

Call for Nomination Documents

Call for Nomination Technical Summary for the Supply of Electricity to ITER (2020 to 2022)

This is the Technical Summary for the Call for Nominations to interested parties for The ITER Organization's Supply of Electricity Contract (2020 to 2022,) for the supply of electricity to the ITER Organization's site at the Route de Vinon-sur-Verdon 13067, St Paul Lez Durance, France.)

The Contract will also cover the duties and responsibilities foreseen for the Balance Responsibility Entity (La gestion de l'équilibre) for the ITER's Site.



Supply of Electricity to ITER

Technical summary



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1 Introduction

The ITER project aims to build a fusion device, twice the size of the largest current devices, with the goal of demonstrating the scientific and technical feasibility of fusion power. It is a joint project between the European Union (represented by EURATOM), Japan, The People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA. ITER will be constructed in Europe, at St Paul Lez Durance in the south of France.

2 Contract outline

- The ITER Organization's Supply of Electricity Contract is for the supply of electricity to the ITER Organization's site at the Route de Vinon-sur-Verdon 13067, St Paul Lez Durance, France.)
- The ITER Organization will be a "Final Customer" under the definitions of the Internal Market in Electricity Directive 2009/72/EC.
- The Contract will also cover the duties and responsibilities foreseen for the Balance Responsibility Entity (La gestion de l'équilibre) for the ITER's Site.

The interested parties should note the following:

- The initial contract will be for 1 (one) year with two options to extend the contract by a further year. (Giving a maximum total of 3 (three) years for the duration of the contract)
- The maximum absorbed power could be in a range of 20 to 60 MW during the period defined for this contract. (Over the duration of the contract including the optional extensions.)
- The annual consumption is anticipated to in the range of 250 to 320 GWh/year (Over the duration of the contract including the optional extensions.)
- The Electrical supply shall be delivered by the Réseau de Transport d'Electricité at 400 kV to the ITER Organization's switchyard located at the ITER Site.
- The supply of electricity shall be eventually measured via seven sets of meters that are furnished, controlled and owned by the RTE.
- All communications shall be in English.

3 Candidate's Experience and Technical Capability

Besides the candidates Financial and Economic capacity, the selection will be based on the following (selection criteria will be detailed during the Tender stage):

- During the preceding 5 years, the Candidate shall have supplied electricity to at least two projects which involved uncertainties on both the planned time and amplitude of power consumption.

(The experience shall be attributed to the Organisation that is applying. Where a company claims to have the required experience, it shall be in its current entity.)

- The Candidate shall be mentioned in the list published of BRE's by Réseau de Transport d'Electricité (RTE) during the preceding 5 years. The Candidate shall affirm that they have been included in the said list.
(The experience shall be attributed to the Organisation that is applying. Where a company claims to have the required experience, it shall be in its current entity.)
- Third Party approved ISO 9001 and OHSAS procedures.
- The candidate shall operate an office based within any of the IO member state countries which is capable of supplying electricity from the French Electrical Wholesale market.
- *For information only:*
Demonstrated commitment to cooperative contracting relationship:
The Candidate shall provide a list of clients, with a maximum demand of greater than 10 MW and an annual consumption greater than 30 GWh/year with whom they have or had successive repeat business from one contract completion date to the immediate start of a consequent contract.

4 Roles and Responsibilities

4.1 Transportation

The transportation of the electrical supply is performed by RTE and therefore will be excluded from the Supply of Electricity Contract.

4.2 Supply of the Electricity

The appointed Contractor shall supply the agreed electrical demand to the ITER Organisation's site, at the Route de Vinon-sur-Verdon 13067, St Paul Lez Durance, France.

4.3 Balance Responsibility Entity

The appointed Contractor shall also be the Balance Responsibility Entity to manage any in balance in the ITER Organization's electrical load.

5 Configuration of the Electrical consumption

The site is under construction and the requirement during the contract and the optional period is anticipated to be in the order of 20 to 60 MW.

The supply will be connected through 4No. 400kV/22kV 60/75 MVA (ONAN/ONAF) transformers. One, two, three or four of these transformers maybe connected via the 400kV supply at any given moment.

6 Evolution of the Electrical consumption

The consumption will be variable throughout the contract duration, with a varying demand of between 20 and 60MW depending on the construction phase and planned testing procedures.

6.1 IO's anticipated Electrical demand (2020)

The ITER organization's anticipated electrical demand for 2020 (See figure below.)

