

ITER Organization

Procurement Process

Industrial Strategy

Business Opportunities

Korean ITER Business Forum

Seoul, 1-4 July 2014

IO/ADM/GEA/PCD Françoise Flament

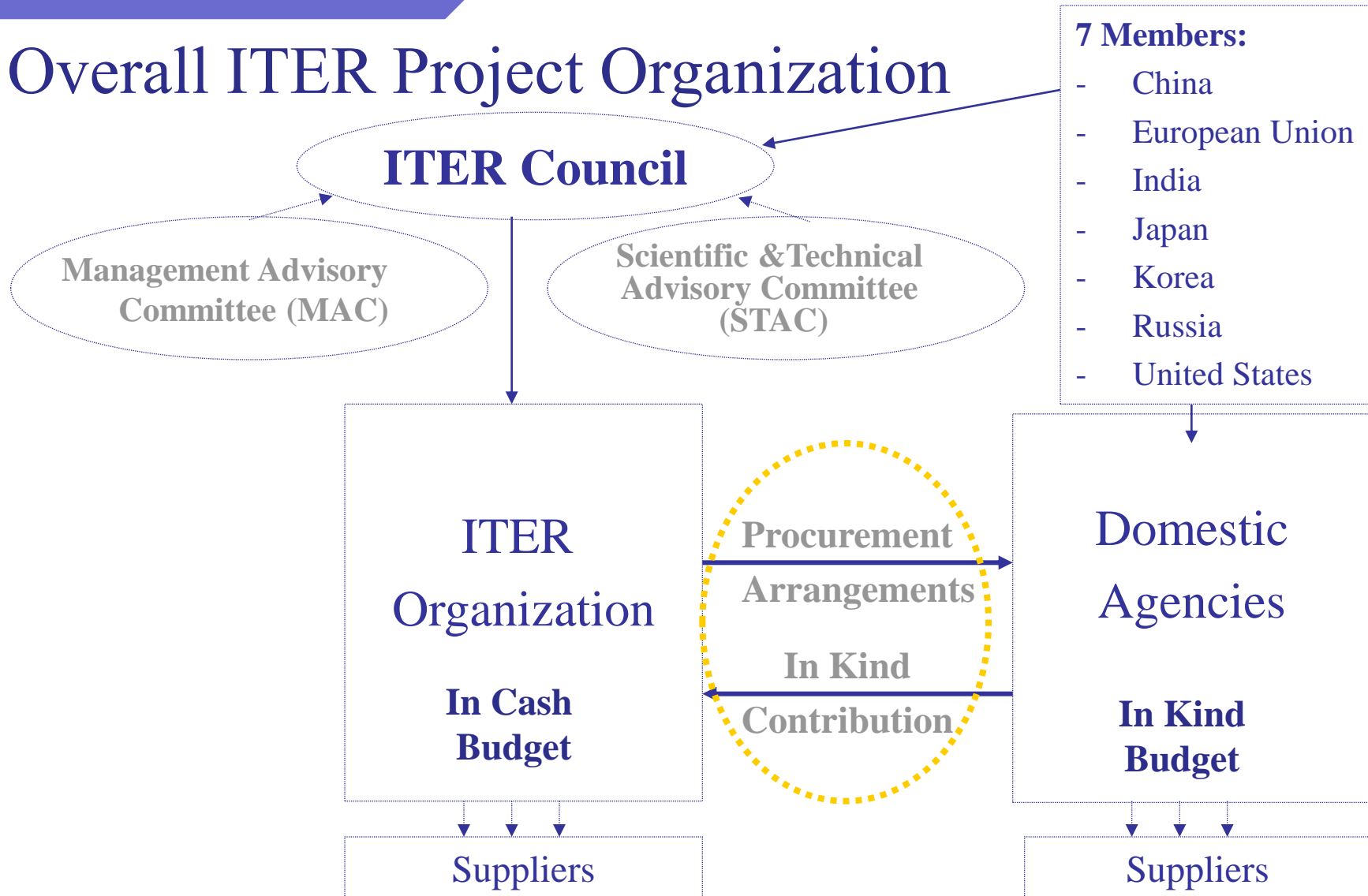
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Outline

