

## 外部委託業者の募集

References: IO/MS/24/GRD/IDFI

### "In-Vessel Diagnostic, Instrumentation & Fuelling (IDFI)"

(容器内計測、計測機器および燃料供給 (IDFI))

IO 締め切り 2024 年 11 月 28 日(木)

#### ○目的

この文書の目的は、In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) 設置に関する作業範囲、計画、および必要な能力に関する技術的概要を提供することです。

#### ○ITER プロジェクト

ITER プロジェクトの組織的および技術的側面についての詳細は、[www.iter.org](http://www.iter.org) をご覧ください。

### 1 ITER 施設

ITER 施設は現在、フランス南部のカダラッシュ地域で建設中です。施設の中心となるのは、トカマク複合施設です。これは、強化コンクリートで作られた原子力規模の構造物で、3 つの統合された建屋から構成されています (図 2)。複合施設の面積は 118 x 81 メートルで、地上レベルから -15 メートルから +40 メートルの高さにわたって垂直に延び、トカマクに関連するプラントシステム (電力、熱、冷却、空調、燃料供給、監視、制御など) を収容しています。

トカマク機器の組み立てをサポートするため、施設には鋼鉄製の構造物が設置されています。

#### 図 2 ITER サイトのレイアウト

(詳細は英文技術仕様書を参照ください)

### 2 ITER 機器の組み立てプロセス

全体の組み立てプロセスは、図 3 に示されているように、最上位レベルで示されています。

トカマクは 9 つのセクターから組み立てられ、それぞれが 40° のトロイダル角度を持ち、40° の真空容器 (VV) セクター、2 つのトロイダルコイル (TF コイル)、40° の真空容器用熱遮蔽 (VV Thermal Shield) セクター、および関連する相互接続と支持構造で構成されています。これらの機器は個別に現場に配送され、組立建屋内で目的に応じた治具や固定具を使用してセクター単位にサブアセンブリされます (組立順序 A2)。

トカマクピット内でセクターを設置する前に、重力支持構造、下部クライオスタットセクション、およびセクター最終組立後に取り付けられない機器 (主に下部トロイダルフィールドコイル、下部補正コイル、下部および側面補正コイルフィーダー、下部プレコンプレッションリングなど) は、クライオスタットベース内に取り付けられるか、一時的に保管されます (組立順序 A1)。並行して、超伝導磁石用のフィーダー機器は、トカマク建屋の下階のギャラリー内に設置されます。

### 図3 トカマク組み立てプロセス

(詳細は英文技術仕様書を参照ください)

セクターは順番にピットに移動され、その後、アライメントが行われた後にトロイダルフィールドコイル (TFC) が永久支持構造に取り付けられ、順次接続されます。真空容器熱遮蔽 (VVTs) セクターも順次接続されますが、真空容器 (VV) セクターは、変形や技術的リスクを最小限に抑えることを目的とした計画に従って、溶接によって接合されます。最終セクターの設置後、真空容器はトロイダル方向に閉じられ、最後の2つのセクターのフィールドジョイントが同時に溶接されます (組立順序 A3 の終了に相当)。

永久的な真空容器重力支持構造 (VV Gravity Supports) は、真空容器およびクライオスタットに取り付けられ、トロイダルフィールドコイル (TFC) のプレコンプレッションリングが最終位置に設置され、それぞれのコイルにプリロードが適用されます。この段階で行われる詳細な寸法測定により、実際に組み立てられたトロイダルフィールド磁石の幾何学的な基準が算出され、その後のすべてのアライメント作業の基準となります。主要なセクター組立ツールはピットから取り外され、次の組立シーケンスが進行できるように移動されます (組立順序 A4 の終了に相当)。

外部機器の設置は、クライオスタットの完成と並行して進められます (組立順序 A5)。

内部の真空容器へのアクセスは、下部 (ダイバータ) および赤道レベルの選定された水平ポートを介して行われます。容器内部は清浄な状態に保たれ、フェーズ1の真空容器内システムの設置が (組立順序 A6) で実施され、これらは A3/A4 および A5 のシーケンスと並行して行われます。この調達の作業範囲は、A6 組立プロセスの一部です。

#### ○調達対象の範囲

本説明は、\*\*In-Vessel Diagnostic, Instrumentation & Fuelling (IDFI)\*\* の作業範囲にのみ適用されます。

