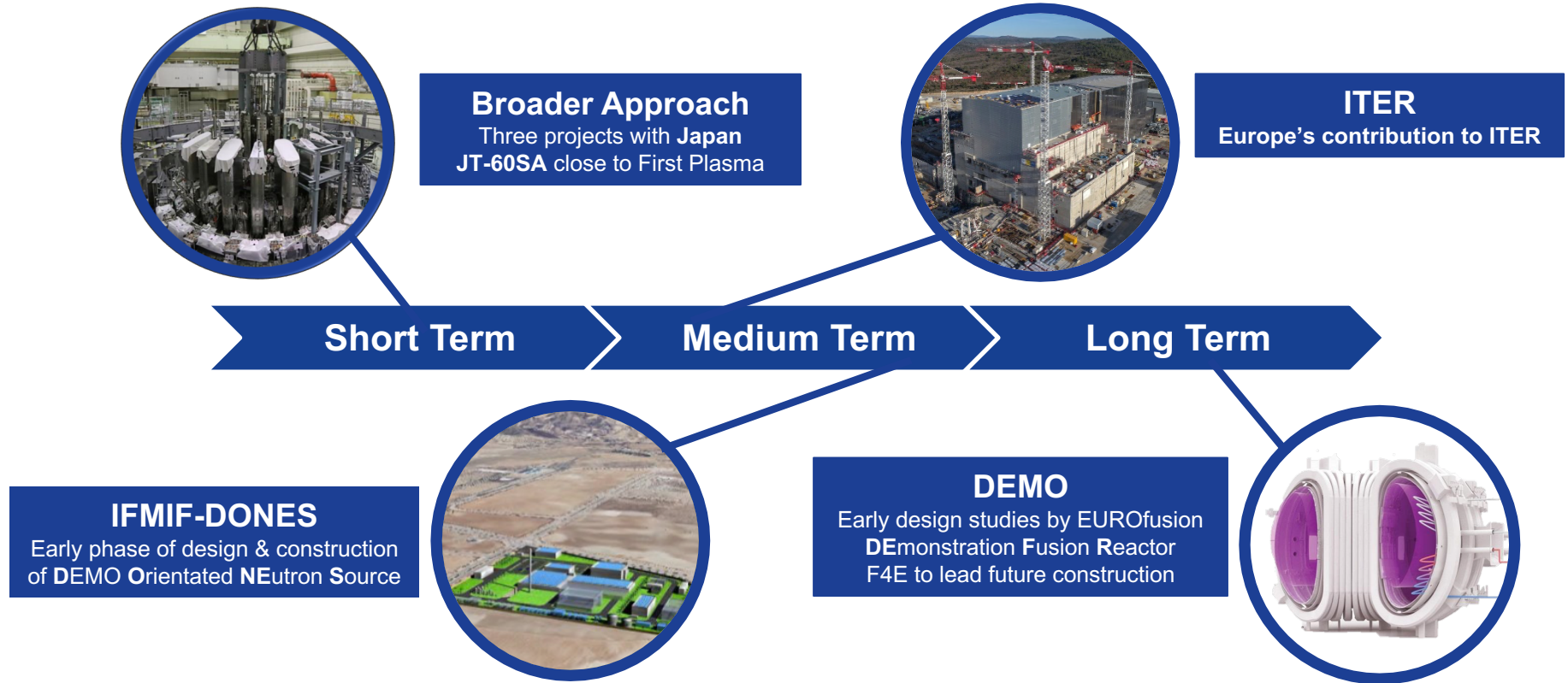
# Fusion for Energy is the European Domestic Agency for ITER



- ▶ 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+
- ▶ Budget
  - ▶ 2007-2020 ~€6.8bn (2008 values)
  - ▶ 2021-2027 ~€5bn (2019 values)