1. Procurement Process
2. Industrial Strategy
3. Business Opportunities

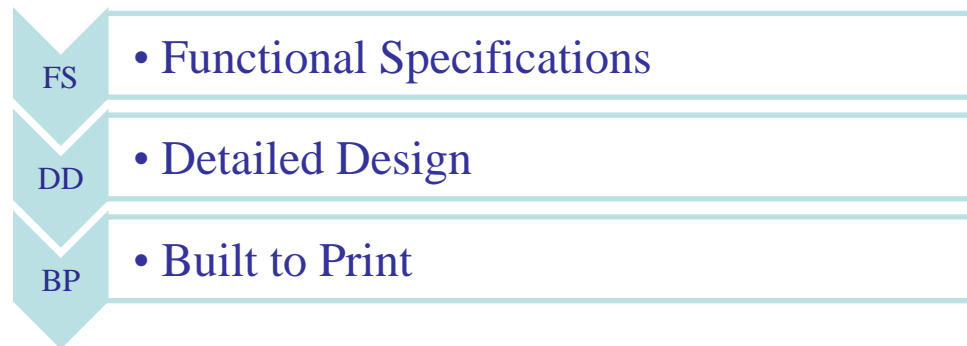
Procurement Process

Overall ITER Project Organization



Procurement Process**❑ ITER Members In-kind Contributions:**

- The In-Kind contribution process starts with the signature of a Procurement Arrangement (PA) between IO and a DA, according to the Procurement sharing fixed by the ITER Agreement.
- Each PA defines the specifications, the schedule and interfaces at different steps of design maturity:



- In-Kind contributions represent about 84% of the total budget of the Construction Budget for the ITER Project.

Procurement Process

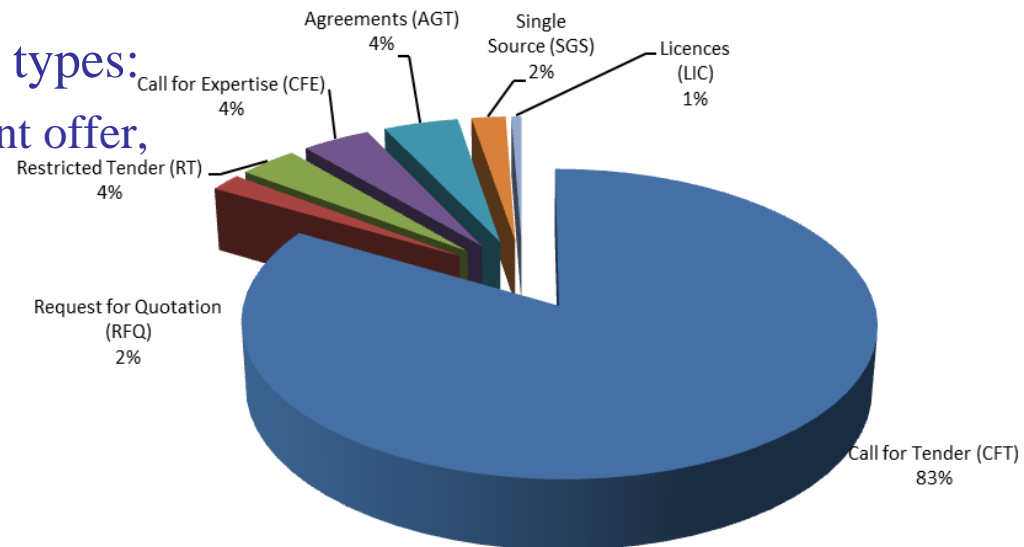
❑ ITER Members In-kind Contributions (cont')

- As of today, a total of 99 out of 140 PA signatures have been completed. In addition IO and DAs signed 16 Complementary Diagnostics PA's (CDP's).
- The total achieved signature value to date is 2599.9 kIUA out of a planned value of 2901.2 kIUA. This represents 89.6% achievement of the total value of PAs.
- For 2014, a total of 15 signatures is forecasted by the end of the year, including 8 PA's & 7 CDP's. Of the number forecasted for this year, 3 signatures have now been completed.