IDFI作業範囲は、\*\*A6組立プロセス\*\*に該当し、A6の作業範囲全体の約三分の一を占めています。

#### 1. 調達範囲

この調達で実施する作業範囲は、恒久的な作業の準備、認証、実施、管理および文書化に加え、恒久的な作業を達成するために必要な一時的な作業の準備を含みます。

契約者は、プロジェクトおよび契約管理において高い標準を遵守し、契約範囲の実行に関連するスケジュール、コスト、および品質の目標を達成する経験と能力を示さなければなりません。契約者は、契約の実行中にすべての指示および要件に従い、正確な品質管理システムを実施することを求められます。

この調達の仕事範囲には、以下が含まれます：

- プロジェクトおよび契約管理
- IOから提供された文書に基づく設置作業パッケージ（IWP）の開発
- 恒久作業を完了するために必要な一時的な作業（照明、保護、仮設アクセス、安全設備、標準工具など）の識別、定義、提供
- 目的に応じた工具の設計、調達およびメンテナンス（IO提供の工具のメンテナンスを含む）
- オフサイトのカスタム機械加工施設の提供、およびIO提供部品のカスタム機械加工
- 契約者が開発したIWPに基づく作業および方法の認証（必要なモックアップの作成を含む）
- 作業完了に必要な消耗品および付属品の提供
- プロジェクトスケジュールに従った現場での恒久的な作業の実施
- 必要なすべての設置試験および検証の実施および文書化
- 完了した作業に関する詳細な竣工図面の作成および提出（達成した寸法の指定を含む）

契約者の作業員は、IOが許可する範囲でITER施設へのアクセスが許可されます。

## 2. 調達期間および期間

概要スケジュールは、1日7.5時間の2交代制、週6日で実行される活動を基にしています。夜間のシフトは、放射線検査（除外区域を設定する作業）などの危険を伴う活動に使用されることを考慮しています。

以下は主な実行期間であり、それぞれの期間の正確な範囲と期間は関連する入札段階で確認されます：

作業パッケージ	作業範囲	予定開始日	暫定期間
1.	プロセス開発および認証（オフサイト準備作業）	Q1-2025	6ヶ月
2.	ITERでのフルサイズ組立モックアップ（オンサイト準備作業）	Q3-2025	3ヶ月
3.	IDFIフェーズ1 – 真空容器セクターでの設置	Q4-2025	24ヶ月
4.	IDFIフェーズ2 – 真空容器セクター溶接後の設置完了	Q3-2030	16ヶ月

(\*) 真空容器セクターの溶接は、IDFIフェーズ1とIDFIフェーズ2の間に行われます。

## 3. プロセス開発および認証

作業の全体的な説明は以下の通りですが、これに限られません：

- 計測用ケーブルルーム設置のための仕様およびテスト準備。
- 選定された構成に基づくケーブルルーム設置の実施、および各ケーブル設置サイクル終了時の寸法および機能検証。
- 関連文書の準備：テストセットアップ説明書、テストプログラム、工具の操作マニュアル、テスト報告書など。

上記の作業は、契約者の施設内で完全に実施されるものとします。

## ○必要能力

トカマク核融合炉システムは、その設計において独自の広範な高度技術を統合しています。契約者の能力と経験、そしてその技術者および建設チームの能力、経験、訓練が、品質、再作業、スケジュールに直接的な影響を与えることになります。契約者は、目的に適した組立プロセスの開発および認証を行うためのエンジニアリング能力を含む、いくつかの重要な分野において能力と経験を示す必要があります。

- 逆向き設計、カスタマイズおよび精密機械加工、ワークショップ
- 工具のメンテナンス、保管および保存

残りの能力については、入札段階で指定される制限に従い、下請けにより取得することができます。この場合、契約者またはコンソーシアムは、適切な技術監督を保証するために、下請けした能力分野に対応するスタッフメンバーを特定する必要があります。

主要な能力は以下の通りです：

- 組立工具の取り扱い
- 清浄な作業環境の維持
- 機械および電気規格・基準
- 高真空および超高真空技術
- 職業安全
- 鉱物絶縁ケーブルの曲げ、成形および精密組立
- プロセス開発および認証
- 品質保証 / 品質管理
- 規制された建設作業
- 溶接技術
- 検査および非破壊検査（NDT）
- 計測機器の設置
- 測定技術（メトロロジー）
- 最大1000 kgまでの荷揚げおよび取り扱い