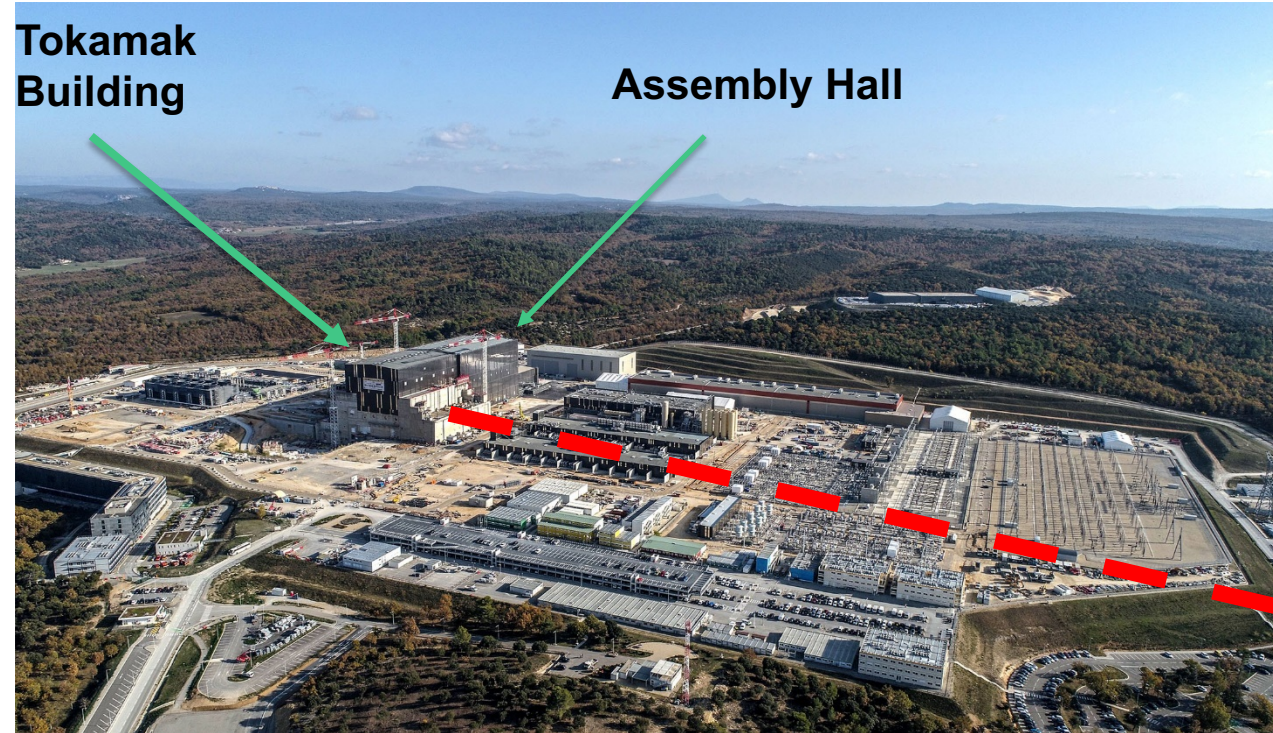


# F4E works on four main fusion projects Relevant for the European Roadmap

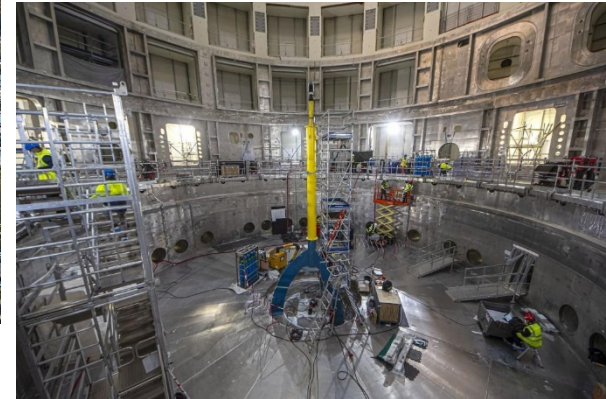




# ITER site today (Cadarache, France)



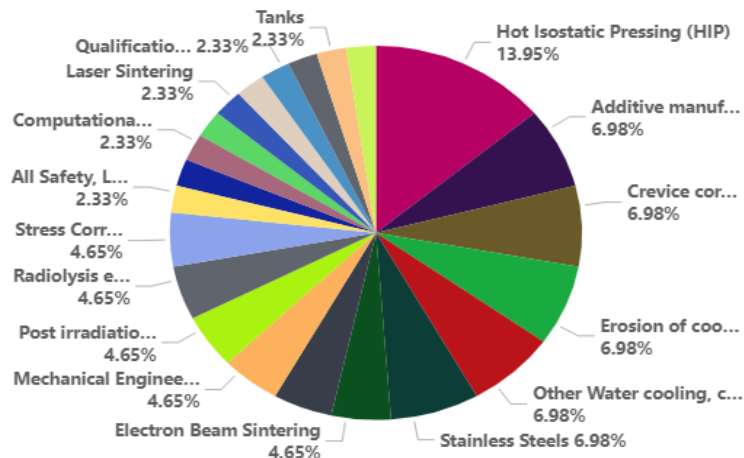
**Inside the pit:  
Cryostat base installed**



