

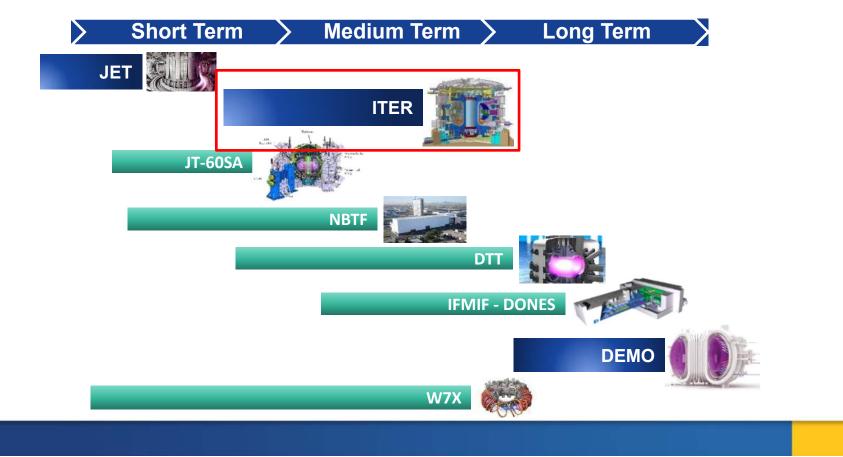
BRINGING THE POWER OF THE SUN TO EARTH

Fusion in Europe: Procurement Rules and Opportunities

Leonardo Biagioni Deputy CFO *Webinar: Le eccellenze della fusione* 30 November 2020

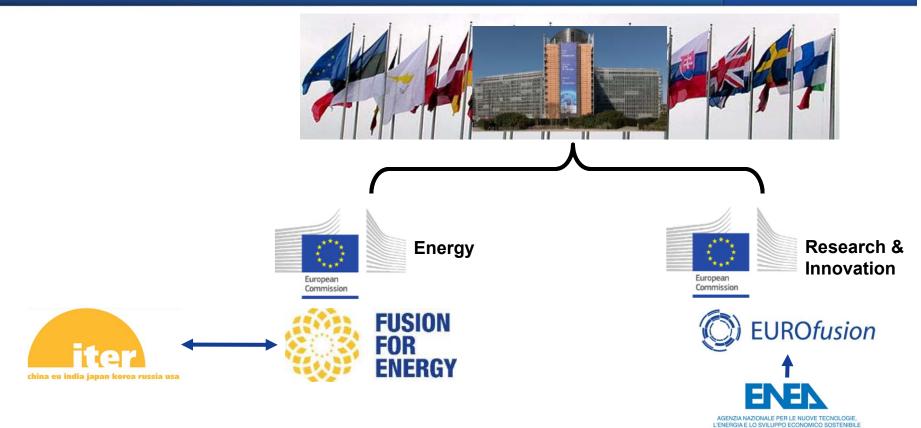
The fusion roadmap for Europe





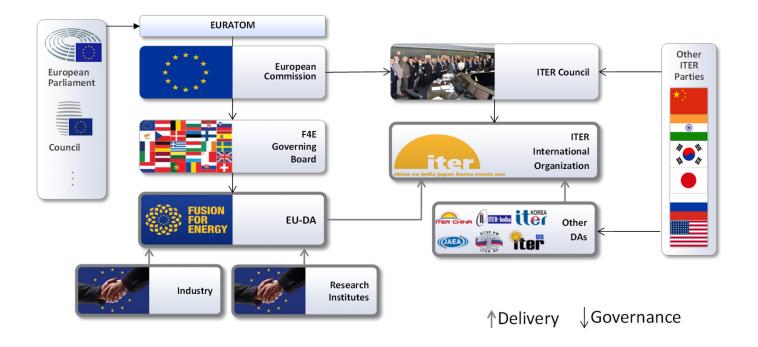
Fusion governance in Europe





ITER project governance





Fusion for Energy is the EU agency for ITER

- F4E is a EU public organisation operating since 2008
- Headquarters: Barcelona, Spain
- Offices: Cadarache, France Garching, Germany Rokkasho, Japan
- Staff: 460+
- Budget
 - > 2007-2020 ~6.6 BEUR

▶ 2021-2027 ~5.2 BEUR

(~ 500 MEUR/yr) (~ 750 MEUR/yr)