これらのコア能力は、プロジェクトの成功に向けて不可欠な要素となります。

以下詳細は英文技術仕様書を参照ください

【※ 詳しくは添付の英語版技術仕様書「**IDFI Installation contract - Technical Summary**」をご参照ください。】

ITER 公式ウェブ <http://www.iter.org/org/team/adm/proc/overview> からアクセスが可能です。

「核融合エネルギー研究開発部門」の HP : <http://www.fusion.qst.go.jp/ITER/index.html>  
では ITER 機構からの各募集（IO 職員募集、IO 外部委託、IO エキスパート募集）を逐次更新しています。ぜひご確認ください。

## イーター国際核融合エネルギー機構からの外部委託 に関心ある企業及び研究機関の募集について

### ＜ITER 機構から参加極へのレター＞

以下に、外部委託の概要と要求事項が示されています。参加極には、提案された業務に要求される能力を有し、入札すべきと考える企業及び研究機関の連絡先の情報を ITER 機構へ伝えることが求められています。このため、本研究・業務に関心を持たれる企業及び研究機関におかれましては、応募書類の提出要領にしたがって連絡先情報をご提出下さい。



IDM UID  
**CBYMSS**

VERSION CREATED ON / VERSION / STATUS  
**21 Oct 2024 / 1.2 / Approved**

EXTERNAL REFERENCE / VERSION

## Technical Specifications (In-Cash Procurement)

### **IDFI Installation contract - Technical Summary**

This document provides a technical summary of the scope of work and contract plan for the In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) Installation.

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# 1 Purpose

The purpose of this document is to provide technical summary of the scope of work, planning and required competences for the In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) Installation IO procurement.

# 2 Abbreviations

The following table lists and defines the abbreviations used in this document.

Abbreviation	Definition
ASN	Autorité de Sûreté Nucléaire
IWP	Installation Work Package
MI	Mineral Insulated
PIA	Protection Important Activity
PIC	Protection Important Component
UHV	Ultra High Vacuum
VV	Vacuum Vessel

Table 1: Abbreviations and Acronyms

# 3 The ITER Project

For a complete description of the ITER Project, covering both organizational and technical aspects of the Project, visit [www.iter.org](http://www.iter.org).

## 3.1 The ITER Facility

The ITER Facility is currently under construction in Cadarache area, in the south of France. Central to the facility is the Tokamak Complex, a nuclear rated structure in reinforced concrete that comprises three integrated buildings, Figure 2. The Complex has a footprint of 118 x 81 m, extends vertically from -15 m to +40 m relative to ground level, and contains the plant systems that service (power, heat, cool, condition, fuel, monitor and control) the Tokamak.

To support the assembly of the Tokamak machine there is a steel-framed Assembly Building and Cleaning Facility, arranged to form a continuous working space.

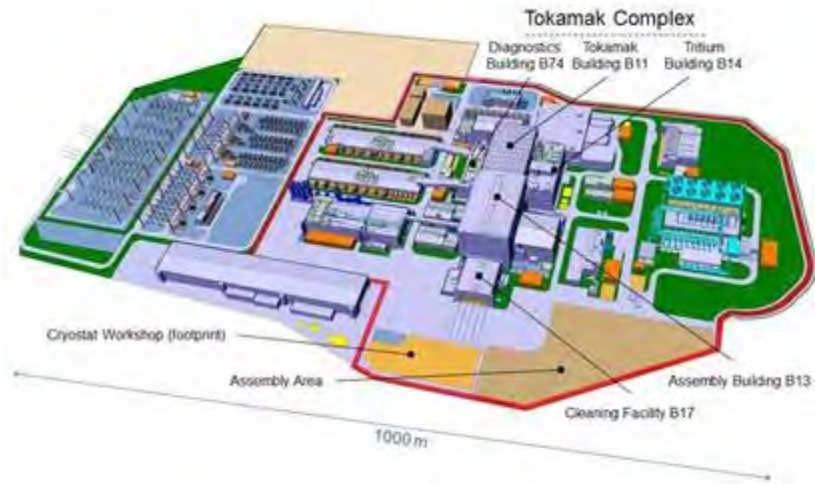


Figure 2: Layout of the ITER Site

### 3.2 ITER Machine Assembly Process

The overall assembly process is illustrated at the highest level in Figure 3.

The Tokamak is assembled from nine (9) sectors, each encompassing a toroidal angle of  $40^\circ$ , and comprising a  $40^\circ$  VV sector, two TF Coils, a  $40^\circ$  VV Thermal Shield sector, and the associated interconnections and supports. The components are delivered to the site individually, and sub-assembled into sectors using purpose-built jigs and fixtures in the Assembly Building (*Assembly Sequence A2*).