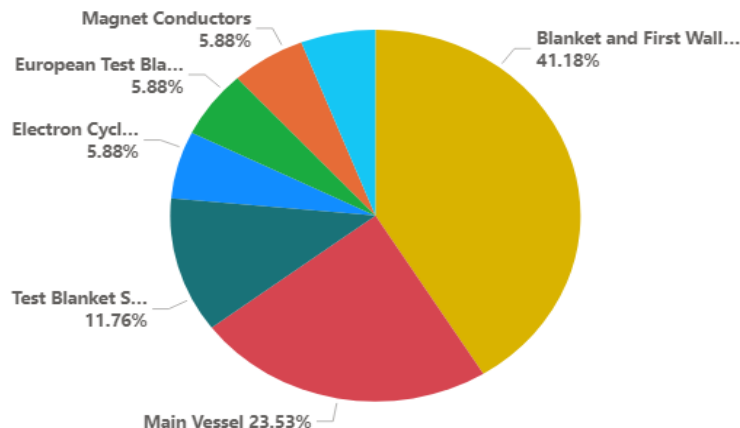
## Contractors' Technical Involvement (by #Contracts)

Sweden

### Main Technologies



### Main Components (WBS L3)



### Contractor's Country

- ☐ Search
- ☐ Greece
- ☐ Hungary
- ☐ Ireland
- ☐ Italy
- ☐ Latvia
- ☐ Netherlands
- ☐ Poland
- ☐ Portugal
- ☐ Republic Of Korea
- ☐ Romania
- ☐ Russian Federation
- ☐ Slovenia
- ☐ Spain
- ☒ Sweden
- ☐ Switzerland
- ☐ Turkey
- ☐ United Kingdom

### Contractor's Category

- ☐ Co-Contractor
- ☐ Lead Contractor
- ☐ SubContractor

Technology	Contractor Name	#Contracts
Hot Isostatic Pressing (HIP)	BODYCOTE VARMEBEHANDLING AB*	6
Crevice corrosion	STUDSVIK NUCLEAR AKTIEBOLAG*	3
Erosion of coolant water interfaces	STUDSVIK NUCLEAR AKTIEBOLAG*	3
Other Water cooling, chemistry & corrosion technologies	STUDSVIK NUCLEAR AKTIEBOLAG*	3
Additive manufacturing	STOCKHOLMS UNIVERSITET*	2

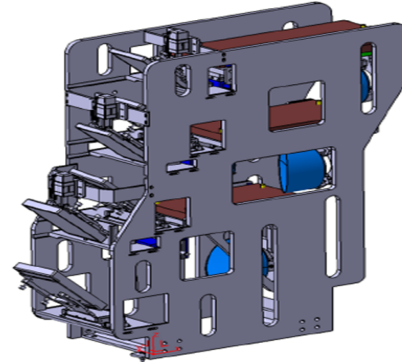
WBS L3 (System)	Contractor Name	Role	#Contracts
Radial Neutron Camera - Gamma Spectrometer	UPPSALA UNIVERSITET	Co-Contractor	6
Blanket and First Wall Panels	BODYCOTE VARMEBEHANDLING AB*	SubContractor	4
Main Vessel	STUDSVIK NUCLEAR AKTIEBOLAG*	Lead Contractor	3
Materials and Fabrication Technologies	STUDSVIK NUCLEAR AKTIEBOLAG*	Lead Contractor	3

## Diagnostics:

•**OPE-1126:** Framework Contract for manufacturing and assembly of First Plasma sub-systems. (see dedicated afternoon session). Q1 2021.

Skills: High precision machining, high cleaning, assembly etc.

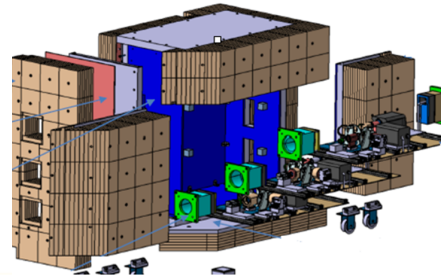
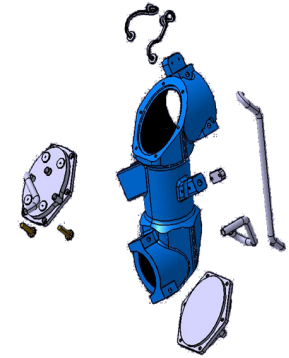
1<sup>st</sup> Market Survey for Assembly done; Second survey for manufacturing in preparation. Info Day(s) to be organized.



