

Summary for call for nominations

Contract for Cable Engineering support services

1. Purpose

The purpose of this Contract is to provide the services to the ITER Organization for the development of the cable engineering, preparation of the call for tender for the supply and installation of cable trays and cables, and supervision of the cabling installation.

2. Background

ITER is the world's largest Tokamak, which is under construction in Cadarache, in the South of France. ITER is based on the 'Tokamak' concept of magnetic confinement, in which the plasma is contained in a doughnut-shaped vacuum vessel. The fuel - a mixture of Deuterium and Tritium, two isotopes of Hydrogen - is heated to temperatures in excess of 150 million°C, forming a hot plasma. Strong magnetic fields are used to keep the plasma away from the walls; these are produced by superconducting coils surrounding the vessel, and by an electrical current driven through the plasma.

ITER is a large research facility made of a combination of large conventional industrial equipments such as the cooling water system and challenging new high tech components such as diagnostics, superconductive magnets, etc. To ensure the future operation of all ITER subsystems a large amount of power and control cables will have to be designed, identified, routed and installed.

For more information on ITER Project please visit our site www.iter.org.

3. Scope of Service

The scope of this service contract includes the provision of specialized services to perform the following tasks: Cable engineering and Support for the cabling installation.

3.1. The Cable engineering task will follow a development process which will be detailed explained in the technical specifications. The 3 D designs must be done in CATIA (<http://www.dassault.com>). As a part of this task, a customization of the software commercial tools for this project could be required. The workflow can be subdivided into several major phases:

- a) Data gathering: collecting the data links between equipments, following an ITER template worksheet.
 - b) Electrical cable diagrams in 2D: develop cable diagrams with equipments.
 - c) Cable tray design in 3D with Catia. Measure the cable trays segment path length in 3D.
 - d) Cable routing: route the cables over the different cable trays and penetrations in 2D. Extract the cable lengths for the cables in 2D.
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- e) Cable terminations: Detail the pinout of the connectors and the connection to the cables.
- f) Bill of Material: list of cables, connectors, cable trays.
- g) Cable routing card: production of the cable installation sheets.

3.2. The support for the Cabling Installation could be divided into 2 tasks:

- a) Assist ITER in the preparation of the technical specifications documents for the procurement and installation of cable trays, cables and connectors for the cabling call for tender.
- b) Assist ITER in the supervision of the cabling installation: supervision of the cabling installation, including quality assurance and quality control, and maintenance of the Cable engineering database.

The initial duration of the Contract will be 5 years from the date of the signature by the last of the contracting parties, with the option of extensions up to a further 5 additional years, in accordance with the provisions set out in the Contract. The ITER Organization explicitly reserves the right to decide whether or not to extend the Contract.

ITER site is expected to have a total amount of cables in the order of 100,000, which are about twice than the total number of cables of a 1.4 GW nuclear power plant unit. According to this estimations, the overall estimate for the resources required for the cable engineering support are expected to be up to about professional 120-150 person year for a period of 8-10 years.

The Contractor must note and accept that the performance of the present contract shall require the presence of his personnel also at the working site of the ITER Organization, c/o CEA - Centre d'Etudes de Cadarache, 13115 St Paul Lez Durance, France, for the purpose of design review and data gathering.

4. Experience

The contractor and its personnel shall have adequate experience in cable engineering project management. This includes but it is not comprehensive:

- Cable engineering management in large projects.
- Management of a large range of cable type including optical cables, I&C cables, high voltage or high current cables in magnetic environment (related to mechanical forces applied in magnetic fields) and high frequency cables.
- Electrical cable diagrams and cable routing in 2D.
- Cable trays design in 3D.
- Supervision of cabling installation.

- Preparation of call for tender documentation for cable supply and installation.
- Experience with IEC (International Electro-technical Commission) or IEEE (Institute of Electrical and Electronics Engineers) standards and EMC (Electro-Magnetic Compatibility) in harsh environments.

5. Timetable

The tentative timetable is as follows:

- Call for nomination April 2010
- Pre-qualification May 2010
- Tender launch June 2010
- Contract placement January 2011
- Works start March 2011

6. Candidature

Participation is open to all legal persons 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 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 tender submission stage. The consortium cannot be modified later without the approval of the ITER Organization.

It is envisaged that a tender for the supply of cables will be launched in 2012. The contractor that will be awarded the above cable engineering contract will not be eligible to participate in the supply tender.