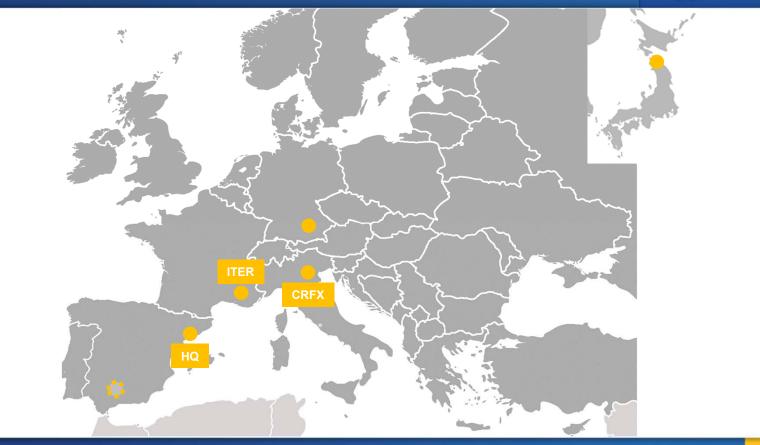


5

FUSION

F4E sites





6

F4E schedule for First Plasma systems



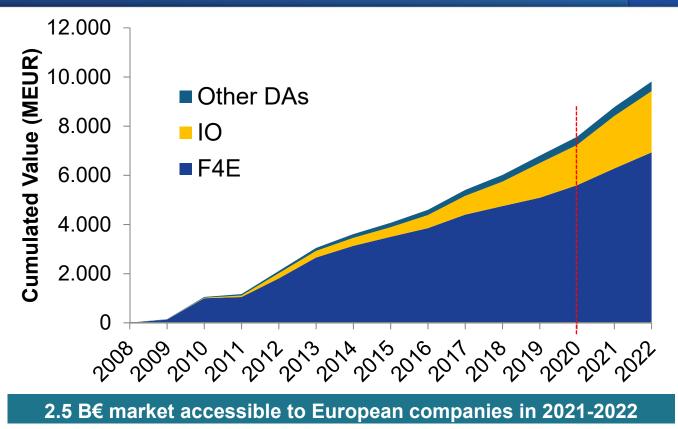
System	2008 2010 2012	2014 2016	2018	2020	2022	2024	2026	2028	2030	2032	2034
Buildings	Proc. Arrangement	t 🔷	Assembly Ha		Contro	ol Room	n Bldg.				
Toroidal Field Coils	Proc. Arrangement F4E Contracts				irst TF Coi		5				
Poloidal Field Coils	Proc. Arrangement	F4E Contracts			First PF Co	oil Last PF	Coil				
Pre-Compress Rings	Proc. Arrangem				ower Rings Upper Ring						
Vacuum Vessel	 Proc. Arrangement F4E Cont 	racts		\$	First Sect	or Last Sec	ctor				
LN2 Cryoplant	Proc. Arran	gement First	Components			5	First Plasm	a		e-Fusion ower 2	
ITER Schedule						Pre-Fu	usion Powe	r 1 🔷		Deuterium	Tritium 🗸
Fusion for Ene	y - Nuclear Valley	2020									7

F4E sche	edule for other systems
System	2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030 2032 2034
Blanket First Wall	Proc. Arrangement F4E Contracts
Divertor	♦ Proc. Arrangement ♦ First Cassette Body ♦ Last Cassette Body
Neutral Beam	
Remote Handling	First Contract First Delivery First Delivery First Delivery First Delivery First Delivery
Diagnostics	Proc. Arrangt. First Delivery
ITER Schedule	Power 2 Pre-Fusion Power 1 Pre-F

Fusion for Energy - Nuclear Valley 2020

7+ B€ European market impact by 2020





IO and F4E rules to engage industry



Ю	F4E			
International Public Procurement rules: competition, fair treatment, transparency	EU General Financial Regulation (based on Public Procurement Directive 2014/24/EU): wide competition, fair treatment, transparency, proportionality, non-discrimination			
Geographical scope: all ITER parties	Geographical scope: EU + CH			
Threshold for publication: 100 k€	Threshold for publication: 144 k€			
Publication: website and through DAs http://www.iter.org/proc/overview	Publication: website and TED https://industryportal.f4e.europa.eu			
Types of contract: commercial procurement, ITER Project Associates, expertise	Types of contract: commercial procurement, research grants, innovation partnerships, framework partnerships, expertise			
Procurement procedures: open call, restricted call, 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

