

Provision for Services in Support of Blanket Design Review, Electromagnetic and Mechanical Analysis, and Procurement

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1 Background and Objectives

The Blanket System is one of the most technically challenging components of the ITER machine, having to accommodate high heat fluxes from the plasma, large electromagnetic loads during off-normal events and demanding interfaces with many key systems (in particular the vacuum vessel, blanket manifolds and in-vessel coils and diagnostics) and the plasma. The Final Design Review for the Blanket System (Shield Block, First Wall panels and Attachments) was successfully held in April 2013 and the Blanket System is now in its Procurement Arrangement (PA) preparation phase with the first PAs scheduled to be signed in November 2013. The effort on the Blanket System for the next few years would require analysis as needed for post-PA deviation requests for design changes as well as PA follow-up support.

Another important component, the Blanket Manifold, is now in its final design phase with the Final Design Review (FDR) scheduled for mid-2014. Support is currently required to help the preparation for the FDR as well as to follow-up on post-FDR action items and Chits.

In addition, the Test Blanket Module (TBM) Frames and Dummy TBMs comprise another component which successfully went through its Conceptual Design Review (CDR), and support will be required to guide it to the Preliminary Design Review (PDR) and then FDR and to help prepare for these reviews.

The objective of the services required under these Specifications is to provide the above-mentioned support to the Blanket Section.

2 Scope of Work

The scope of this Call for Expertise includes the supply of a specialised engineer contracted to ITER to perform the following tasks.

- Provide support for the Blanket Manifold Final Design Review preparation including keeping track of required documentation to be produced
- Provide support on tracking and facilitating progress of design and analysis effort on Blanket Manifold in particular on Chits and action items following FDR.
- Provide support for the PDR and then FDR preparation of the TBM Frames and dummy TBMs including keeping track of required documentation to be produced.
- Provide support on tracking and facilitating progress of design and analysis effort on TBM Frames and dummy TBMs in particular on Chits and action items following PDR and FDR.
- Provide support on the electromagnetic and mechanical analysis linked to design changes of the Blanket System (per deviation requests or Project Change Requests (PCRs)) following PAs.
- Provide organizational support in following up on PAs including facilitating and tracking procedures and documents and general support to the Responsible Officers (ROs).

3 Estimated Duration

The duration of the engineering support services will be for one year.

The IO may exercise the option to extend these services for a maximum of two additional periods of one year. Such option shall be exercised by written notice to the Contractor no later than 90 days before the expiration of the initial term of the contract or of the additional period.

The expected starting date of the contract is **1st January 2014** or the signature date of the contract, whichever is later.

4 Work Description

The work description of the engineering support to be provided by the Contractor is, but not limited to, the following:

1. Blanket Manifold FDR documentation organized on time for FDR (producing and keeping current a list of documentation, organizing meetings, interfacing with ROs and sending reminder notes)
2. Documentation for TBM frames and dummy TBMs organized on time for PDR and FDR (producing and keeping current a list of documentation, organizing regular meetings, interfacing with ROs and sending reminder notes)
3. Progress in tracking and facilitating Manifold design and analysis effort, as evidenced by tracking and facilitating the responses of the Manifold FDR Chits to be produced on time for FDR closure (including maintaining a current a list, organizing regular meetings, interfacing with ROs and sending reminder notes)
4. Progress in tracking and facilitating design and analysis effort of TBM frames and dummy TBMs, as evidenced by tracking and facilitating the responses of the PDR and FDR Chits to be produced on time for PDR and FDR closure (including maintaining a current a list, organizing regular meetings, interfacing with ROs and sending reminder notes).
5. List of Manifold ICD and Interface Sheets kept current and reminders sent to RO's for missing documents.
6. Perform and help consolidate electromagnetic and mechanical analysis to be performed in support of design changes on the Blanket System during post-PA.
7. Organizational support to ROs on following up PAs (including tracking documentations, organizing meetings and sending reminder notes).

