Summary

Call For Nomination

Dependability Analysis and Software Tools for the ITER Central Interlock System

Purpose

The objectives of this contract are to perform a general dependability analysis of the ITER Central Interlock System, provide proposals for improvement based on the approved conceptual design, give cost estimation for the whole system and provide a software tool for future reliability and availability studies of the system. The contract shall also propose one or several strategies for the system installation, testing, commissioning and maintenance.

Background

The investment protection at ITER is provided by the Interlock Control Systems. These are the systems in charge of implementing all the instrumented protection functions of the tokamak and its associated plant systems. The local functions are implemented by the different Plant Interlock Systems (PIS) while the central actions are implemented by the Central Interlock System (CIS) via the PIS of each plant system involved. The object of study of this contract are the Central Functions and the CIS only.

At its present stage of development the CIS will be based on three independent parts depending on the required integrity level and performance of the implemented central functions: a high integrity slow architecture based on Siemens S7 PLCs and two fast architectures based in fast controllers and hardwired loops.

Scope of work

The scope of this contract is to study the conceptual design of the Central Interlock System and provide the software tools required for its further design. The tasks are:

1. Analysis of the current design of the Central Interlock System:
    a. Reliability and availability analysis
    b. Study of the maintainability and inspectability of the system
    c. CIS dimension and cost estimation
    d. Proposals for improvement from a dependability and budgetary point of view
2. Software tool for global analysis and management of the CIS reliability/availability during the design and implementation phases.
3. Proposal for installation and commissioning of the CIS.

Summary

Duration of services

The contract is scheduled to come into force in the first quarter of 2011 and will last no longer than 9 months.

Procurement Time table

A tentative time table is outlined as follows:-

Call for Nomination	End Sept 2010
Receipt of nominations	Mid October 2010
Call for pre-qualification	Mid/End October 2010
IO Receipt of the pre-qualification questionnaire	End November 2010
Notification of Pre- qualification results	Early December 2010
Clarification questions related to this Call for Tender	Mid December 2010
Response to Questions from ITER Organization	Mid/End December 2010
Tender Proposals Due Date:	**Mid/End January 2010**
Estimated Contract Award Date:	Early February 2011
Estimated Contract Start Date:	February 2011

Experience

Companies experienced in providing significant contribution in engineering and system design, analysis and integration of complex digital I&C safety-related systems. These companies shall have proven experience in hardwire and software implementation, based on the IEC 61508 and IEC 61511. Experience in large physics experiments will be considered as a major asset for the contractor's selection.

Additional Information.

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.