Procurement Process

❑ ITER Organization In-Cash Procedures

- The IO Procurement Procedure is based on **International Public Procurement Rules**, ensuring competition, fair treatment and transparency.
- Most of the contracts are placed through a Call for Tender process starting by the call for nomination **published through the DAs**.
- The award criteria are of two types:
 - Lowest technically compliant offer,
 - Best value for the IO.
- Other Procedures in place:
 - Competitive Dialogue,
 - Restricted Tender,
 - Call for Expertise,
 - Request for Quotation.



2013 – In Value

Procurement Process**❑ ITER Organization's Procurement Step by Step****▪ First Step: Call for Nomination**

- IO formally invites the DAs to nominate potential suppliers.

▪ Second Step: Pre-qualification

- Ensure that offers are sought only from suppliers who have the financial capabilities as well as requested skills, equipment and experience to perform works or services as described in the technical specifications.

▪ Third step: Call for Tender

- IO Instructions to Tenderers (ITTs),
 - Technical specifications,
 - Draft contract (Special and General conditions).
-
- **IMPORTANT:** Clarifications are always possible until a few weeks before the due date of the offers.

Procurement Process

❑ ITER Organization's Phased Approach for the Assessment of the Offers: “Two-envelope procedure”

■ First Phase: Assessment of the Technical Offers

- Determine whether a tender meets all technical requirements and specifications: based on individual grids prepared by each voting member mentioning the scoring and strengths and weaknesses.
- The Evaluation Committee may require a presentation from the companies/consortia to clarify the technical aspects of the tender.

■ Second Phase: Assessment of the Financial Offers

- Only tenders meeting the minimum requirement as set in the ITTs can be processed for the financial evaluation,
- Financial proposals are analysed according to the award criteria described in the Instructions to Tenderers.

Procurement Process**❑ Nuclear safety and licensing requirements**

- ITER is a Nuclear facility (Installation Nuclear de Base #174) for which the IO is the Nuclear Operator: French nuclear regulation applies, in particular the Order dated 7th February 2012 concerning nuclear facilities.
- This Order applies to all Contractors dealing with structures, systems and components in relation with nuclear safety requirements.
- Evidence of compliance with the regulation must be provided to the IO and French Safety Authorities.
- Whenever needed, technical specifications to the bidders include both the nuclear regulatory framework and the nuclear safety requirements.

Procurement Process**❑ ITER Organization Initial Procurement Scope:**

- Design, Integration and Management of the ITER Project;
- CODAC : Control and Data Acquisition and Communication;
- Magnets Feeders Sensors;
- Hot cells maintenance Equipment;
- Cooling Water System: engineering and on-site assembly;
- Part of the Thermal Shield, he Vacuum Pumping & Fuelling;
- Tritium Plant;
- Liquid Helium Plants;
- Heating and Current Drive;
- Diagnostics of the First Wall;
- Assembly Operations and Tooling.

Procurement Process**❑ ITER Organization Additional Procurement Scope:**

- Port Plugs design and manufacturing for the ITER Project;
- TBM Piping;
- Tokamak Cooling Water Systems (TCWS) final design and manufacturing;
- Valves;
- Passive Vacuum Gauges;
- Vacuum System Network;
- Atmosphere Detritiation Systems;
- Additional Diagnostics;
- Some Installation works;
- And other scopes to be confirmed.

Industrial Strategy

1. Procurement Process
- 2. Industrial Strategy**
3. Business Opportunities

Industrial Strategy**❑ The ITER Project relies on Industry**

- Industry involved in the Project is highly skilled, experienced in high technologies, nuclear field and construction, and can deliver to a competitive price.
- The IO is determined to make the best use of Industry from all Members in line with IO Procedures, fostering competition in order to secure the cost and the schedule of the Project.