5 Responsibilities

5.1 Contractor's Obligations

The Contracted engineer will be fully dedicated to performing the Services.

The contracted engineer is expected to be on assignment at the ITER Site of Cadarache, France, to perform the work for the entire duration of this Expert Contract.

The contract does not allow reassignment of the contracted engineer for the duration of the task without the prior approval of the ITER Organization (IO).

The contracted engineer will be bound by the rules and regulations governing IO safety and security.

In case of a non-EU citizen, it is required for the Contracted engineer to obtain his/her French working visa prior their arrival in France.

5.2 Obligations of IO

IO shall make available to the Contracted engineer dedicated and located on IO site at Cadarache:

- Procedures, information and data and any other information for the contracted engineer to perform his/her functions under this Scope of Work;
- User facilities on equipment (including communication lines and computers) with adequate capacity necessary for a proper execution of the Services by the contracted engineer; Computers, software and all data produced during the contract shall remain property of the ITER Organisation.
- A safe work area which meets the requirements which are generally made for such an area for the satisfactory execution of the Services.

6 Deliverables and Due Dates

The reports on the above deliverables will be done at contract signature + 3 months and then after each quarter.

7 Specific Requirements and Conditions

The Contracted engineer assigned to perform the services described under these Specifications agrees to abide by the following nondisclosure conditions:

- Not to disclose, deliver, or use for the benefit of any person other than the IO, or its authorized agents, any restricted or confidential information or material he or she receives from the IO, other than material or information previously in the records of the Contractor or obtainable prior to such disclosure, delivery, or use, from third parties or from the public domain, or required to be disclosed by law or court order;
- To adhere to any reasonable policies or instructions provided by the IO as to the classification, use or disposition of any restricted or confidential information or materials;
- Not to use any restricted or confidential information or material for personal gain.

The Contracted engineer further agrees to take such reasonable steps as may be needed to ensure that the terms of the nondisclosure statements are observed during and after the termination of the Services.

8 Acceptance Criteria (including rules and criteria)

Monthly summary reports shall contain a description of the work carried out during the month. All communications between the Contractor and the IO shall be in English language and all measures shall be given in the metric system SI. This includes all reports, documentation, correspondence and labelling.

Text and tables of the Final Report in MS-Word shall also be delivered electronically to the IO.

9 Technical Requirements

The contractor shall propose an engineer with the following competences:

- Masters or preferably higher degree in Engineering or Physics
- Experience in working on fusion system and in particular on internal components
- Past experience on ITER is highly desirable
- At least 2 year's practical experience in general Engineering Support
- At least 2 year's practical experience in Project Management support and in particular in the preparation, running and post-follow-up of design reviews of complex systems (such experience on fusion internal components would be a plus)
- Familiarity with ANSYS software (Mechanical and Workbench) is desirable
- Ability to work effectively in a multi-cultural environment in English language
- Ability to work in a team
- Ability to organize and monitor activities
- Superior planning and organisational skills

10 Travel Expenses

The ITER Organization may request the Contracted engineer to travel and work at places other than ITER site. Travel mission expenses are claimed by the Contractor according to the following:

- a) Only economy class flights are reimbursed by ITER Organization.
- b) Subsistence expenses reimbursement rate for Contractor's employee shall not exceed the respective per diem rates.
- c) Travel by train (first class) when agreed by ITER Organization
- d) Travel by car reimbursement rate is 0.50 € / km when flight or train are not available

All claims for mission travel will be reimbursed only when supported by original invoices and flight tickets.

The maximum amount to be invoiced to ITER Organization shall be 3 000 Euro per year of duration of this Contract.

11 Payment schedule / Cost and delivery time breakdown

Invoices will be paid monthly, based on working days worked and according to the resources allocated to the Contract in the month, supported by accepted deliverables (monthly summary reports and full quarterly reports).

Time for acceptance of the deliverables and written reports by the IO Responsible Officer shall be 15 calendar days.