Prior to the sector installation in the Tokamak pit, the gravity supports, lower cryostat sections, and the components which cannot be installed following final assembly of the sectors, principally the lower poloidal field coils, lower correction coils, the lower and side correction coil feeders, and the lower pre-compression rings, are installed or temporarily stored within the cryostat base (*Assembly Sequence A1*). In parallel, components of the feeders for the superconducting magnets are installed in the lower level gallery of the Tokamak Building.

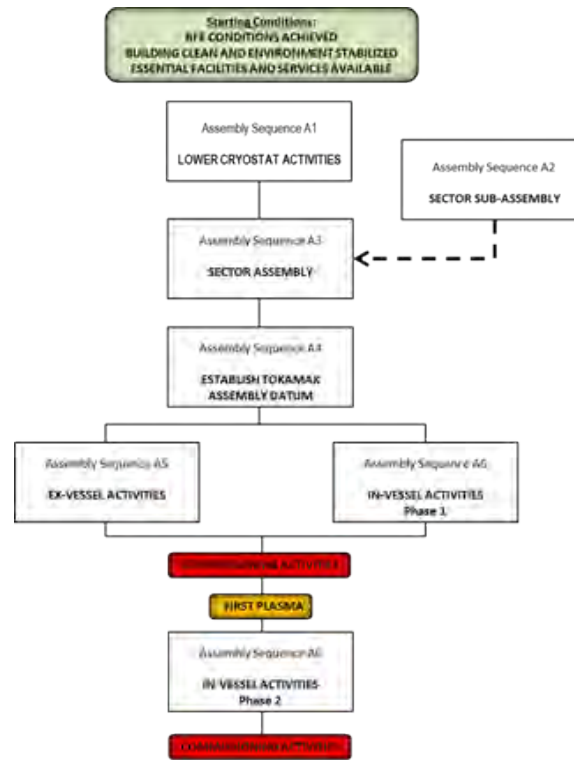


Figure 3: Tokamak Assembly Process

The sectors are then transferred to the pit sequentially where, following alignment, the TFC's are attached to their permanent supports and connected sequentially, the VVTS sectors are also connected sequentially, whereas the VV sectors are joined (welded) according to a plan which aims to minimise deformations, and the associated technical risk. Following installation of the final sector the VV is closed toroidally with the simultaneous welding of the last 2 sectors field joints (*corresponding to the end of Assembly Sequence A3*)

The permanent VV Gravity Supports are positioned and attached to the VV and Cryostat. The TFC pre-compression rings are then installed in their final position, and the preload applied to each of the coils. A detailed dimensional survey at this stage provides the geometrical estimate of the magnetic datum for the as-built TF magnet, and this is used as reference for all subsequent alignment operations. The major Sector Assembly Tools are disengaged and removed from the pit to allow the subsequent assembly sequences to proceed (*corresponding to the end of Assembly Sequence A4*).

The completion of the installation of the ex-vessel components proceeds with completion of the Cryostat in parallel (*Assembly Sequence A5*).

Internal VV access is via selected horizontal ports at the lower (divertor) and equatorial levels. Clean conditions are established inside the vessel, and the installation of the Phase 1 in-vessel systems is performed (*Assembly Sequence A6*) in parallel with A3/A4 and A5 sequences. **The scope of work of this Procurement is part of A6 Assembly process.**

## 4 Procurement Description

The present description only applies to In-Vessel Diagnostic, Instrumentation & Fuelling (IDFI) scope.

The IDFI scope falls into A6 Assembly process and covers around one-third of the full A6 scope of work.

## 4.1 Scope of Procurement

The scope to be performed under this Procurement will consist of the preparation, qualification, execution, control and documentation of the permanent works, plus any temporary works required to achieve the permanent works.

The Contractor shall demonstrate experience and compliance with the highest standards in project and contract management ensuring that the objectives for schedule, cost and quality related to the contract scope execution are met. The Contractor shall comply with all instructions and requirements during the execution of the contracts and shall put in place an accurate quality management system.

