



Technical Summary

Contract for TCWS Piping Modularity Studies (IO/14/CFT/11383/ACS)

Purpose

The purpose of this Contract is to obtain specialized support in the field of piping modularity studies for the design of the ITER Tokamak Cooling Water System (TCWS).

Background

The Tokamak Cooling Water System (TCWS) has the following functions:

- To remove the heat load transferred from the Plasma to the Vacuum Vessel and in-vessel components (e.g. Blanket modules, Divertor, and In-Vessel Coils) with pressurised water (up to 156 °C and 4.0 MPa),
- To provide the decay heat cooling,
- To provide hot water (up to 240 °C and 4.4 MPa) and hot nitrogen gas (up to 350 °C 2.0 MPa) for baking of Vacuum Vessel and In-Vessel Components,
- To confine the activated corrosion products and the tritium potentially contained in the water.

The TCWS Final Design is divided in 3 phases:

- Phase 1: TCWS captive piping,
- Phase 2: TCWS First Plasma equipment,
- Phase 3: TCWS After First Plasma equipment.

In order to complete the final design of the TCWS, IO needs specialized support in the field of piping modularity studies for the design of the ITER Tokamak Cooling Water System (TCWS).



Scope of work

Main tasks / activities are :

- General assessment of the current TCWS design solutions for the piping supporting systems and penetrations,
- Study of design solutions for TCWS piping modularity and relevant prefabrication and assembly sequences,
- Detailed engineering analysis of the feasibility of the complex piping modules/skids in term of weldability, inspectability and maintainability,
- Assessment of specific fabrication processes for double wall pipes' spools,
- Failure mode, effects and criticality analysis (FMECA) relevant to specific welded piping modules.

Call for Tender process timetable

The tentative timetable is as follows:

- Call for Nominations December 2014
- Pre-Qualification February / March 2015
- Call for Tender To be confirmed within Q2 2015

Contract schedule

The engineering services should last between 8 and 12 months and should take place on S2 2015 and S1 2016.

Required experience and skills

The Contractor shall have adequate experience in piping design for nuclear facilities along with generic plant design capabilities.

In addition, the particular required experiences and skills are:

- Good knowledge of Nuclear piping manufacturing procedures,
- Experience in prefabrication and modularization of Nuclear piping,



- Extensive knowledge of Welding and Non-Destructive Examination (NDE) techniques,
- Experience in Failure mode, effects and criticality analysis (FMECA).

Candidature

Participation is open to all companies participating either individually or in a group (consortium) which is established in an ITER Member State. A company cannot participate individually or as a consortium partner in more than one application or tender for each Contract. A consortium may be a permanent, legally-established grouping or a grouping which has been constituted informally 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 consortium groupings shall be presented at the pre-qualification stage. The tenderer's composition cannot be modified after the pre-qualification.

Legal entities belonging to the same legal grouping are allowed to participate separately if they are able to demonstrate independent technical and financial capacities. Candidates (individual or consortium) must comply with the selection criteria. The IO reserves the right to disregard duplicated reference projects and may exclude such legal entities from the pre-qualification procedure.