WAVS optical relay unit, featuring multiple mirrors and mirror-alignment mechanisms. Approximately  $15 \times 4 \times 10 \text{ cm}^3$



CTS mm-wave launcher miter-bend assembly, featuring corrugated waveguide, supports, metallic mirrors and cooling water pipes. Approximately  $40 \text{ cm} \times 10 \text{ cm}$  diameter



WAVS radiation shielding cabinet, featuring tungsten and boron carbide radiation shielding, interior imaging optics (lens and mounts) and cameras. Approximately  $1.6 \times 1.1 \times 1.5 \text{ m}^3$ .



## Site Buildings and Power Supplies:

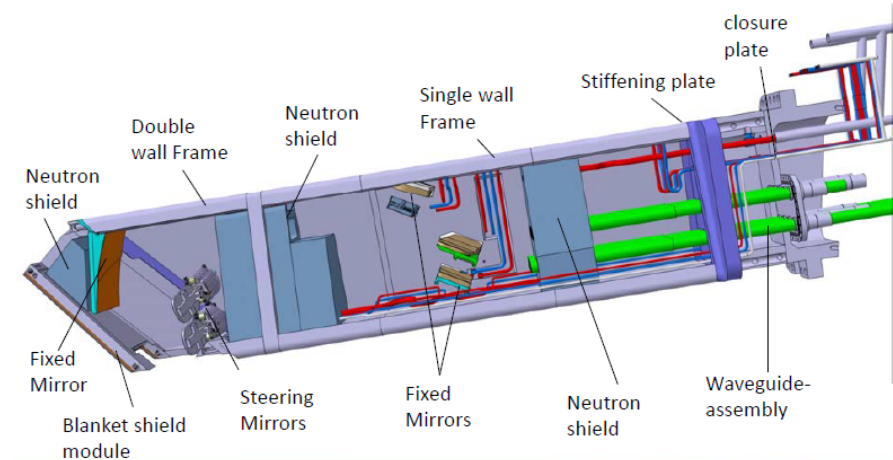
- **Support to Owner II** (ongoing market Survey- see Technical Note on F4E Industry Portal). Q4 2020-Q1 2021.
- **Hot Cell Complex:** Details and presentations of the Info Day organized on 4th June 2020 can be found at: <https://www.iter.org/hcc-event>; Target CFT: end 2021-2022.
- **TB21:** Retrofit and Finishing works for the Tokamak Complex and surrounding buildings. Target launch: Q4 2020-Q1 2021.



Aerial view

## Antennas and Plasma Engineering:

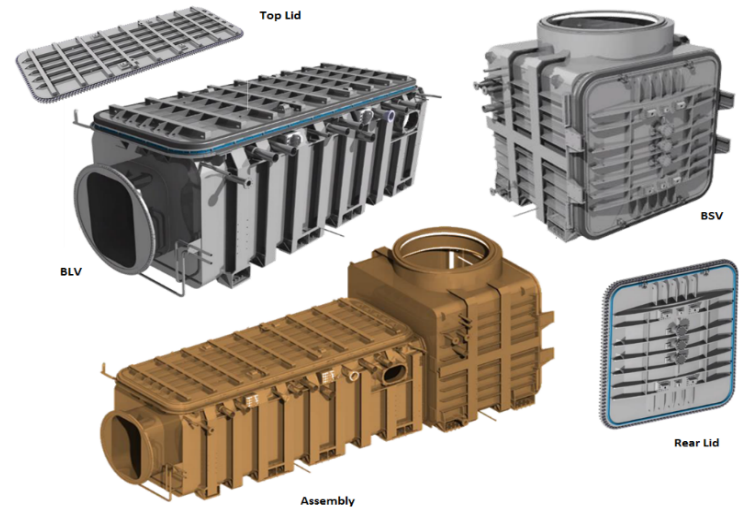
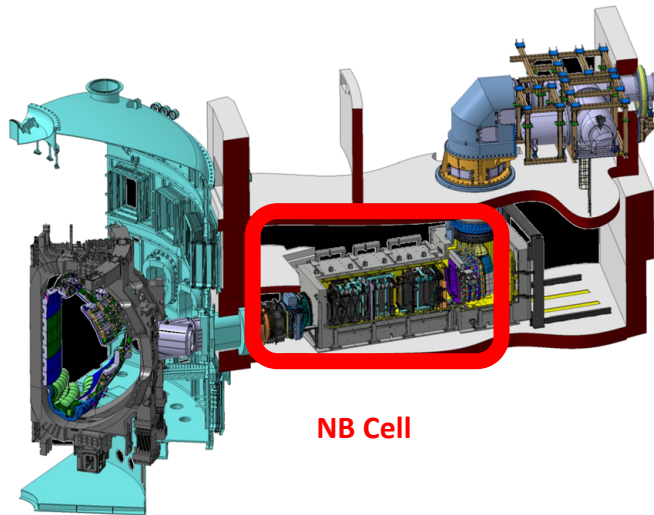
- **ONGOING-OFC-1120:** Integrator Contract EC Upper Launcher Plug & Ex Vessel Waveguides; Deadline 14/12/2020.
- **OPE- 1042:** Support to the owner for the Integrator contract (to be published after the signature of OFC-1120)