The Scope of Works of this Procurement includes:

- Project and Contract Management;
- Development of Installation Work Packages (IWPs) from the documentation provided by IO;
- Identification, definition and provision of any required temporary works required to complete the permanent works, such as, lighting, protection, temporary access, safety equipment, standard tooling, etc.;
- Design, procurement and maintenance of purpose-built tooling, including the maintenance of IO supplied tooling;
- Provision of offsite, custom machining facilities; custom machining of IO supplied components;
- Qualification of works and methods as a result of a contractor's IWP development including the necessary mock-ups;
- Provision of all consumables and accessories required to complete the works;
- Execution of the permanent works on site in accordance with the Project schedule;
- Performance, and documentation of all required installation tests and verifications;
- Preparation and issue of detailed as-built drawings, specifying dimensions achieved.

The Contractor's personnel shall have access to the ITER facilities as allowed by the IO.

## 4.2 Contracting strategy

The IDFI scope is split into four different work packages :

1. Process development and qualification of the In-Vessel Diagnostics cable looms assembly and clips welding (off-site preparatory activity);
2. Development and implementation of a full-size assembly mock-up into the ITER Trial Test and Training Facility (TTTF) (on-site preparatory activity);
3. On-site installation at Vacuum-Vessel (VV) Sector level (IDFI Phase 1);
4. Completion of on-site installation scope, after the VV Sectors welding is completed (IDFI Phase 2).

**The current contracting strategy is to proceed through progressive contracting via different tender procedures (which can be Restricted Tenders based on Market Survey outcomes) resulting into different successive contracts. The IO intent is to narrow the competition based on demonstrated competences and capacities until the selection of one Industrial Partner for the award and the delivery of works packages #3 and #4.**

### 4.3 Procurement Periods and Duration

The summary schedule is based on activities executed with 2 shifts per day of 7.5 productive hours per shift, 6 days per week. The night shift is considered to be used for hazardous activities like Radiographic Testing (generating exclusion zones).

The main execution periods to be considered are the following (precise scope and duration of each period will be confirmed at the related tender stage):

Work Packages	Scope of work	Expected start date	Provisional duration
1	Process development and qualification (off-site preparatory activity)	Q1-2025	6 months
2	Full-size assembly mock-up in ITER TTTF (on-site preparatory activity)	Q3-2025	3 months
3	IDFI Phase 1 – Installation at VV Sector level	Q4-2025	24 months
4	IDFI Phase 2 – Installation completion after VV Sectors welding (*)	Q3-2030	16 months

(\*) VV Sectors welding will be happening between IDFI Phase 1 and IDFI Phase 2.

#### 4.3.1. Process development and qualification

An overall description of the work is presented (but not limited to) below:

- Specification and preparation of tests for diagnostic cable looms installation.
- Execution of cable looms installation in the chosen configurations including dimensional and functional verification at the end of each cable installation cycle.
- Preparation of related documentation: test set up description, test programme, operating manuals of the tools, test reports etc.

The above mentioned work is to be carried out in full at the Contractor's premises.

#### 4.3.2. Development and implementation of a full-size assembly mock-up

The scope of work will cover the entire development and implementation of a full-size assembly mock-up of the In-Vessel Diagnostic cable looms and In-Vessel Instrumentation into the ITER Trial Test and Training Facility (TTTF).

This activity will be carried out at ITER premises, in south of France.

An overall description of the work is presented (but not limited to) below:

- Preparation of the TTTF for the individual cables and cable looms installation tests. Note: IO will procure and install in TTTF the hardware mimicking the VV and port areas in the most challenging configuration(s).
- Execution of cable looms installation in the chosen configuration(s), dimensional and functional verifications.
- Preparation of the related documentation: test set up description, test programme, detailed cable looms installation procedures, operating manuals of tools etc.

### 4.3.3. IDFI Phase 1

This package will start once the first two (2) Vacuum Vessel Sectors are installed and aligned in the ITER pit. At that time, the corresponding Vacuum Vessel inner area is accessible to the Contractor with a minimized co-activity for proceeding with the works.

The IDFI Phase 1 covers the installation work happening on each individual VV Sector and primarily In-vessel Diagnostic systems, such as looms, flux loops, magnetic sensors, and In-Vessel Instrumentation, such as Rogowski coils, optical sensors and thermocouples.

The Contractor will proceed to the installation of IDFI equipment progressively, whenever new VV Sectors are installed and aligned into the pit.

The main type of activities to be carried out during this Phase are (but not limited to): MI cables and optical fibres pulling and bending, welding and crimping of metallic clips, welding of optical sensors, non-destructive testing, assembling of supports for cables and sensors, etc.

### 4.3.4 IDFI Phase 2

This package will start once all the nine (9) VV Sectors are welded together.

