



21st December 2011

ITER Members
Domestic Agencies

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Subject: Call for Nominations

Dear Colleagues,

The ITER Organization invites the ITER Members to nominate companies, institutions or other entities that are capable of providing

Design Engineering, Computer Aided Design and CAD Support

Please find enclosed a description of the planned procurement.

In order to proceed with the preparation of the list of Tenderers, we kindly ask you to propose names of suitable companies, institutions or entities. The potential firms should have a recognized level of expertise, competence and references in the field mentioned above. The ITER Organization will prequalify the nominated companies, institutions or entities.

Should you wish to nominate suitable suppliers, please provide us with their up-to-date contact details (i.e. company name, full address (no post box, please), contact person, telephone and fax number, e-mail address and web- page).

Please reply, quoting the reference number of this call for nominations, within Five (5) weeks after receipt of this letter but no later than **25th January 2012**.

Please send all proposals by e-mail to daphne.crowther@iter.org

Yours sincerely,

Françoise FLAMENT
Head of Procurement and Contracts Division

Framework Contract

Design Engineering, Computer Aided Design and CAD Support

Summary Technical Specification

Abstract

This specification covers the supply of engineering and technical support services to the ITER Organization in the areas of Design Engineering, Computer Aided Design, and CAD support.

1. BACKGROUND AND OBJECTIVE

The Drawing Office (DO) of the ITER Organization (IO) provides and manages the design capability for the Project. The current Design and Engineering Support framework contracts were established at the end of 2008, and will terminate at the end of July 2012.

The objective of this Call for Tender is to select qualified companies with extensive experience in the required fields of work, and proven track records in the implementation, exploitation and maintenance of the software platforms used by the ITER Organization, and to conclude the framework contracts that will supply the Design Engineering, Computer Aided Design, and CAD support needs through the construction phase of the ITER Project.

2. REQUIRED EXPERIENCE

The candidate companies shall have demonstrated capabilities in the detailed engineering & construction design, integration, safety and quality of large and complex facilities. The IOs cost containment objectives also favour companies with a proven track record of delivering projects on time and within budget. The specific experience and qualities sought by IO include:

- Implementation of large, multi-disciplinary projects, in an international environment;
- Design and systems integration (components & zones);
- Experience of internationally recognized QA and safety standards, preferably in a nuclear environment;
- Experience of international construction codes, preferably nuclear;
- Design and engineering support to owner, during construction phase;
- Deliverable and time based task implementation;
- Capability to mobilise and manage centralised, site-based resources, and also to establish and manage satellite facilities for remote working;
- Proven track record of delivering projects on schedule and within budget;
- Ability to respond rapidly to changing resource requirements, to accommodate peak demands, and to provide specific expertise;
- Value engineering on large construction projects.

The established design and engineering capability of the ITER Project, comprising IO and the Domestic Agencies, has been developed around specific software applications that have been validated by IO. The engineering analysis and CAD services to be provided under the framework contracts shall be executed using these software packages, and accordingly, the candidate contractors shall have demonstrated capability in the implementation and application of the software packages relevant to their proposed areas of work:

Computer Aided Design

- CAD & catalogues: CATIA V5 (Mechanical + E&S modules)
- CAD mechanical catalogues: CADENAS
- CAD data-base: ENOVIA LCA (Life-Cycle Activities) – VPM V5
- 3D-Live: ENOVIA LCA Viewer
- Assembly & maintenance simulation: DELMIA
- 3D Illustration: 3D-VIA-COMPOSER
- Dedicated process description software (IGE-XAO Visio based, to produce in particular PFD, P&ID...) and associated data-base: See-System-Design (SSD); See-Electrical-Expert and See-Cabling-Manager (or equivalent)
- CAD quality checking: Q-CHECKER
- Isometrics: ISOGEN

- For remote work, the CAD activities must be performed in data sharing mode. The connection to the IO data-bases shall be made via:
 - Teradici or VPN for ENOVIA. If the distance with IO exceeds 1000-1500 km, the Company will connect to the closest DA (DA approval being a pre-requisite)
 - CITRIX for SSD
 - Web for 3D-Live, IDM, EDB

Structural Analysis

- ANSYS Classic
- ANSYS Workbench
- Hyper-mesh

Other Software Applications

For specific analyses / functions, the following software packages have been successfully utilised by ITER, and experience with these packages would be considered an asset. However, experience in the TYPES of analysis listed is a requirement.