## Neutral Beam Heating: (not technically “beam-related”...)

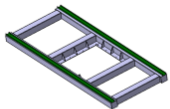
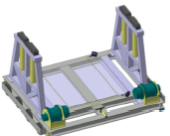
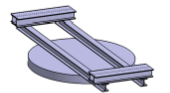
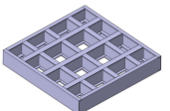
**OPE-XXXX:** Neutral Beam Vacuum Vessels welded nuclear stainless-steel structures. Target Call for Tender S2 2021. Market Survey imminent [https://ec.europa.eu/eusurvey/runner/NB\\_Vessel](https://ec.europa.eu/eusurvey/runner/NB_Vessel) (NOT YET OPEN)



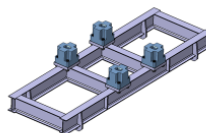
Main welded assemblies of the Neutral Beam Vacuum Vessel.

## Neutral Beam Heating: (not technically “beam-related”...)

•**OPE-XXXX:** Neutral Beam Tooling (set of around 45 different tools). Value < 10 M€. Market Survey TO BE CONFIRMED. Target Call for Tender S2 2021.

Tools types	Examples (illustrations)	Main characteristic
15 different stillages and structures to support/maintain HNB components during temporary storage and transportation within the ITER site and the NB Cell.		8.5m x 4m x 0.6 m 8000 kg
		6m x 5m x 2.5m 13200 kg
		5m x 2.5m x 0.6m 7000 kg
		4m x 4m x 0.5 m 6000 kg

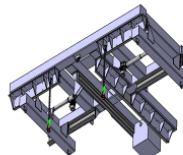
10 different lifting adaptors to move/install the HNB components while using the on-site monorail crane or other temporary lifting devices used during the first assembly.



3.8m x 1m x 0.6 m  
1200 kg

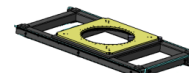


4.5m x 4.5m x H = (0.55 + slings)  
2300 kg

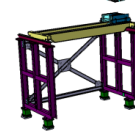


7.5m x 4.5m x 1 m  
10000 kg

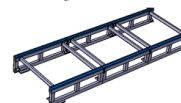
20 different guides and actuation systems to allow transportation on the ground, specific assemblies and guiding of components on site during the first assembly.



8.5 m x 4m x 0.6 m  
39000 kg



8.3m x 4.8m x 7.5 m  
9000 kg



11m x 4m x 0.6 m  
6000 kg

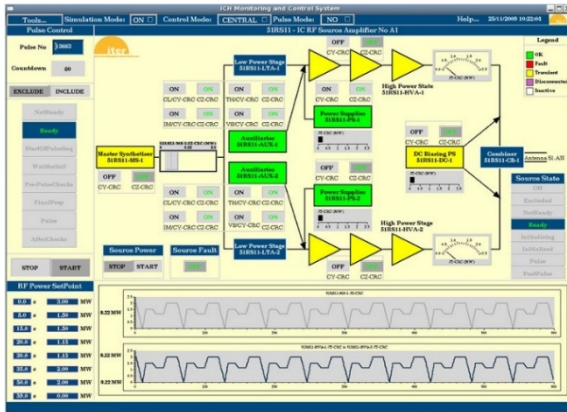
## Supporting Activities:

- **OFC-1110:** Provision of Nuclear Safety Analyses. Target CFT Q1-2021.

