

# CONTRACT TECHNICAL SPECIFICATION

## Engineering Support for the Feeder PA Activities

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### Revision history

Date	Rev.	Note
31 January 2012	1.0	
20 February 2012	1.1	Update experience requirement

## 1. Abstract

This document describes the needs for engineering services concerning the SS&A section of the Magnet division at Tokamak Directorate for the monitoring of the ITER Magnet Feeders Procurement Arrangement (PA) activities by CNDA and its suppliers and of the related PA documentation.

## 2. Background and Objectives

The objectives of this contract are to provide the ITER Organization with engineering services to assist the IO Technical Responsible Officer in monitoring and assessing the progress of the CNDA and its suppliers on the fulfilment of its obligations under the Feeder PA as defined in the PA document and its Annexes A-Management Specification and B- Technical Specification.

## 3. Work Description

The scope of this contract is to provide specialised services to perform the activities in Feeder PA Phases II and III. The related activities to be launched are the following:

- Subtask 1: Complete the Feeder Interface Control Documents  
Update, and follow through the approval process, all relevant interface control documents related to the Feeders.
- Subtask 2: Review PA documentation, drawings and models.  
Review of DA and contractor's documentation including quality plan, manufacturing plan, manufacturing and inspection plan, and supporting procedures under IO TRO's direction. Perform design reviews and/or revisions of the IO's drawings and models and DA's manufacturing drawings. Perform structural assessment, included finite element modelling if necessary, to support the design and assess the impact of proposed changes. Assist IT to setup magnet manufacturing database (MMD).
- Subtask 3: Follow up of Feeder PA execution  
Support the IO TRO in the follow-up of PA execution, which may involve occasional missions in China. It includes assessment, verification of compliance, witness of qualification tests, evaluation of the design change by the CNDA, reporting on Phase II activities, and corresponding QA/QC documents required from the CNDA and its suppliers in accordance with Annexes A and B of the Feeder PA.

## 4. Duration

The contract duration shall be two years. This duration shall be split into 2 annual periods to conform to IO annual budget release, the second year being optional, as subject to agreement at the end of the first year. The IO may extend these services for a maximum of one year. ITER organization shall establish the request for services on ad hoc basis and relative to the respective annual work plan.

## 5. Deliverables and Time Schedule

This contract is split into sub-tasks. Each sub-task has defined deliverables as described in the follow Table. The T0 is referred to the kickoff meeting day for this contract.

Sub task	Description	Deliverable	Delivery date
1	Complete the Feeder Interface Control Documents	Feeder interface documents in approved status, including Interface Control Document (ICD) and Interface Sheets (IS) with the Coils, Cryostat, Thermal Shield, Power Supply, Cryogenics, Vacuum, and Assembly.	T0 + 12 m
2	Update and review the PA documents, drawings and models.	Summary of approved revisions of Feeder drawings and QA documents <ul style="list-style-type: none"> <li>- Review of IO drawings</li> <li>- Review DA drawings</li> <li>- Production design readiness and assessment of the structural and seismic designs</li> <li>- PA QA documentation</li> </ul>	T0 + 6 m T0 + 12 m T0 + 18 m T0 + 24 m
3	Follow up of Feeder PA execution	<ul style="list-style-type: none"> <li>- Mission report for hold point release.</li> <li>- Monthly reports of Feeder PA execution</li> </ul>	T0 + 24 m Each mission End of each month

These activities require ~220 working days per year. A monthly activity report must be submitted to IO including the time spent.

## 6. Acceptance Criteria (including rules and criteria)

The acceptance of the work is based on the examination of individual deliverable described in Section 5 as well as the monthly report.

## 7. Payment schedule

The payment shall be granted on a monthly basis following invoicing for agreed daily rate and actual work performed. No payment shall be made before the report corresponding to the invoiced work is delivered to IO. In case of travel, the IO shall reimburse all travel costs including transportation, accommodation, and meals within the IO guidelines that apply for travel missions.

## 8. Experience Requirement

The candidate must have proven experience with: the structural design of magnet feeders or superconducting components with similar scale and application; the static and dynamic structural interfaces among the feeders, the feeder mechanical supports, and the superconducting coils in a complex load environment in a magnetic fusion machine. Experiences on the engineering assessment of large bolted structure affected by static and cyclic thermomechanical loads as well as seismic loads are required. The candidate shall

demonstrate his/her proactive role for the risk mitigation and the improvement of the structural design in the previous projects.

The motivate candidates shall be experienced in engineering assessments of structural, thermal, electromagnetic, and seismic load effects to large cryogenic superconducting systems. Experience in finite element structural analysis using ANSYS, including static and fatigue analysis, mechanical assessment, modal analysis is an asset. He/She should provide evidence of past experience in the application of the codes and standards for PED.

A candidate with experiences in design review procedure, project change management procedure, engineering drawings management, industrial procurement documentation management and the ability to interact with supervisor and designers/analysts and carry out review of technical procedures, will have the edge.

The candidate must be fluent in English, both written and spoken. Ability for reporting and presenting the results in a clear manner is a must. Proficiency in Chinese will be advantageous.

A Curriculum Vitae showing evidence of the above experiences is required. An interview may also be required.

## 9. Work Condition

- A work plan shall be established and agreed by IO. Missions shall be only upon agreement with IO.
- The contract shall be executed by one sole staff. Splitting it into parts and sharing those between several parties or individuals are not permitted.
- The staff working on this contract shall be available full time and be based at IO site.
- A tentative planning of missions is scheduled for 6 missions in China with a total staying time of 63 days.

## 10. Work Monitoring / Meeting Schedule

The work will be monitored by the ITER RO: Mr. Chen-yu Gung / e-mail address: [chen-yu.gung@iter.org](mailto:chen-yu.gung@iter.org). Brief daily email progress report may be requested. Weekly progress meeting may be held either on IO site or via video / audio conferencing during the mission.

## 11. Timetable

Tentative timetable:

Call for Expertise	February 2012
Contract Award	March 2012

## 12. Candidature

Participation is open to all individuals, companies or consortia which are legally registered in one or more of the ITER Member States. A consortium may be either a permanent, legally-established grouping or a grouping which has been constituted informally for a specific tender procedure. All member 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.