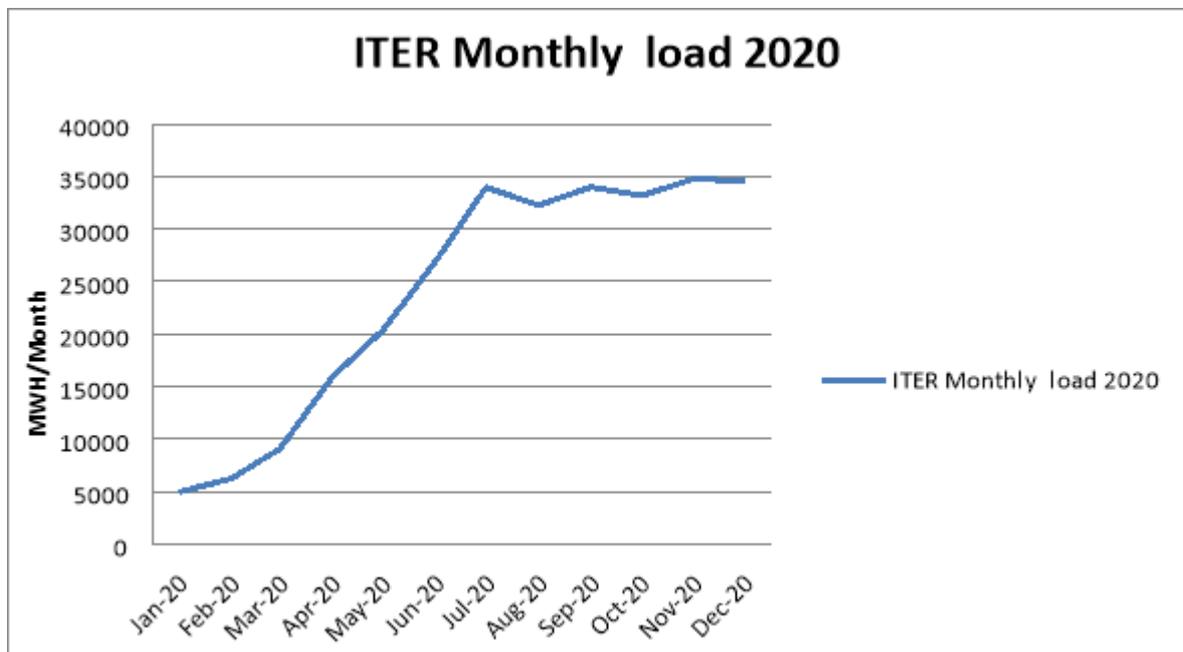


Figure 1 The ITER organization's anticipated electrical demand for 2020

The ITER organization's anticipated electrical demand for 2021 and 2022 will be published during the preceding year and prior to the release of the contract option, should it be issued.

6.2 Uncertainties with the IO's active power forecasting

During the ITER Project's construction phase, the consumption will increase. (As indicated in Figure 1.)

The IO is able to reasonable predicted the variation of the power (and energy) demand. However, there are significant uncertainties in predicting the start-up date of each main consumer.

The figure below provides an example:

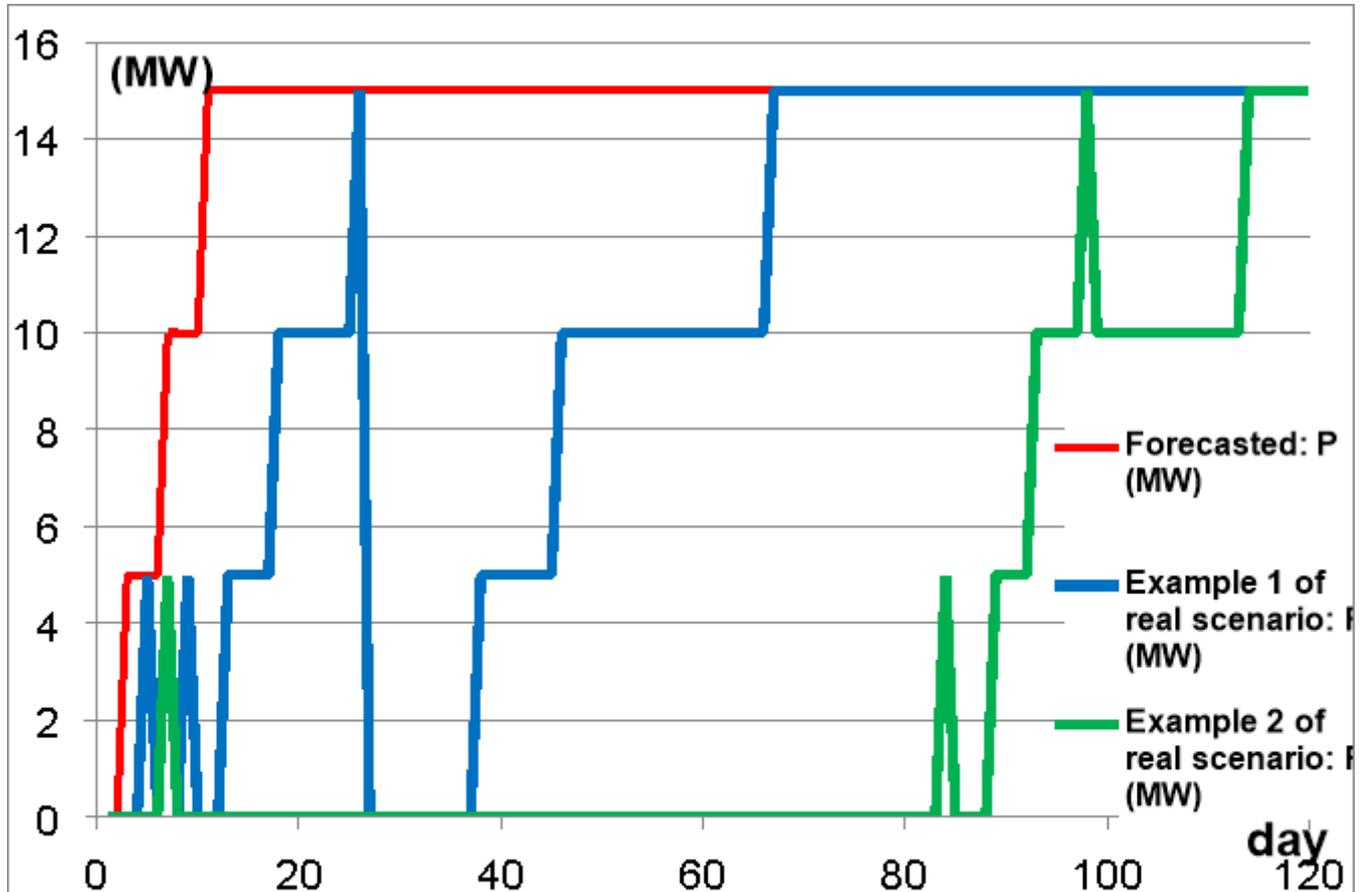


Figure 2 Uncertainties in the IO's predicted supply.

The test and commissioning of the Cryopant implies 24h/day, 7days/week operation of a number of high magnitude loads. (5 MW compressors.)

The starting date for the test will be planned by the IO several months in advance.

Nonetheless, the forecasted and actual commissioning scenario could be quite different:

The Red line in the graph above details the forecasted period to commission the Cryopant compressors into full service with a staged commissioning and the maximum demand of 15 MW would be achieved in a 10 to 15 day period.

In the scenario detailed by the blue line (example 1) the commissioning of the Cryopant compressors commences as planned, but is then curtailed, recommences and is halted once more before a third attempt manages to bring the Cryopant compressors into service, only for there to be a problem that results in the compressors being taken out of service for a number of days. One week to ten days later the process is recommenced and the Cryopant compressors are connected into service, permanently, 65 days after the process began.

Example 2 (Green line) details a situation where by the commissioning of the Cryoplant compressors commences as planned, but after a number of days the process is suspended (approximately 2 months) before restarting and again stopping to allow another issue to be resolved. The compressors are then brought into service only for one of them to be disconnected.

7 Indicative Timetable

An indicative timetable for the ITER Organization's Supply of Electricity Contract

Call for Nomination	Week 38/39
Deadline for receipt of nominations	Week 45
Issue Call for Tender	2019 Week 03
Deadline for receipt of Tenders	2019 Week 10
Contract Signature	2019 Week 10

8 Disclaimer

The ITER Organization is not committed contractually in any way to those applicants whose applications are accepted. The issue of this Technical Summary does not commit or otherwise oblige the ITER Organization to proceed further with the Supply of Electricity Contract process.

Whilst the information contained in this Technical Summary has been formulated with all due care, it shall not form any part of any future contract that maybe signed between the ITER Organization and any party or entity.

Furthermore, the ITER Organization takes no responsibility for the accuracy of any information included in this Technical Summary.

Note

Neither the ITER Organization nor any of the Domestic Agencies that are part of the ITER project shall be liable for any costs incurred by applicants through participation in the call for tender process.