## CODAC system:

New Framework contracts on engineering support to cover:

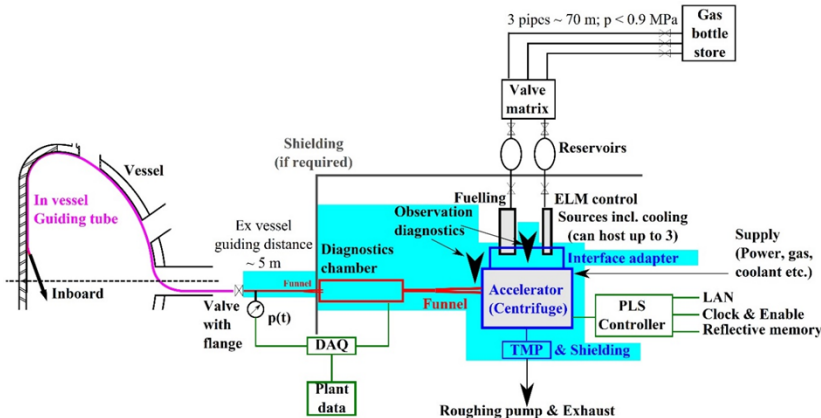
- **OMF-1115:** Conventional Instrumentation and Control Support Services. Target CFT December 2020.
- **OMF-1116:** Nuclear Instrumentation and Control Support Services. Target CFT December 2020.





## Cryoplant and Fuel Cycle:

• 2<sup>nd</sup> CFT for REMS (Radiological and Environmental Monitoring System). Target CFT: 06/2021. See presentation of F4E Industry Portal (updated).



## Broader Approach:

- **OPE-1102:** JT60SA Centrifuge Accelerator of the PLS. Target CFT March 2021.
- **OPE-1077:** Solid State Power Amplifiers IFMIF. Target CFT March 2021.

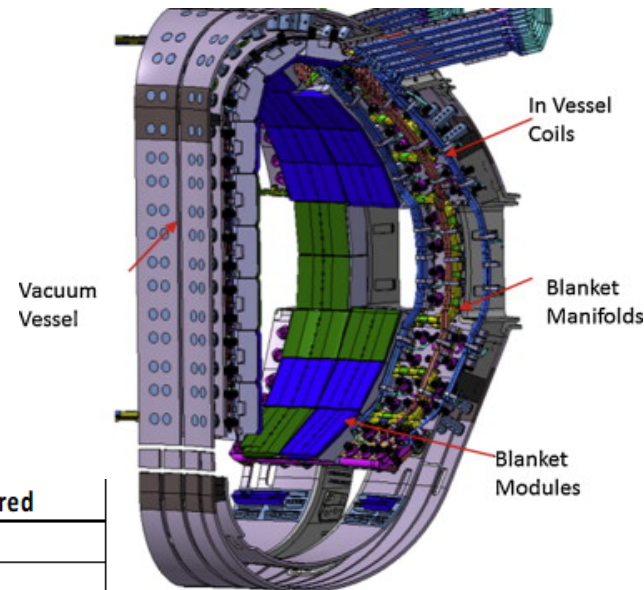
## In-Vessel:

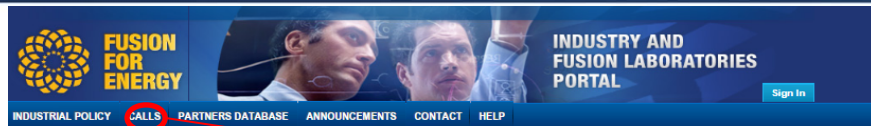
• **OPE-1094:** Audit services for First Wall OMF-0900.  
(deadline 1<sup>st</sup> December 2020)

• Q1-2021:

- **OMF-1080:** Manifolds.
- **OPE-1112:** Pins, Sleeves, and Links (4700 units).
- **OPE-1138:** Standard parts for First Wall assembly. See Market Survey.