The IDFI Phase 2 covers the installation work happening on the complete VV torus and in the ports, primarily waveguides, micro-fission chamber, neutron activation system, as well as pellet and gas injection systems and in-service inspection. This work constitutes the completion of the full IDFI installation scope,

In-Port assembly work will start after the first Lower Port extensions welding are being completed and will progress in parallel and following the sequence of Port extension welding sequence from Lower Ports to Upper Ports and then Equatorial Ports. Multiple teams working in parallel on several ports are considered and work is performed in co-activity with the Port extension welding but also with the installation of the In-Vessel Coils works.

## 5 Required Competences

The tokamak fusion reactor system integrates a uniquely extensive variety of high technologies in its design. The competence and experience of the Contractor, and the ability, experience, and training of their engineering and construction team will have a direct influence on quality, re-work, and schedule. The Contractor will be required to demonstrate competence and experience in a number of key areas including the engineering capacity to develop and qualify fit-for-purpose assembly processes.

Core competences are:

- Assembly Tooling
- Clean Conditions Working
- Mechanical and Electrical Codes and Standards
- High Vacuum and Ultra-High Vacuum
- Occupational Safety
- Bending, forming and precision Assembly of Mineral insulated cables
- Process Development and Qualification
- Quality Assurance / Quality Control
- Regulated Construction
- Welding
- Inspection and Non-Destructive Examination
- Instrumentation Installation
- Metrology
- Lifting and Handling, up to 1000 kg

- Reverse Engineering, Customisation and Precision Machining, Workshop
- Tooling Maintenance, Storage and Preservation

The remaining competencies may be obtained by sub-contracting subject to the limit which will be specified at the tender stage, in which case the Contractor or Consortia will be required to identify staff members for the area of competence sub-contracted to guarantee adequate technical supervision.

**Important note:** ITER is classified as a nuclear facility (INB-174), thus is subject to strict regulation of work and quality. The ITER Project is under the jurisdiction of the Autorité de Sûreté Nucléaire (ASN).

Activities identified as Protection Important or Safety Relevant (French Order of 7 February 2012) will be subject to additional surveillance. Relevant experience to the French Order is a requirement. It is important to note that not all Tokamak Assembly activities will be Protection Important or Safety Relevant, and the level of surveillance for these activities will be as indicated by the Quality Classification System. The Contractor shall ensure at any point in time and throughout the whole assembly and installation process that the IO requirements are properly propagated and verified including the complete chain of sub-contracted services and works.

## Annex II - Questionnaire

Ref. IO/MS/24/GRD/IDFI

### In-Vessel Diagnostic, Instrumentation & Fuelling (IDFI) Works

*Firms interested in participating to this market survey shall return a completed questionnaire to the following email address [guillaume.retaillaud@iter.org](mailto:guillaume.retaillaud@iter.org), copy to [antoine.calmes@iter.org](mailto:antoine.calmes@iter.org), no later than 28 November 2024.*

Please note that this is not a Call for Nomination request. At this moment the ITER Organization (IO) is preparing a procurement strategy for this project.

For all questions in the document, please refer to the Annex I - Technical Summary IDFI ref. ITER\_D\_CBYMSS\_V1.2.

#### 1. General information about the Company / Institute compiling the questionnaire

Company Name: .....

Address: .....

#### *Persons to be contacted:*

Contact person	Name + Title	Email address	Telephone
<b><u>Commercial:</u></b>			+
<b><u>Technical :</u></b>			+

#### *Main activities*

Main activities	Description
1. ....	
2. ....	
3. ....	
.....	

#### *Turnover*

Contact person	Turnover 2021	Turnover 2022	Turnover 2023	Number of employees
All activities				
<b><u>In the field of</u></b> Assembly of Nuclear Plants or classified installations				

#### 2. Technical Competence and Experience

*2.1 Do you have experience in manual or semi-automatic (machine-aided) bending of stiff cables and/or metallic piping (outer diameter of few mm and/or few tenths of cm)?*

**YES** ☐

**NO** ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

*2.2 Do you have experience in high-precision installation of instrumentation cables and/or fiber optics and/or electrical wires?*

**YES** ☐

**NO** ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

*2.3 Do you have experience in electrical testing of cables/wires in the frame of site acceptance tests for installations at external worksites?*

**YES** ☐

**NO** ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

*2.4 Do you have experience in manufacturing and/or installation of electrical and/or mechanical equipment for ultra-high vacuum applications?*

