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SUMMARY

Call For Nomination IO/14/CFN/70000099/BGD

Central Safety Systems Support Services

Purpose

The Safety Control System (SCS) is composed of the Central Safety Systems (CSS) and the different Plant Safety Systems (PSS) and associated networks.

The CSS coordinates the locally distributed Plant Safety Systems (PSS) that are not part of the CSS. The CSS shall participate to the protection of people and the environment for the entire ITER site.

The different systems composing the CSS are briefly mentioned in annex 1.

The purpose of the requested services is to assist the Plant Control and Instrumentation (PCI) section in charge to procure the CSS by providing assistance for the engineering, qualification and validation of the CSS-N and CSS-OS.

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 safety I&C functions and therefore will be interfaced with the CSS-N or 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:

<http://www.iter.org/org/team/chd/cid/codac/plantcontrolhandbook>

Specific standards to nuclear safety are presented in [PCDH-N - Specific requirements and guidelines applicable to nuclear safety \(http://static.iter.org/codac/pcdh7/Folder%201/17-Plant Control Design Handbook for Nuclea 2YNEFU v3 0.pdf\)](http://static.iter.org/codac/pcdh7/Folder%201/17-Plant%20Control%20Design%20Handbook%20for%20Nuclea%202YNEFU%20v3%200.pdf).

The Central Safety System for Nuclear safety (CSS-N) is under regulation of the French licensing authority (ASN) and therefore shall be designed and qualified accordingly with the requirement of the IEC61513 and associated nuclear standards.

The central Safety System for Occupational Safety (CSS-OS) shall comply with the requirements applicable to safety-related system as mentioned in the IEC61508 and IEC61511.

Scope of work

The scope of the work covers the services to supply suitable and experienced personnel to contribute to the development and qualification of the CSS-N and CSS-OS.

The services requested herein can be categorized as follow:

- **Central Safety System support services** covering participation to the design of the Central Safety System for Nuclear Safety (CSS-N) and Occupational Safety (CSS-OS), assessment of technical documentation provided by external bodies, specification or update of physical and functional interfaces, development of functional specifications.
- **Plant Safety System support services** covering the definition of guidelines for the design, manufacturing, acceptance tests and integration of Plant System I&C for nuclear safety and occupational safety.
- **Qualification support services** covering the development of safety plans according to international standards in force on the ITER project (IEC, RCC-E ...) and support for the QA process as applied in nuclear I&C systems and other safety installations. Definition of documentation for product and environmental qualification, PFD/PFH/RAMI analysis, and assessment of qualification results are also covered by these services.
- **Management and Quality support services** covering the support for the ITER QA process as well as configuration management.
- **Technical expertise support services** covering assessment and/or development of prototype based on Siemens S7 safety PLCs, HIMA Planar 4 and WinCC Open Architecture.

Duration of services

The Contract is scheduled to come into force in third quarter of 2014 for a duration of three (3) years. Due to the multiplicity of profiles required, the ITER Organization reserves the right to award this contract to more than one supplier.

Procurement Time table

A tentative time table is outlined as follows:

Call for Nomination release	End February 2014
Receipt of nominations	End March 2014
Issuance of Pre-qualification Application	April 2014
Receipt of Prequalification Application	May 2014
Notification of Prequalification results	May 2014
Issuance of Call for Tender	June 2014
Clarification questions related to this Call for Tender	June 2014
Response to Questions from ITER Organization	June 2014
Tender Proposals Due Date:	July 2014
Estimated Contract Award Date:	September 2014
Estimated Contract Start Date:	October 2014

Experience

The company(ies) selected shall provide support in the following areas:

- Experience in project quality assurance; life cycle, documentation, configuration control, versioning, testing, etc.
- Extensive knowledge in safety industrial best practices
- Experience in participating to a large and distributed project involving industry and research labs
- Ability to work together with ITER team and other related Contractors
- Ability to work within the multi-cultural environment of the ITER project
- Complete command (oral, writing, reading) of English

- Experience in applying international safety standards (IEC61226, IEC61513, IEC60709, IEC60987, IEC61508, IEC61511)
- Practical experience in product qualification and environmental tests
- Experience in I&C integration

- Practical experience in design of system architecture based on distributed computing & PLCs
- Experience in solid-states technology especially HIMA Planar 4 systems
- Experience in Siemens S7-300F / S7-400FH safety PLC
- Experience in SCADA systems; knowledge in WinCC OA would be an advantage
- Experience in the Siemens STEP-7 development tools
- Knowledge in Linux operating system would be an advantage

The CV of the persons, who will be later involved in the execution of the Contract, shall be provided by the tenderer at the tender stage.

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 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.

Reference

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

Annex 1

Depending of the safety risks category, the CSS is sub-divided as following:

1. The Central Safety System for Nuclear Safety (CSS-N) shall coordinate the individual protection provided by the intervention of locally distributed Plant Safety Systems for Nuclear Safety (PSS-N) by the activation of additional protections in order to remove or reduce the detected hazardous conditions. The monitoring data (such as safety threshold reached, safety function activation, and actuators states) is shown to the control-room operator via the Safety HMIs.
2. The Safety Control system for Occupational Safety (SCS-OS) is the I&C system that executes the Occupational Safety I&C functions that are for protecting people and the environment from non-nuclear risks. The Central Safety System for Occupational Safety (CSS-OS) shall coordinate the individual protection that is to be provided by the intervention of locally distributed Plant Safety Systems for Occupational Safety (PSS-OS). The CSS-OS shall provide the relevant information to the people who are in charge of the emergency interventions.
3. The Safety Control System for Access Safety (SCS-AS) manages the access doors to safety areas. These are those areas that are defined as having high safety risks, nuclear or occupational, where the use of physical keys is deemed to be insufficient by the risk analysis, and where safety I&C functions are required for access management. The Access Control System that provides access control to security zones, for the control of movement on site, and to ensure that only properly authorized people have access, is under the responsibility of Access Control & Security Systems (PBS 69). SCS-AS implements three functional subsystems: Tokamak Building Access Safety (TBAS), Local Access Safety I&C Safety Functions (LAS), Route Management for Safety Patrols.
The CSS-AS is a functional system that is implemented in the Nuclear Safety and Occupational Safety I&C systems, respectively for nuclear risks and occupational safety risks.