Industrial Strategy

□ The IO is looking for cost effective solutions:

- SMEs are recognized as important players and large companies are encouraged to seek for their support.
- The IO and Industry together have to find economically efficient solutions to a great technical challenge.
- In participating to the ITER Project with the IO and/or the DAs, the Industry develops competencies that will be key for the next steps of the fusion programme.

Industrial Strategy

□ Streamlining IO Procurement Procedures:

- In addition to bidders' conferences, the IO will organize Info-days to present the overall strategy for large packages.
- The IO achieved large improvement in the web publication of the forthcoming calls.
- The identification of potential risks prior to the placement of contracts is carefully taken into account in order to improve the performance in the execution of the contracts.
- Declaration and waiver of nuclear liability are included as needed the contracts.

Industrial Strategy

□ The IO is fostering centralization and standardization:

- Centralization and/or joint procurement are implemented together with DAs for optimizing the manufacturing and operations.
- Different methods:
 - Transfers from DAs to the IO for procuring components initially included within their scope through PAs,
 - Joint tenders between the IO and DAs.
- The IO and DAs identify procurement of similar components to be supplied by the IO and/or several DAs. Several “ITER Catalogues” have been already set up. This approach is benefiting to economy of scale and maintenance.

1. Procurement Process
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❑ Plasma Operations (Indicative dates for CFN)

■ Q4-2014: Demonstration of Remote Maintenance Operations

To establish the RH replacement operations needed for refurbishing the TBM Port Plug. It is expected to have several steps for these activities.

■ Q4-2014: Maintenance Tools & Equipment for Port Cell

To develop the maintenance operations (either hands-on or RH-assisted) needed for replacing the Pipe Forests in the TBM Port Cells. Such operations involve the cutting and welding of pipes made with a robotic arm.

■ Q1-2016: Plasma Control System Final Design

To produce the plasma control algorithms required for First Plasma operation as well as for early plasma operation following First Plasma. In particular, this will include axisymmetric magnetic control algorithm, plasma current rise, and initial plasma position, shape control algorithms and gas fuelling and electron cyclotron heating algorithms.

❑ Magnets (Indicative dates for CFN)

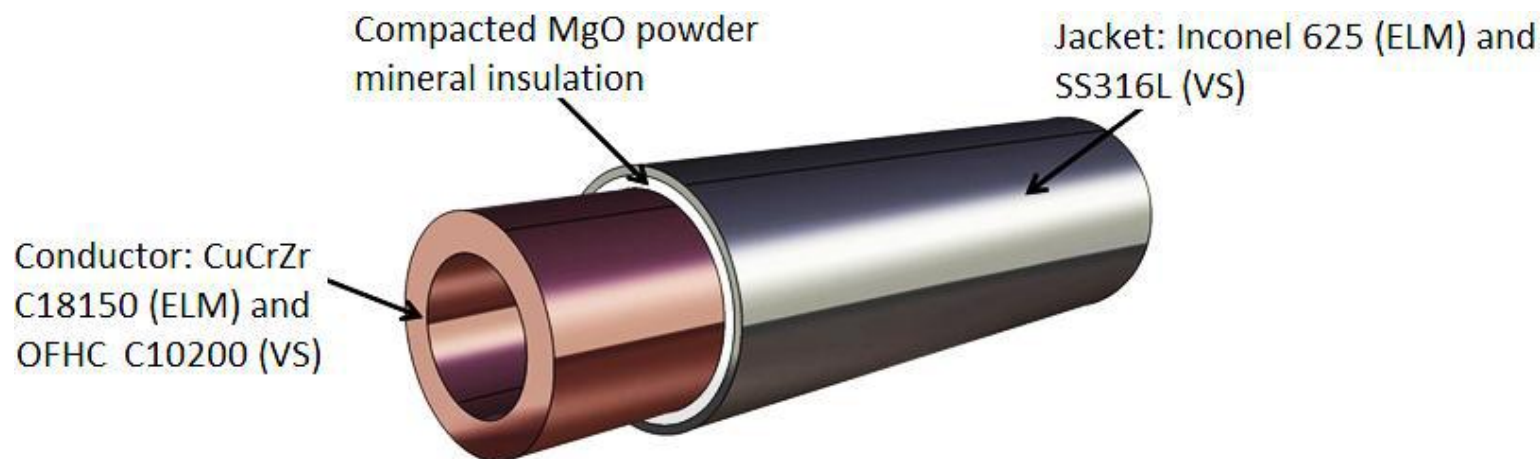
▪ Q3-2015: Low Voltage Cables Links connectors for the Cryostat