**YES** ☐

**NO** ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

*2.5 Do you have experience in TIG welding and RSW (spot) welding of stainless-steel components? Also, do you have experience in carrying out such activities in nuclear power plants and/or similar industrial environments?*

**YES** ☐

**NO** ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

*2.6 Do you have experience in performing works on external worksites having a restricted working space, restricted access and other contractors working at the same time in close proximity; and related experience in managing/coordinating worksite co-activities while ensuring schedule and delivery compliance?*

YES ☐

NO ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

### **3. Company's capacity**

*Will your company be capable of progressively mobilizing workers (from 5-10 people at first, to 30-40 people at peak, working in shifts) to the ITER worksite in France for a minimum of 24-36 months consecutively?*

YES ☐

NO ☐

If yes, please provide overview and any complementary information:

.....

.....

.....

### **4. Nuclear / first-of-a-kind experience**

*Are you familiar with ITER alike projects?*

YES ☐

NO ☐

Please provide overview and any complementary information:

.....

.....

.....

## 5. Quality Assurance

*Are you certified ISO 9001:2015, or equivalent in the field of this project?*

YES ☐

NO ☐

*Please specify your certifications.*

<i>QA Certifications</i>	<i>Comments</i>	<i>Validity Period</i>

## 6. Scope of Works

*6.1 Would your Company / Institute be interested in and capable to execute the entire scope of works as described in the Technical Summary at ITER site (France)?*

YES ☐

NO ☐

If YES or NO, please explain and justify:

.....

.....

.....

*6.2 Would your Company / Institute cover the full scope of works as a single contractor?*

YES ☐

NO ☐

If NO, please specify and justify which part of the contract would be taken over by another company, and in which role: as a partner in a consortium or as a subcontractor? Please indicate the name and address of the potential company/companies if known at this time.

Please provide the information requested in the below table:

<i>Services to be performed by another company (and % of the work)</i>	<i>Partner in a consortium <u>or</u> Subcontractor + Name and Address (optional)</i>	<i>Comments</i>
..... .....		
..... .....		
..... .....		

7. General comments

*Please indicate any other information that may be relevant for this Market Survey.*

.....

.....

.....

.....

.....

.....

Signature:

COMPANY STAMP

Name: .....

Position: .....

Tel: .....

Date: .....



Route de Vinon-sur-Verdon - CS 90 046 - 13067 St Paul Lez Durance Cedex - France

Date: 07 November 2024

Reference: IO/MS/24/GRD/IDFI

Subject: **Market Survey for the In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) Works**

Dear Madam/Sir,

The ITER Organization (IO) launches a Market Survey and requests information from companies having the interest, knowledge and capacity related to: **In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) Works**.

The main purpose of this Market Survey is to evaluate the market situation and to identify candidate suppliers having the potential capabilities to respond to the IO solicitation.

Please note that this is not a Call for Nomination.

You will find enclosed to this Market Survey (**Annex I**) the Technical Summary for In-vessel Diagnostic, Instrumentation & Fuelling (IDFI) works at ITER Site (ITER\_D\_CBYMSS\_V1.2).

china  
eu  
india  
japan  
korea  
russia  
usa

It should be noted that the ITER site is managed by the ITER Organization Coordination Team, that French working law applies, and that the contractor is responsible for obtaining visas and work permits required to work on French territory. The contractor will be required to produce a Specific Health & Safety Protection Plan (PPSPS). More generally, the Contractor will be bound to the IO Site Management regulations. Please find further requirements for work at ITER Site in Appendix 1 (at the end of this letter). Please note this is not an exhaustive list of such requirements but rather intended to provide an overview of key considerations.

The current contracting strategy is to proceed through progressive contracting via different tender procedures (which can be Restricted Tenders based on Market Survey outcomes) resulting into different successive contracts. The IO intent is to narrow the competition based on demonstrated competences and capacities until the selection of one Industrial Partner for the award and the delivery of works packages #3 and #4 as defined in Annex I.

The tentative schedule for the start of the works package #1 (i.e. Process development and qualification – off-site preparatory activity) would be in Q1 2025. The IO intends to award several contractors (at least two) to perform this first scope of works.

With this letter, we invite all potential companies, institutions or entities from ITER Member States to participate to this Market Survey through the questionnaire (**Annex II**).

We kindly invite the Domestic Agencies to publish this Market Survey on their websites or through other advertising methods, which will help to retrieve the requested information from a maximum of potential candidates.

