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SUMMARY

Call For Tender IO/19/CFT/7-448/ERA

Central Safety System Support Services

Purpose

The ITER Safety Control System (SCS) is the ITER Control System in charge of the execution of Safety I&C functions in order to protect people and the environment. It is composed of the Central Safety System (CSS), procured by PBS48, and of Plant Safety Systems for Occupational Safety (PSS), provided by other plant systems.

The CSS will implement part of the control logic and coordinate and supervise the locally distributed PSS.

The CSS is divided into two subsystems depending on the type of hazard to be mitigates:

- The Central Safety System for Nuclear Safety (CSS-N) addresses radiological hazards.
- The Central Safety System for Occupational Safety (CSS-OS) copes with non-radiological hazards.

The purpose of the contract is to provide support services for the CSS-OS and CSS-N.

Background

ITER will be constructed from a large number of components or “plant systems”, which will be delivered complete or in parts by the participating countries as “in kind” contributions, in compliance with contractual agreements, called Procurement Arrangement (PA), with the ITER Organization. These components will be assembled at the ITER site.

Some of these components are involved in the implementation of nuclear and occupational Safety I&C functions and therefore will be interfaced with the CSS-N and CSS-OS. To achieve their integration the Control System Division has developed a set of standards called Plant Control Design Handbooks, and publically available at:

<https://www.iter.org/mach/codac/PlantControlHandbook>

Both CSS-N and CSS-OS are in the final design stage.

The CSS-N shall follow the IEC 61513 and the CSS-OS the IEC 61511.

Scope of work

This contract will establish a framework and the work will be structured in individual task orders. The services to be requested in the task orders will cover the following:

- Engineering services covering participation to the design of the CSS-N and CSS-OS.
- Support IO in the supervision and review of works performed by others: This covers the review of documentation and the participation in meetings.
- Writing of guidelines for plant systems and update of existing guidelines: These guidelines are addressed to other ITER plant systems having safety I&C and may cover one or many aspects such as design, manufacturing, integration or acceptance tests.
- Support to and review of documentation related to plant safety systems interfacing the CSS.
- Support IO in the preparation of technical specifications.
- Support the specification of I&C nuclear and occupational safety functions.
- Draft Human Machine Interface (HMI) diagrams: Draft HMI diagrams to be used to specify the CSS mimics.
- Technical assessment of hardware and software products including proposals for its possible use by the CSS-N and CSS-OS.
- Specification, design and development of mock-ups and prototypes using the technology selected for the ITER safety systems: Siemens S7 safety PLCs, HIMA Planar 4 and WinCC Open Architecture. The associated activities may be preparation of wiring diagrams, selection and integration of hardware, PLC and HMI programming, testing, assessment of the return of experience and integration of such feedback into CSS design.
- Management of CSS interfaces. Development and/or update of physical interfaces of the CSS-N and CSS-OS components with other plant systems, to develop and keep up to date the physical and functional interfaces between CSS-N and CSS-OS with other plant systems, to verify that the space reservation of all CSS equipment are well implemented using configuration management model tools, like CATIA and See System Design.

The work shall mainly performed by engineers working on the ITER site although some tasks may be performed off-site.

Contract schedule

The Contract is scheduled to come into force in November of 2019 for a duration of five (5) years.

Procurement timetable

The tentative timetable is as follows:

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| Call for Nomination Release | March 2019 |
| Receipt of Nominations | April 2019 |
| Issuance of Pre-qualification Application | April 2019 |
| Receipt of Prequalification Application | May 2019 |
| Notification of Prequalification Results | June 2019 |
| Issuance of Call for Tender | June 2019 |
| Tender Proposals Due Date: | August 2019 |
| Estimated Contract Award Date: | October 2019 |
| Estimated Contract Start Date: | November 2019 |

Experience

The company's experience shall cover a broad range as listed below.

- Design, construction and operation of instrumented safety systems based on Siemens S7 PLC technologies for large heterogeneous facilities.
- Hardware and software integration of safety industrial control systems.
- IEC 61508, IEC 61511 and IEC 61513 standards.
- Reliability assessment of heterogeneous safety I&C systems.
- Acceptance testing of I&C safety systems.
- Development of safety software for S7-400 FH and S7-1500 F PLC series.
- Interfacing Siemens 400FH and 1500F series PLCs with field instrumentation.
- Prototyping of safety related systems.
- Industrial SCADA for safety related systems, especially Siemens WinCC Open Architecture.
- Review and production of I&C cabling diagrams for safety related systems.
- Knowledge in Linux operating system.

Candidature

Participation is open to all legal persons participating either individually or in a grouping (consortium). All legal persons including all consortium members should be established in an ITER Member State. A legal person cannot participate individually or as a consortium partner in more than one application or tender. 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 cannot be modified later without the approval of the ITER Organization.

Legal entities belonging to the same legal grouping are allowed to participate separately if they are able to demonstrate independent technical and financial capacities. Bidders' (individual or

consortium) must comply with the selection criteria. IO reserves the right to disregard duplicated references and may exclude such legal entities from the tender procedure.

Conflict of Interest

It has to be considered that the participation to this Tender procedure will be incompatible with the participation to the Tender procedure ref.: IO/18/CFT/16590/ERA for “Central Safety System for Occupational Safety” (launched on the 16th November 2018 and currently in the call for nomination phase).

The candidate can choose to participate to this Tender process (ref.: IO/19/CFT/7-448/ERA) or to the one mentioned above (ref.: IO/18/CFT/16590/ERA) but not to both of them.

Also the participation in both Tenders as consortium member or subcontractor will not be acceptable.

Reference

Further information on the ITER Organization procurement can be found at:
<http://www.iter.org/org/team/adm/proc/generalinfo>