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SUMMARY

Call For Tender IO/18/CFT/16590/ERA

Central Safety System for Occupational Safety (CSS-OS)

Final Design and Procurement

Purpose

The Safety Control System for Occupational Safety (SCS-OS) is the ITER Control System in charge of the execution of Occupational Safety I&C functions in order to protect people and the environment against non-nuclear hazards.

The SCS-OS is composed of the Central Safety System for Occupational Safety (CSS-OS), procured by PBS48, and of Plant Safety Systems for Occupational Safety (PSS-OS), provided by other plant systems.

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

The purpose of the contract is to provide the CSS-OS final design, procurement, commissioning and maintenance.

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 occupational Safety I&C functions and therefore will be interfaced with the CSS-OS.

To achieve this 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

The central CSS-OS shall comply with the requirements applicable to safety-related system as mentioned in the IEC61511.

Scope of work

The CSS-OS according to its current design consists in:

- CSS-OS operator desks, located in the Main Control Room (Control building – B71) and Backup Server Room (Personnel Access Control Building – B24).
- Set of cubicles located in Main Server Room (B71) and in Backup Server Room (B24), hosting the CSS-OS central supervision, control logic and network equipment.
- Double star network centered in B71 and B24.
- Distributed cubicles in several buildings implementing control logic.
- CSS-OS test, simulation and training platform.
- Interfaces between the CSS-OS and other I&C systems: CODAC, CIS and CSS-N.

Supply and installation of the CSS-OSS network infrastructure (networks cables and network cubicles located in hutches including network hardware) is not part of this contract.

The demonstration of compliance with the standard IEC61511 will be part of the Contract.

Contract schedule

The Contract is scheduled to come into force in second half of 2019 for a duration of six (6) years. It will be phased as following:

1. Final design and detailed engineering of CSS-OS (up to the second semester of 2020)

   This phase finishes with the closure of the Final Design Review.

2. Procurement of CSS-OS v1, installation and commissioning (up to the second semester of 2022)

   This phase includes:

   - CSS-OS manufacturing engineering
   - CSS-OS hardware procurement
   - Factory Acceptance Test (FAT)
   - Installation
   - Site Acceptance Test (SAT) and stand-alone validation
   - Validation of the CSS-OS and assessment of the Safety Integrity Level (SIL) assessment.

3. CSS-OS upgrades from v1 + 1 year maintenance (up to the second semester of 2025)

   This phase includes incremental updates of the CSS-OS in order to implement additional safety functions and integrate to the PSS-OS that will be provided by others during this period. Maintenance of hardware and software provided during previous phase is also part of this phase.

Procurement timetable

The tentative timetable is as follows:

Call for Nomination Release	November 2018
Receipt of Nominations	December 2018
Issuance of Pre-qualification Application	February 2018
Receipt of Prequalification Application	Mars 2019
Notification of Prequalification Results	April 2019
Issuance of Call for Tender	April 2019
Tender Proposals Due Date:	July 2019
Estimated Contract Award Date:	September 2019
Estimated Contract Start Date:	November 2019

Experience

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

- Relevant experience in the design, construction and operation of instrumented safety systems based on Siemens S7 PLC technologies for large heterogeneous facility.
- Experience in hardware integration of safety industrial control systems.
- Expertize with IEC 61508 / IEC 61511 standards.
- Expertize in reliability assessment of heterogeneous safety I&C systems.
- Experience on contract and project managing for large multidisciplinary I&C projects;
- Experience in development of safety software for S7-400 FH and S7-1500 F PLC series.
- Knowledge of interfacing Siemens 400FH and 1500F series PLCs and their input/output modules.
- Experience working industrial SCADA for safety related systems, especially Siemens WinCC Open Architecture (WinCC OA).
- 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 form the tender procedure.

Reference

Further information on the ITER Organization procurement can be found at:
https://www.iter.org/proc/generalinfo.