Please return a completed questionnaire, **no later than 28 November 2024**, to the following email address [guillaume.retaillaud@iter.org](mailto:guillaume.retaillaud@iter.org), copy to [antoine.calmes@iter.org](mailto:antoine.calmes@iter.org)

Yours sincerely,

Antoine Calmes  
Group Leader  
Procurement for Plant & Machine Assembly  
Procurement Division

## **Appendix 1: Work at ITER Site General Requirements**

### **1. Contractor Personnel HSE and Qualification**

French Labour Code, including obligations in relation to, shall bind the Contractor Occupational Health and Safety in the Workplace. The ITER Project is classified as a Category 1 activity, as per Article L4531-1 of the French Labour Code.

The Contractor remains responsible for the Health and Safety requirements of its own staff and has a legal obligation as an employer for the organisation of safety for his own team. Prior to the start of site activity, the Contractor shall submit a Specific Health and Safety Protection Plan for approval by IO Health and Safety Coordinator.

The Contractor remains responsible for obtaining relevant visa and work permit to carry out activity on French territory. The Contractor shall also ensure Suitably Qualified and Experienced Persons as mobilised.

Contractor will have to follow the applicable Environmental requirements at IO site.

### **2. Co-activity / Working Shifts / Cleanliness**

#### **Work Location**

Works to be performed On-site within IO Assembly Buildings (e.g.: Building 11, Building 13/17)

#### **Co-activity**

The Contractor will be expected to work concurrently with other entities in the same geographical area during the performance of the works (e.g.: VV Sector Assembly contractor). IO Coordination team and their representatives will coordinate this interface, and priorities set and respected accordingly. The IO Coordination team is tasked with coordinating all the works performed by the Contractors safely and in such a manner as to achieve schedule optimization, cost reduction and compliance of the Works quality with the requirements established by the IO. For that aim, all works are carried out under the IO Permit to Work management system.

#### **Working Shifts**

Construction activities shall be executed in shifts if and when required, planned according to the IO construction calendars. Each calendar includes rest periods and National Holidays. Each Construction Activities shall be scheduled in the Construction Detail Work Schedule using the appropriate shift calendars.

Per definition the activities follow the here below pattern:

- 2 work shifts, 6 days per week;
- Non-Destructive Tests using X-rays performed during 3rd night shift.

The night shift is limited to the execution of hazardous activities like Radiographic Test.

The Executing Entity is responsible to ensure that their staff are compliant with the relevant French Labour Regulations and the EC Working Time Directive 2003/88/EC.

#### **Cleanliness**

Activities are performed in clean environment close to ISO 8 Cleanroom conditions.

As such contractor will be requested to follow the IO cleanliness protocol and train his staff for such protocol. Personnel Protection Equipment suitable for the related activities will have to be considered by the Contractor.

### **3. Nuclear Safety and Quality**

#### **Nuclear Safety**

The ITER Organisation must observe French national laws and regulations in the fields of public and occupational health and safety, nuclear safety, radiation protection, licensing, nuclear substances, environmental protection and protection from acts of malevolence. The ITER facility is categorized as a Basic Nuclear Installation works (“INB”) under French law (Installation Nucléaire de Base – INB-174). The IO is the nuclear operator of this INB. The construction activities must comply with these authorisations including the applicable regulations, codes and standards and regulatory directives received at various stages of the construction.

Nuclear safety refers to all technical, individual and organizational measures taken in performing the work to ensure that the installation INB 174 will be able to be operated safely under all conditions.

The Contractor shall ensure that all Contractor’s Personnel involved in the provision of the Works for the Employer have demonstrable skills and understand any nuclear safety implications of failure of the product or service.

### **4. Quality**

Quality Requirements shall be in accordance with the “ITER Procurement Quality Requirements” (to be informed at Procurement Stage). The ITER Quality Assurance Program shall be applied to all the work under this Contract. The ITER QA Program is based on IAEA Safety Standard GS-R-3 and on conventional QA principles and integrates the requirements of the INB Order dated 7 February 2012 on the quality of design, construction and operation in Basic Nuclear Installation.

Supplier and Subcontractors carrying out activities placed under the future Contract shall be in compliance with the QA requirements either through an existing IO approved QA Program or an ISO 9001 accredited quality system, complemented with the above-mentioned requirements.

In case of Contracts concerning SIC components and/or a Safety Related Activity, or PIC and/or Protection Related Activities, the Quality Assurance Programme of the Supplier shall comply with the requirements of the INB Order dated 7 February 2012 and the subsequent ASN decisions linked to this Order.