To provide multi-wire low voltage cables and connectors which will be installed inside the cryostat and feeders. These cables connect patch panels to plugs, or vice-versa, and plugs to feedthroughs, they include special cold connectors.

❑ Vacuum Vessel (Indicative dates for CFN)

▪ Q3-2014: Manufacturing and testing of the In-Vessel Coil

To provide detailed manufacturing design and testing of the In-Vessel Coils, including conductor procurement, manufacture of the Edge Localized Modes (ELM) and Vertical Stabilization (VS) coils and in-factory acceptance tests.



❑ Vacuum Vessel (Indicative dates for CFN) – Cont'

▪ Q3-2014: Manufacturing and testing of the In-Vessel Coil

The market Survey launched prior the Call for Nomination based on an overview of the system is on-going.

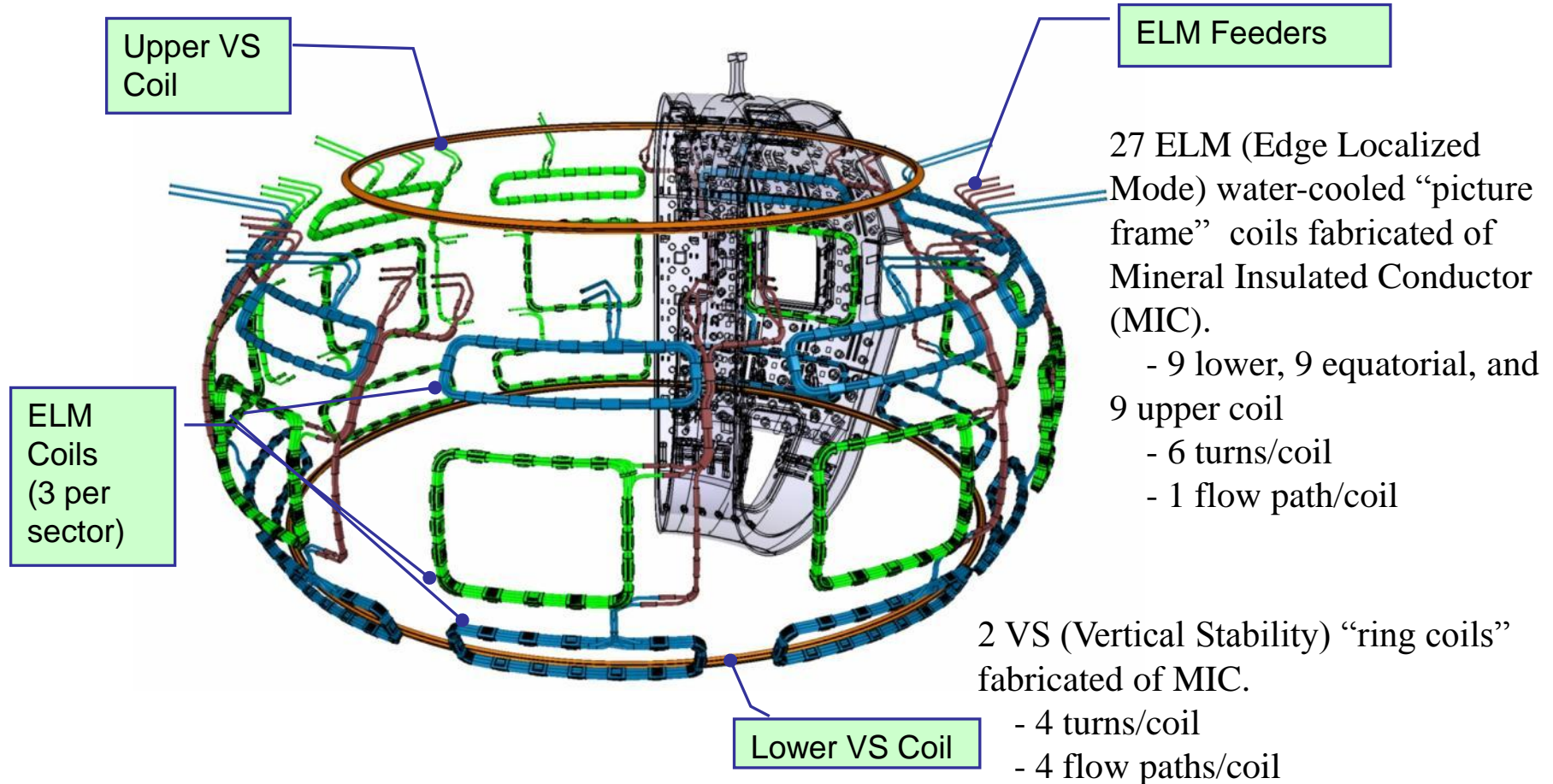
The present plan is to split this package into two parts:

- Procurement for conductor manufacturing, for both Elm and VS Coils (represents approximately 3 km of conductor);
- Procurement for coils manufacturing and onsite assembly inside the ITER vacuum vessel.

Onsite delivery of the manufactured coils foreseen in 2018 for assembly and installation starting in 2019.

CFN under preparation.

❑ Vacuum Vessel (Indicative dates for CFN) – Cont'



❑ CODAC (Indicative dates for CFN)

▪ Q3-2014: CODAC Network Infrastructure Supply.

Supply of all passive network infrastructure components such as fibre optic cables, copper cables, network cubicles and patch panels for the whole ITER site. It does not include any active components such as switches.

▪ Q3-2014: Central Safety System for Occupational Safety Final Design & Supply

Final design and supply of the central occupational safety system instrumentation system (CSS-OS). This system allows central monitoring and coordination of all occupational safety functions on the ITER site. Good knowledge of personnel safety systems and associated standards and norms are required.

❑ **Diagnostics (Indicative dates for CFN)**

■ **Q3-2014: Engineering Framework contract for Diagnostics**

General engineering support for Diagnostics engineering design, integration, assembly and testing. Concerns mechanical engineering, integration engineering, systems analysis and engineering analysis.

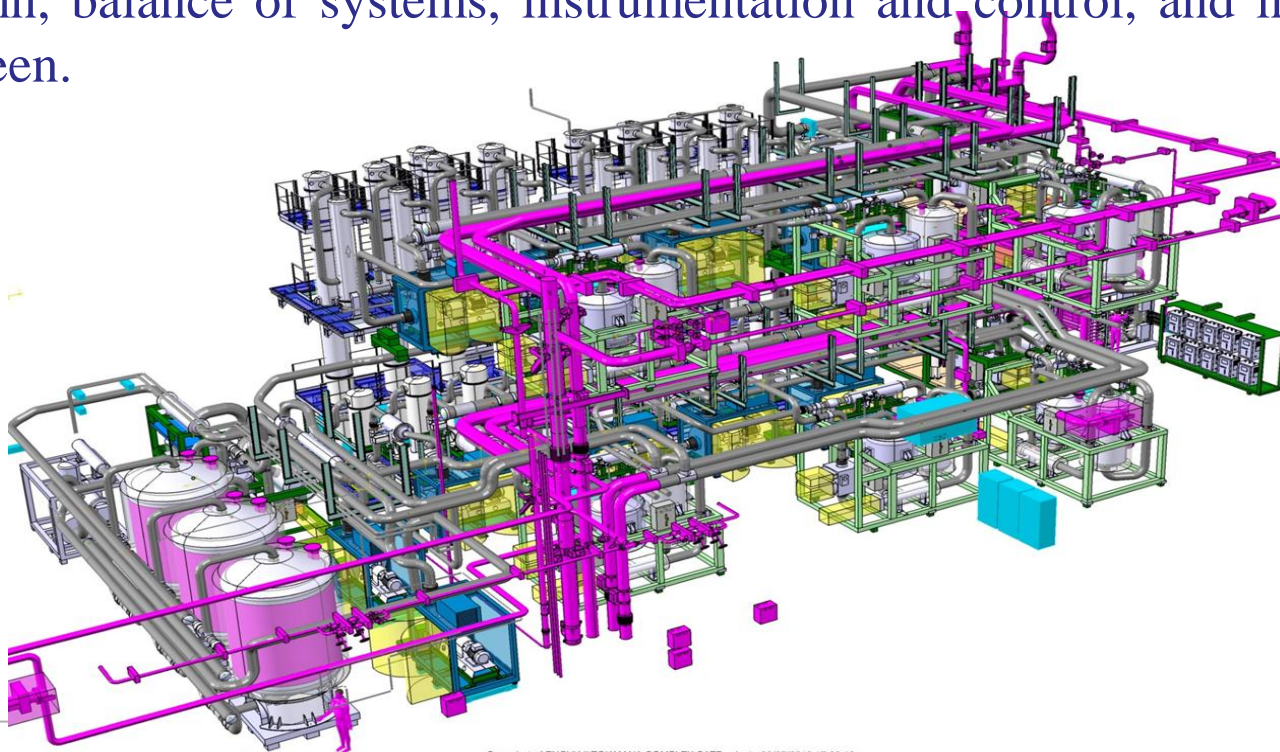
■ **Q3-2014: Qualification and Supply of Diagnostic Port Plug Structure -PPS**

PPS provide a common platform in which diagnostics and their associated components are supported. These are bolted to the ITER Vacuum Vessel in the upper and equatorial ports. PPS must contribute to the nuclear shielding, or plugging, of the port and further contain circulated water to allow cooling during operation and heating during bake-out. These structures also form part of the first confinement system and contain the ultra high vacuum required for plasma operations. (CFN completed).

❑ Tritium Plant Systems (Indicative dates for CFN)

▪ Q2-2015: Tokamak Complex Detritiation System

Final design, fabrication and installation of the ITER Detritiation Systems. Several contracts related to Professional Engineering Services, scrubber column, balance of systems, instrumentation and control, and installation are foreseen.



Snapshot of ENOVAS/TOKAMAK_COMPLEX.CATProduct - 30/07/2013 17:20:10

❑ Tokamak Cooling Water System (Indicative dates for CFN)