IO and F4E rules to engage industry

FUSION FOR ENERGY

/ FOR INDUSTRY / PROCUREMENT	ENERGY	PORT	TAL Sign	
	ABOUT CALLS PARTNERS DATABA	ASE ANNOUNCEMENTS CONTACT HELP		
OR INDUSTRY	F4E CALLS WORKSPACE	Welcome to the F4E Industry and Fusion Laboratories Portal	PARTNERS DATABASE	
PROCUREMENT	Search & register for calls		Get an account	
GENERAL INFORMATION	ITER Calls for nomination	Important!		
HOW TO APPLY	Administrative procurement		ILO National Initiatives	
OVERVIEW OF TENDERS	Key Reference Documents	As of 1 November 2018, all tenders to F4E must be submitted via the E- submission tool.	MAN.	
TENDER PROCESSES	LATEST CALLS	Having your Company registered in the Partners Database is not sufficient to	ILO Access SIGN	
VAT AND OTHER EXEMPTIONS	28 May 2019 - 27 June 2019	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.	TIENE	
NTELLECTUAL PROPERTY	> F4E-AMF-0914	For further information, please consult the following tutorials Supplier	Intellectual Property	
	Complementary Health Insurance services to Fusion for Energy Staff and	registration and How to submit a tender? The Partners Database, previously known as Company Database, remains as		
OREIGN WORKERS IN FRANCE	their JSI 30 April 2019 - 31 May 2019	your point of entry to be notified of upcoming business events and opportunities (market surveys, Information Days, business forums, etc.), to search potential	TER BUSINESS FORUM (BF/19) 26 to 28 Might 20 E)	
BUSINESS EVENTS	> F4E-OPE-1005 Supply of BPM standard cables	associates for creating a consortium, and to guarantee your visibility when F4E		
		process to the Database to make it more user friendly. The Call for tender	LINKS	
TENDERS OVERVIEW		documentation can be found as usual on the F4E Industry and Fusion Laboratories Portal. Other aspects of the bidding process are unchanged. For	214L	
		further information on how to prepare a tender, please consult our tutorial on How to prepare a tender for F4E?	ITER Organization CALL FOR TENDE	
The ITER Organization's Procurement and Contract Division is responsible for procuring goods and services which ensure the best value for money for the Organization in a timely and efficient manner.			> Euratom	
when ensure the best value for money of the organization in a timely and encient mariner.		ANNOUNCEMENTS	> Euratom	
The Procurement and Contract Division is committed to achieving a competitive, fair and transparent		BROADER APPROACH: [OPE-0962] Award of 28/05/2019 10:41 contract for Procurement of Spare Parts and		
procurement process while ensuring quality and reliability.		On-site Support for the Operation of the		
		Quench Protection Circuits of JT-60SA to		
		NIDEC ASI S.p.a. by F4E Business Intelligence Group		
		Please consult the attached awrd notice.		
		BROADER APPROACH [OPE-1004]: AC Current 24/05/2019 14:39		
		Transformer the High Energy Beam Transport		
		line awarded to Bergoz Instrumentation SAS		
		by F4E Business Intelligence Group Please read the attached award notice		
New Sign up to automatically receive our procurements Notifications	-	BROADER APPROACH: [OPE-1013] Acquisition 20/05/2019 15:07		
		System for JT-60SA TF Coils - PLEASE SUBMIT		
🔔 subscribe		YOUR INTEREST TO PARTICIPATE		

Fusione all'italiana

 Indicatori di partecipazione italiana a EU-ITER

	ITA/total EU
Industrial GDP	11 %
Participation to F4E pre-proc	9 % ↓
Offers received by F4E	13 % ↑
Contracts/subcontracts	15 % ↑
Value won	17 % ↑

- 1000 M€ aggiudicato da F4E
 → piu' di 40% dei componenti EU della macchina
- 200+ M€ aggiudicato da IO



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Fusione all'italiana





Gli ingredienti dei primi 10 anni

- Una grande forza del settore manufatturiero
- Medie aziende competitive ed orientate all'export
- Una visione a lungo termine delle imprese familiari
- Una cultura dell'innovazione di prodotto
- Legame consolidato tra industria e mondo della ricerca

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E per i prossimi 10 anni?

- Aree di investimento ancora rilevanti per aziende italiane
- Molte opere civili
 - \rightarrow maggior partecipazione settore costruzioni
- Sistemi tecnologici complessi
 - → maggior partecipazione di aziende di sistema/ sottosistema
- Raggruppamenti PMI con reale integrazione dei processi

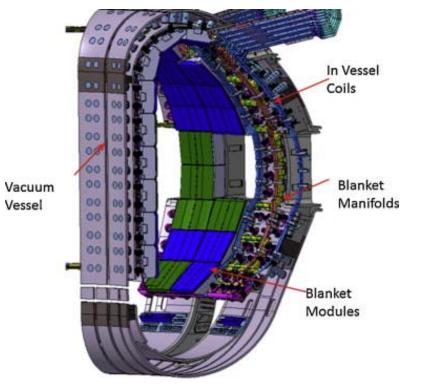


Main Upcoming Calls For Tender



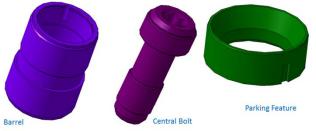
<u>In-Vessel:</u>

- •OMF-1080: Manifolds.
- •OPE-1094: Audit services for First Wall OMF-0900.
- •OPE-1112: Pins, Sleeves, and Links (4700 units).