- DOORS, for requirements documentation
- PIPE-STRESS and CAESAR II, for piping analysis
- FLOW-MASTER, for hydraulic analysis
- 3DCS, for 3-d tolerance analysis
- OPTICS, for diagnostics optical analysis

3. SCOPE OF WORK

Under the proposed framework contract the contractor will provide support to the ITER Organization on the Cadarache Site, and at remote locations as required by the Organization, to reinforce capability in the fields of Design Engineering and Computer Aided Design, and CAD infrastructure support. The three main areas of work will be:

Area 1): Engineering and CAD - Mechanical Systems.

Area 2): Engineering and CAD - Plant Systems.

Area 3): CAD infrastructure support.

3.1 Engineering and CAD - Mechanical Systems

The mechanical systems of ITER comprise large, heavy, complex and precise components such as superconducting magnets, vacuum and pressure vessels, supports, remote maintenance tooling & robotics, high-heat flux components, measurement systems (diagnostics), assembly jigs and tools. . Typical tasks in the scope of this, and the Plant Systems (see Section 3.2) areas include the production of the following deliverables:

- Design description: Process Flow Diagram (PFD); System Design Description (DD); Detailed Models (DM); Piping and Instrumentation Diagram (P&ID); Single Line Diagram (SLD); Cabling Diagrams; Routing diagram; Other diagrams (fault tree, interlock, sequence, block diagrams); Design definition (BOM); Assembly drawings (2D); Component drawings (2D); Component/subsystem specifications; Foundation/support drawings (Bird-eye / cutaway, etc.); Other Engineering & arrangement drawings (2D/3D); Instrumentation & Control documents (I&C);
- Design Justification and verification: Design Justification Document (DJD); Design justification plans; Design Compliance Matrix (DCM), Design Verification Matrix (DVM); System functional analysis; System load specification; Design analyses; Design Justification reports; Assembling / installation/ testing and inspection plans; Commissioning reports;
- Manufacturing documents: Manufacturing/ inspection plans; Manufacturing/inspection Monitoring report; End item data package (as built document);

- Operation documents: Operation plan; Maintenance and periodic test/inspection plan; Operation documents; Maintenance documents; Commissioning plan;
- Project Management Documents (Work-plan, schedule, risk & verification plan...); Procurement specifications; Project Change Request (PCR); CAD Model Approval Form (CMAF)

3.2 Engineering and CAD – Plant Systems

The ITER plant systems comprise large, complex, and technologically advanced process equipment such as specialised HVAC, water cooling, vacuum (UHV), cryogenics, I&C, Control & Data Acquisition (CODAC), fluids processing, power supplies, remote maintenance & robotics, active handling and processing facilities, component transport & assembly.

3.3 CAD Infrastructure Support

The required support concerns the CAD environment (processes, software, methodologies, CAD Manual, training), ITER CAD collaboration schemes (DA-Suppliers remote access to the CAD database), interfaces with the Engineering Data-base, plant design infrastructures (engineering practices: layout, schematics, numbering systems...), and CAD catalogues.

3.4 Training

The contractor shall implement a programme of training and coaching for his staff to establish and maintain the level of competence and versioning in the software used, including any ITER specific customisations and new software releases. In the case of CAD software, IO will provide the training to one Trainer from each Contractor, and the associated training material. IO will periodically assess competence of the trainees.

4. QUALITY ASSURANCE REQUIREMENTS

For the entire duration of the framework contracts, Contractors shall hold, and maintain, a valid ISO 9001 and 14001 certification or comparable.

The missions and tasks executed under these framework contracts shall be carried out in compliance with the ITER CAD Manual, and the IO Quality Requirements.

5. CONTRACT BASIS AND EXECUTION

The Design, Engineering & CAD Support requirements of the ITER project will be procured via framework contracts. Multiple contract awards are anticipated up to a maximum of four (4) awards to ensure collective coverage of the whole scope, while maintaining acceptable competition.

Following Contract awards, Task Orders will be issued by work area on deliverable and/or level of effort basis

The ITER Organization will award the framework contracts and first batch of Task Orders in July 2012. The initial award will be for a 4 year period, and 2 options of 2 further years each are foreseen.

Time dependent resource profiles, and uncertainties related to Project scope over the potential 8 year timespan of the framework contracts preclude the accurate prediction of resource requirements. The indicative levels of resources required to cover all areas of work are:

- Engineers (from all companies): tentatively 20-60 PPY per year
- CAD Designers (all companies): tentatively 60-120 PPY per year

ITER may require the contractor to perform the work either on the ITER site, at a close support locations to be established and maintained by the contractors within easy reach of the ITER site, and at remote locations such as the contractor's usual place of business. In the case of off-site CAD work, the contractor will be required to implement one of the connection schemes described in section 2, to utilise data sharing mode.

The working language of ITER is English, and a fluent professional level is required (spoken and written).