Standard part name	Material	Technical description	Items to be manufactured
Bolt	SS 660	M64 L201 (head M90)	494
Barrel	Alu bronze	Ø150 L158.5	494
Parking feature	316	Ø119 L42.5	494
Spherical washer	SS 718	Ø106 L25	494
Conical washer	SS 718	Ø110 L20	494
Special Bolt for Electrical Straps	SS 660	M24 x 84 (head M56)	987
Stud Electrical Straps	SS 660	M20 x 74	3532





## F4E CALLS WORKSPACE

Search & register for calls

- ITER Calls
- Administrative procurement
- Key Reference Documents
- ITER Task Agreements

## LATEST CALLS

- 23 September 2020 - 09 November 2020
  - F4E-OPE-1118 Supply of ECRH Power Supplies
- 23 September 2020 - 02 November 2020
  - F4E-OPE-1124 Supply of an Upgraded LEBT/RFQ interface
- 21 September 2020 - 26 October 2020
  - F4E-OPE-1084 Neutron Irradiation Test of Bolometer-sensor and Glass to Metal Seal prototypes
- 27 August 2020 - 16 October 2020
  - F4E-OPE-1117 Supply of Error Field Correction Coils Power Supplies
- 28 July 2020 - 30 October 2020
  - F4E-OPE-1099 Supply of beam loss detection with high sensitivity

Welcome to the F4E Industry and Fusion Laboratories Portal

## E-Procurement

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?](#)

Consult the [Guidance on supporting documentation for Evolution Criteria](#) for further information on the documents you are asked to submit in order to prove that your company is in compliance with points of Article 130 (1) GPR.

## ANNOUNCEMENTS

**2nd BSF Webinar - Big Science Organisations Strategic Plans, 2020-21 Procurements and Flagship Projects**

by F4E Business Intelligence Group

The second Big Science Business Forum Webinar is held on October 8th & 9th, 2020 from 09:30 to 12:15 CET, and is focused on Big Science organisations strategic plans, 2020-21 procurements and flagship projects, with speakers from Big Science organisations. [Participants...](#)

**Survey - ITER and COVID-19: Understanding the situation of companies involved in the project**

by F4E Business Intelligence Group

The European Commission (E.C.) wishes to understand the ITER project's effect on participating European companies during and after the COVID-19 crisis. An online survey was prepared to investigate to what extent participation is reinforcing resilience...

## PARTNERS DATABASE

Get an account

Coronavirus update

ILO National Initiatives

ILO Access

Intellectual Property

Big Science Business Forum 2020

## LINKS

- F4E
- ITER Organization CALL FOR TENDER page
- Euratom

Work package	Call reference	Call title	Publication	Deadline	Type of procurement	Type of procedure	Status	
	F4E-OPE-1118	Supply of ECRH Power Supplies	23/09/2020	09/11/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
	F4E-OPE-1124	Supply of an Upgraded LEBT/RFQ interface	23/09/2020	02/11/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
62 - BUILDINGS	F4E-OPE-1099	Tokamak Complex Doors Completion	29/09/2020	02/11/2020	Operational Procurement	Competitive dialog	Published	<a href="#">Details</a>
	F4E-OPE-1069	Supply of beam loss detection with high sensitivity	28/07/2020	30/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
	F4E-OPE-1084	Neutron Irradiation Test of Bolometer-sensor and Glass to Metal Seal prototypes	21/09/2020	26/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
	F4E-OMF-1070	Proof of the TBM-sets fabrication and assembly processes feasibility	03/06/2020	23/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
	F4E-GRT-1103	COMPLETION OF THE DESIGN OF EQUATORIAL WIDE ANGLE VIEWING SYSTEM (EP-WAVS) AND POST-DESIGN TECHNICAL SUPPORT	27/08/2020	21/10/2020	Grant	Call for proposals	Published	<a href="#">Details</a>
	F4E-OPE-1117	Supply of Error Field Correction Coils Power Supplies	27/08/2020	16/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
	F4E-OPE-1055	Final Design and Supply of In-Divertor Electrical Services (IDES) and Supply of In-Vessel Supports (IVS) for Mineral Insulated (MI) Cabling for ITER Diagnostics System	01/07/2020	15/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>
55 - DIAGNOSTICS	F4E-OMF-0847	Development and Delivery of Final Design for ITER Core Plasma Thomson Scattering system (OPTS), Charge-exchange Recombination Spectrometer (C/RS) and Parts of the Bolometer Diagnostic	10/07/2020	13/10/2020	Operational Procurement	Open procedure	Published	<a href="#">Details</a>

Page 1 of 34 (339 items) 1 2 3 4 5 6 7 ... 32 33 34

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FUSION  
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Thank you for  
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ITER!



Fusion for Energy receives  
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