In-Vessel:

•OPE-1138: Standard parts for First Wall assembly





Blanket First Wall Panel rear view with flanged pipes connections (© iter.org).

	Darrel Central Bolt					
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			

Market Survey on-going

https://ec.europa.eu/eusurvey/runner/Market Survey F4E In Vessel Standard Parts Call for Tender Q2 2021

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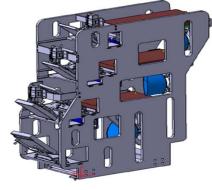
ENERGY

Diagnostics:

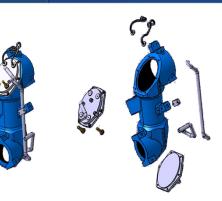
•**OPE-1126:** Framework Contract for manufacturing and assembly of First Plasma sub-systems. (see dedicated afternoon session). Q1 2021.

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

•1st 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 $15 \times 4 \times 10 \text{ cm}^3$



USION

CTS mm-wave launcher miter-bend assembly, featuring corrugated waveguide, supports, metallic mirrors and cooling water pipes. Approximately 40 cm x 10 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: <u>https://www.iter.org/hcc-event</u>
- **TB21**: Retrofit and Finishing works for the Tokamak Complex and surrounding buildings. Target launch: Q4 2020-Q1 2021.





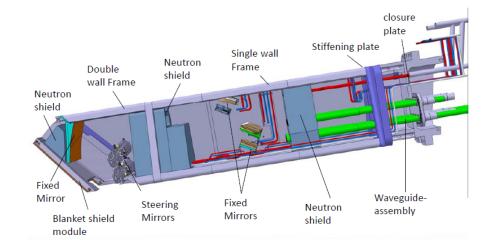
Aerial view - end May 2020





Antennas and Plasma Engineering:

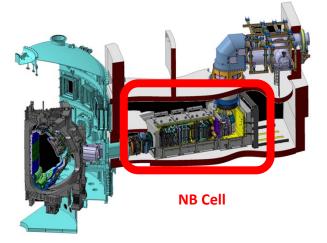
- ON-GOING-OFC-1120: Integrator Contract EC Upper Launcher Plug & Ex Vessel Waveguides; Deadline 14/12/2020.
- **OPE- 1042:** Support to the owner for the Integrator contract (to be published after the signature of OFC-1120)





Neutral Beam Heating (not technically "beam-related"...)

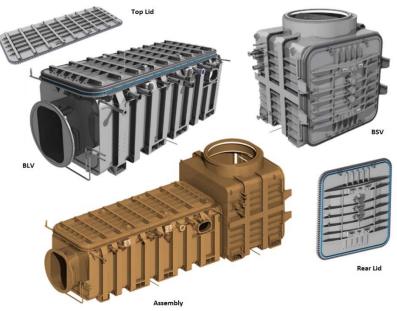
•OPE-XXXX: Neutral Beam Vacuum Vessels welded nuclear stainless-steel structures.



Market Survey imminent

https://ec.europa.eu/eusurvey/runner/NB_Vessel (NOT YET OPEN)

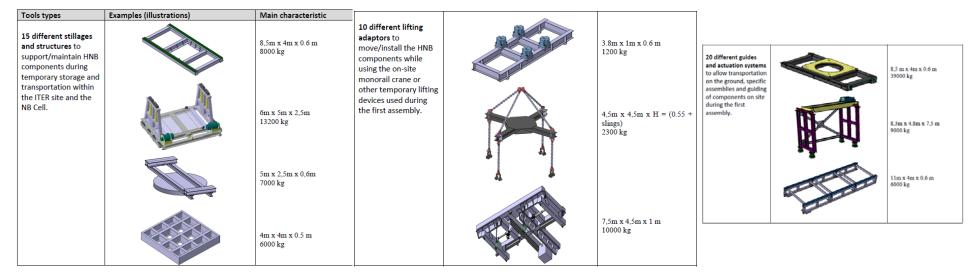
Call for Tender S2 2021



Main welded assemblies of the Neutral Beam Vacuum Vessel.