■ Q2-2015: TCWS Final Design

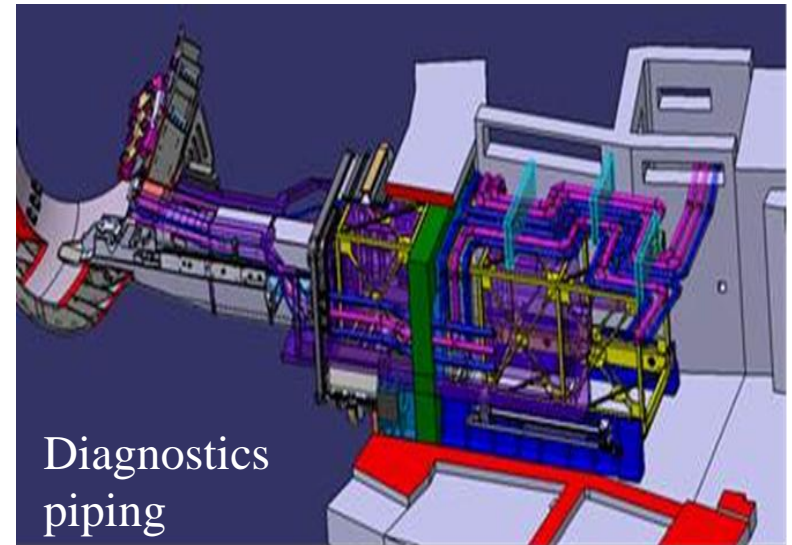
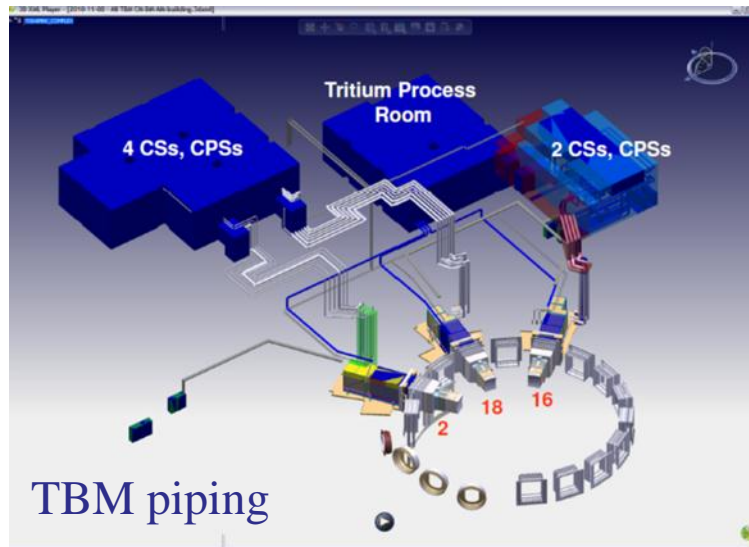
Covered by several Contracts: Contract for thermo-hydraulic analyses and calculations for process and system engineering of TCWS (*); Contract for mechanical analyses and calculations of TCWS piping (*); Contract for analyses and calculations for mechanical engineering of equipment design; Contract for feasibility studies, 2D-3D drawings, I&C Engineering; Contract for Agreed Notified Body services during final design and final design for 1st and 2nd plasma equipment [(*) Call for Nomination launched].

■ Q2-2015: Cooling Water Systems

The ITER Cooling Water System (CWS) consists of the Tokamak Cooling Water System (TCWS), the Component Cooling Water System (CCWS), the Chilled Water System (CHWS), and the Heat Rejection System (HRS) (part of the centralized piping)

❑ Centralized Procurement and Preassembly of Piping (tentatively from Q3-2014 to Q2-2015)

- Test Blanket Modules Piping
- Vacuum System pipework preassembly fabrication
- Atmosphere Detritiation System
- Diagnostic Systems piping
- Tokamak Cooling Water System (see previous slide 25)



❑ Assembly and Installation Procurement Scope

- Construction Management
- Machine Assembly
 - Mechanical, structural steel
- Tools
 - Lifting, handling, standard tools, welding, access equipment
- Piping installation
 - Nuclear and non-nuclear cooling water systems
 - Vacuum piping, site networks, buried pipes
- Cryogenic Plants – Liquid Helium
- CODAC, Central Interlock and Safety Systems
- Electrical, High Voltage, cabling

❑ Read more on the IO Procurement Web Site:

- www.iter.org - Procurement / General information
- iopcd@iter.org - Point of contact

❑ On line registration:

- Self-presentation of the companies,
- >1000 suppliers registered as of today,
- Identification of the suppliers per business activities,
- No prequalification at this stage.

❑ Doing Business in France :

■ W@I: Welcome Around ITER Partnership

– A strong regional network has been deployed to welcome international leaders, high-tech companies, specialized laboratories and SMEs and provide them with services matching their needs.

- **Immigration and workers accommodation:** Agence ITER France
- **Industrial partnerships, subcontracting, local support:** C2I - French ITER Industrial Committee
- **Local recruitment and training:** Pôle Emploi and PACA Mode d'Emploi
- **Business setup:** WOIC (Welcome Office for International Companies)

– More information: **<http://welcome-around-iter.com>**

■ [Download the 2012 Guide Book for relocation in English](#)

Thank You for Your Attention