

## Technical Specifications (In-Cash Procurement)

# **PBS56 Water Decay Tanks Call for Nomination Procurement Specification Summary**

This document provides an overview of the main requirements for the detail design, procurement, manufacturing, testing and certification of two water decay tanks for the water cooled Test Blanket Systems.



# Procurement of two Water Decay Tanks

## Call for Nomination (CFN) Summary of Technical Specifications

### 1 Purpose

The purpose of this contract is the detailed design and procurement of two water decay tanks for the water cooled Test Blanket Systems.

### 2 Background

ITER is a magnetic fusion device, based on the so-called “Tokamak” concept, that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars. The ITER Members - China, the European Union, India, Japan, Korea, Russia and the United States - are now engaged in a 35-years collaboration to build and operate the ITER experimental device, and together bring fusion to the point where a demonstration fusion reactor can be designed. General information on the scope and design of the ITER machine is described in the [www.iter.org](http://www.iter.org) website.

The ITER TBM Program foresees to install and operate in ITER four simultaneously operating Test Blanket Systems (TBSs), with the related Test Blanket Modules (TBMs) (the in-vessel part), which are located in two Equatorial Ports (#16 and #18).

All four TBS that will be installed and tested in ITER consist of several sub-systems located in different areas of the Tokamak Complex, as shown in Fig. 1. This represents a unique opportunity to design, install and test complete Breeding Blanket mock-ups in relevant conditions for the future fusion power plant.

Two of the four TBSs are cooled by water and two by helium. Each of the water cooled TBSs is equipped with a decay tank to allow a reduction of the water radiation level before it is routed in other areas of the Tokamak Complex.

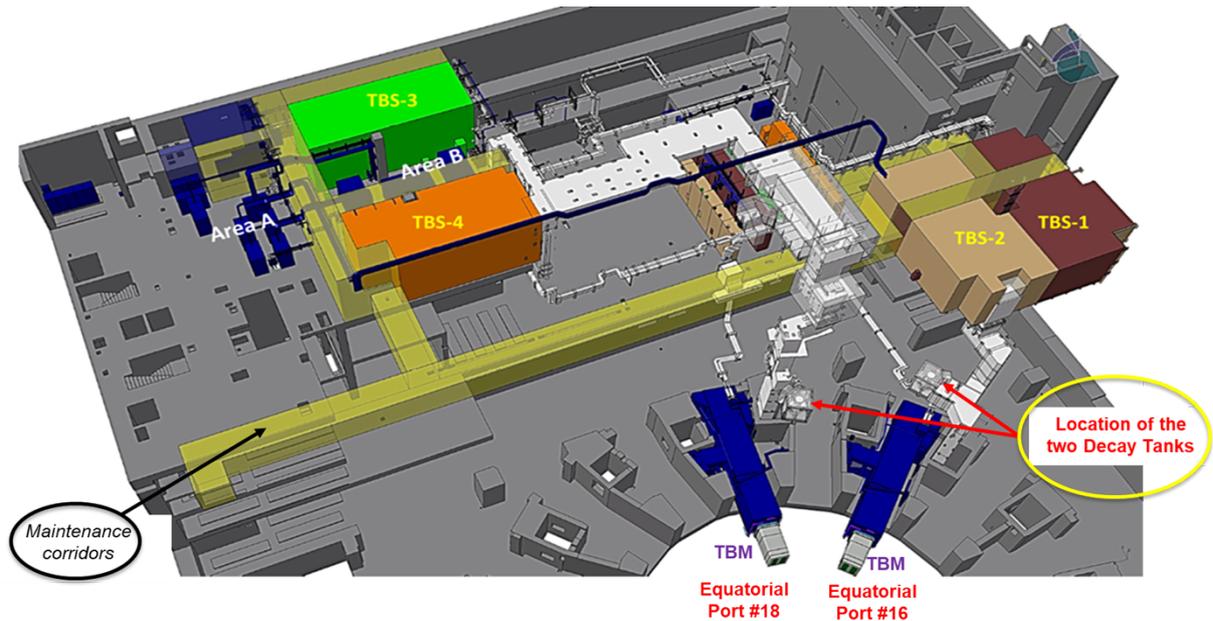


Figure 1. Simplified layout of the four TBS in the Tokamak Complex

### 3 Scope of Work

The scope of the work includes the following phases.