<u>Neutral Beam Heating</u> (not technically "beam-related"...) •OPE-XXXX: Neutral Beam Tooling (set of around 45 different tools)

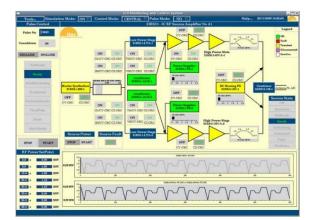


Market Survey TO BE CONFIRMED Call for Tender S2 2021



Supporting Activities:

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



CODAC:

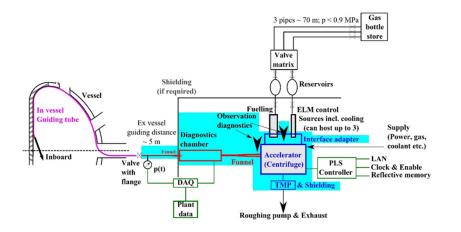
New Framework contracts on engineering support to cover:

•**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:

•2nd 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: 03/2021
- OPE-1077: Solid State Power Amplifiers
 IFMIF. Target CFT: 03/2021

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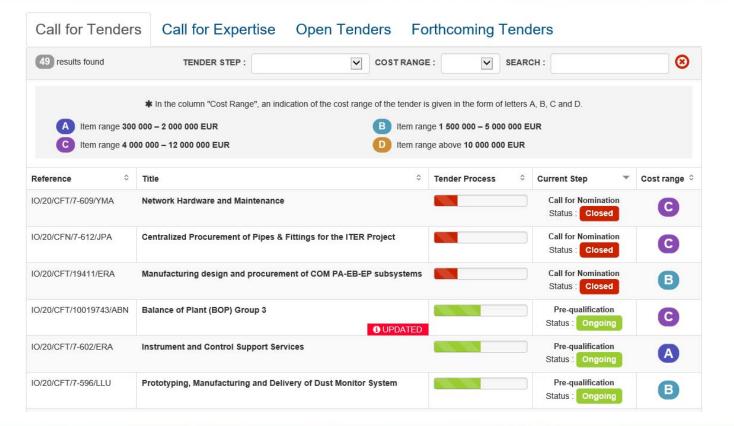
Opportunities at ITER Organisation



The IO is looking for services, works and supply contracts in the following areas:

- Mechanical assembly contracts (large works contracts awarded but subcontracting might be an opportunity and "smaller" multi millions contracts still needed);
- Electrical installation contracts;
- Steel structures and piping installation contracts (largest one already awarded but subcontracting might be an opportunity);
- Architect Engineering contract including coordination across large installation works contracts (Hot Cell Complex, detritiation plant);
- > Engineering service support contracts (specialized engineering contracts);
- > Design, prototyping, manufacturing and supply of specialized components;
- Radwaste and remote handling engineering and installation contracts (Hot Cell);
- Material supply contracts (MRO components, piping, valves) with optional short term deliveries solutions;
- > Maintenance electrical, mechanical and general services service contracts;
- Scientific collaboration service contracts;
- IT services contracts.

Ongoing IO calls







Call for Te	enders Ca	all for Expertise	Open Tenders	Forthcoming Tenders			
64 results found	d	COST RANGE :	TENDER TYPE :	SEARCH :		8	
 At this moment Iter Organization has limited information concerning forthcoming and open tenders, for specific questions please contact iopcd@iter.org The list is published for information purposes. The potential tenderers shall declare interest ONLY further Call for Nomination publication or Open tender. 							
 In the column "Cost Range", an indication of the cost range of the tender is given in the form of letters A, B, C and D. Item range 300 000 - 2 000 000 EUR Item range 4 000 000 - 12 000 000 EUR Item range above 10 000 000 EUR 							
Estimated Publication Period 💌	Tender Type 🗘	Title			¢	Cost range 🗘	
Q4 2020	Call for Tender	Procurement of electrica	I and optical RH connectors			A	
Q4 2020	Call for Tender	Tokamak Department —	Integration of the Divertor Cas	ssette Assemblies		D	
Q4 2020	Call for Tender	Thermal insulation at the	interface between the Cryost	ats Bellow and Tokamak Building Contr	act — PCR-762	B	
Q4 2020	Call for Tender	HNB/DNB Circular Bellow	v supply Contract			A	
Q4 2020	Call for Tender	Network Active Compone	ents Supply, Installation and M	laintenance		-	
Q4 2020	Call for Tender	Framework Contract PCS	S support (with R&D institutes)	UPDATED	B	

More information?



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