#### Phase I: Design Phase

- Development of the detail design based on ITER specifications and datasheet, including supports, lifting lugs and inspection

#### -Phase II: Qualification

- Qualifications for the manufacturing and examinations, the welding and inspection tools, the jigs and fixtures
- Development of a quality assurance and quality control programme

#### Phase III: Manufacturing Readiness Review

#### Phase IV: Manufacturing

- Purchase of all the required materials;
- Fabrication of the two Decay Tanks
- Implementation of a quality assurance and quality control programme
- Conformity assessment by an Agreed Notified Body (ANB)

#### Phase V: Factory Acceptance Tests

#### Phase VI: Delivery to the ITER Organization

- Delivery Readiness Review
- Packaging
- Shipping to the ITER site
- Witness of the Site Acceptance Tests
- Handover to the ITER Organization

The key design features of the water Decay Tanks are the following:

- Material is austenitic stainless steel 316L grade (or similar), with impurities limitations on some elements (i.e. Co%, Ta%, Nb%);
- Average design pressure of 192 barg and minimum design temperature of 343°C (indicative values, to be confirmed at the call for tender stage);
- Water volume of each tank is of about 0.5 m<sup>3</sup> (indicative value, to be confirmed at the call for tender stage);
- Decay Tanks shall be designed to construction codes EN13445 (alternatively ASME BPVC Section III or RCC-MRx);
- Decay tanks shall be delivered compliant with and certified to the French Order dated 30 December 2015 on Nuclear Pressure Equipment (ESPN) level N2 pressure category IV.

## 4 Experience Requirements

The ITER Organization is looking for Suppliers with demonstrated experience in developing and manufacturing nuclear pressure vessels made of austenitic steel. The Supplier must prove to be able to provide in an organised way the competences specified in the Scope of Work above.

The Tenderer shall have and maintain a valid ISO 9000 certification and shall have the duty to verify and document the equivalent quality level of all its subcontractors and consultants.

## 5 Award of the Contract

It is planned that the ITER Organization will award one contract for the whole scope of work.

Suitable teaming arrangements for multiple companies are possible, where appropriate, to enhance the offering of the tenderer.

The language used at ITER is English. A fluent professional level is required (spoken and written English)

## 6 Candidature – Expression of Interest

Candidature is open to all companies participating either individually or in a grouping (consortium) which is established in an ITER Member State. A consortium may be a permanent, legally-established grouping or a grouping, which has been constituted informally -- but formalized with engagement letters -- for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization.

The consortia shall be presented at the pre-qualification stage, where they will be assessed as a whole. Consortia cannot be modified later without the prior approval of the ITER Organization.

### **Withdrawal of the United Kingdom from the European Union (BREXIT)**

The UK is not a party to the ITER Agreement but to EURATOM Treaty. The draft Withdrawal Agreement between the EU and the UK provides that the provisions of the EURATOM treaty continue to apply to and in the UK for a transition period following its withdrawal from the EU and EURATOM. If the Withdrawal Agreement is not ratified (a no-deal Brexit) the EURATOM Treaty ceases to apply to and in the UK on the withdrawal date. Until the Withdrawal Date, the UK remains a full member of the EU and EURATOM and until that date UK entities retain the right to participate in IO procurement procedures. In case they are selected, a Brexit clause is included in the contract. Likewise, during the Transition period UK entities may participate in IO procurement procedures.

After the end of the Transition Period, when the Euratom Treaty ceases to apply to and in the UK, any UK entities bidding as a prime contractor or consortium partner will be rejected from the IO procurement procedures. UK entities will no longer be recognised as entities of an ITER Member and will no longer have the right to participate in IO procurement procedures, unless the UK has entered into an Agreement with Euratom. Where UK entities can demonstrate a unique and specific competence in a certain field the IO, with approval of the ITER Council, may also allow them to participate in a procurement procedure.

The ITER Organization may decide to broaden the eligibility to other countries as deemed appropriate.

## **7 Timetable for the Tender Process**

The tentative schedule for this tender process is as follows:

Call for Nomination (C4N)	<i>April 2020</i>
Invitation for Pre-Qualification	<i>May 2020</i>
Pre-Qualification	<i>July 2020</i>
Invitation for Call for Tender	<i>September 2020</i>
Tender Submission	<i>November 2020</i>
Contract placement	<i>December 2020</i>