

外部委託業者の募集

References: IO/25/OT/10034652/VML

“Feasibility Study on Reactive Power Compensation (RPC) & Harmonic Filtering (HF) Stage 2 ”

(無効電力補償 (RPC) および高調波フィルタリング (HF) 第 2 段階のフィージビリティスタディ)
IO 締め切り 2026 年 3 月 25 日(水)

○はじめに

本事前情報通知 (PIN) は、作業契約の入札授与および実行につながる公開入札調達プロセスの最初のステップです。

この文書の目的は、作業範囲および入札プロセスに関する技術的内容の基本的な概要を提供することです。

○背景

ITER は平和利用の核融合発電の科学的小および技術的な実現可能性の実証を目的とした、国際共同研究開発プロジェクトです。ITER 機構の 7 つのメンバーは、;欧州連合 (EURATOM が代表)、日本、中華人民共和国、インド、大韓民国、ロシア連邦、および米国です。

ITER の敷地はフランス南東部のブーシュデュロヌ地区にあり、ITER 本社 (HQ) もあるフランス CEA サン・ポール・レ・デュランス に近いところに位置しています。詳細については、ITER のウェブサイト <http://www.iter.org> を参照して下さい。

○作業範囲

本調達の範囲は、調達の範囲は、既存のシステム (RPC&HF) と並行して機能・性能を発揮するための、無効電力補償および高調波フィルタリングシステムのアップグレード構成 (RPC&HF-St2) について検討・分析するフィージビリティスタディを提供することです。

サービスの範囲については、添付の技術サマリー (FCEPJL v3.0) をご参照ください。

なお、詳細な技術仕様書は入札プロセス中に提供されます。

○調達プロセスと目的

目的は、競争入札プロセスを通じて供給契約を落札することです。

この入札のために選択された調達手続きは**公開入札**手続きと呼ばれます。

オープン入札手順は、次の 4 つの主要なステップで構成されています。

▶ ステップ 1-事前情報通知 (PIN)

事前情報通知は公開入札プロセスの第一段階です。IO は、関心のある候補企業に対し、以下の概略日程に示された期日までに担当調達担当官に添付の関心表明フォームで以下の情報を提出し、競争プロセスへの関心を示すよう正式に要請します。

特に注意:

関心のある候補企業は、IO Ariba の電子調達ツール「IPROC」に登録してください（まだ登録していない場合）。手順については、<https://www.iter.org/fr/proc/overview>を参照してください。

Ariba (IPROC) に登録する際には、お取引先様に最低 1 名の担当者の登録をお願いいたします。この連絡担当者は、提案依頼書の発行通知を受け取り、必要と思われる場合は入札書類を同僚に転送することができます。

➤ ステップ 2-入札への招待

関心表明提出後、提案依頼書 (RFP) を「IPROC」に掲載します。この段階では、担当の調達担当者に関心を示し、かつ IPROC に登録している関心のある候補企業は、RFP が公表された旨の通知を受けることができます。その後、RFP に詳述されている入札説明書に従って提案書を作成し、提出します。

このツールに登録されている企業のみが入札に招待されます。

➤ ステップ 3-入札評価プロセス

入札者の提案は、IO の公平な評価委員会によって評価されます。入札者は、技術的範囲に沿って、かつ、RFP に記載された特定の基準に従って作業を実施するために、技術的遵守を証明する詳細を提供しなければなりません。

➤ ステップ 4-落札

認定は、公開されている RFP に記載されている、コストに見合った最適な価格または技術的に準拠した最低価格に基づいて行われます。

○概略日程

概略日程は以下の通りです：

マイルストーン	暫定日程
事前指示書 (PIN) の発行	2026 年 3 月 13 日
関心表明フォームの提出	2026 年 3 月 25 日
I-Proc での提案依頼書の要求	2026 年 3 月 30 日
入札会議 (Teams にて)	適用外
入札提出	2026 年 5 月 12 日
契約授与	2026 年 5 月 E
契約調印	2026 年 6 月

○契約期間と実行

ITER機構は2026年の5月Eごろに供給契約を授与する予定です。完成までの期間は12から18か月の予定です。

○候補

参加は、個人またはグループ/コンソーシアムに参加するすべての法人に開放されます。法人とは、法的権利及び義務を有し、ITER加盟国内に設立された個人、企業又は機構をいいます。ITER加盟国は欧州連合(EURATOMメンバー)、日本、中華人民共和国、インド共和国、大韓民国、ロシア連邦、アメリカ合衆国です。

法人は、単独で、またはコンソーシアムパートナーとして、同じ契約の複数の申請または入札に参加することはできません。共同事業体は、恒久的な、法的に確立されたグループ又は特定の入札手続のために非公式に構成されたグループとすることができます。

コンソーシアムのすべての構成員(すなわち、リーダーと他のすべてのメンバー)は、ITER機構に対して連帯して責任を負います。

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どのコンソーシアムメンバーもIPROCに登録する必要があります。

【※ 詳しくは添付の英語版技術仕様書「**Feasibility Study on RPC & HF Stage 2**」をご参照ください。】

ITER公式ウェブ <http://www.iter.org/org/team/adm/proc/overview> からアクセスが可能です。

「核融合エネルギー研究開発部門」のHP：<http://www.fusion.qst.go.jp/ITER/index.html>
ではITER機構からの各募集（IO職員募集、IO外部委託、IOエキスパート募集）を逐次更新しています。ぜひご確認ください。

ITER国際核融合エネルギー機構からの外部委託 に関心ある企業及び研究機関の募集について

<ITER 機構から参加極へのレター>

以下に、外部委託の概要と要求事項が示されています。参加極には、提案された業務に要求される能力を有し、入札すべきと考える企業及び研究機関の連絡先の情報を ITER 機構へ伝えることが求められています。このため、本研究・業務に関心を持たれる企業及び研究機関におかれましては、応募書類の提出要領にしたがって連絡先情報をご提出下さい。



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PRIOR INDICATIVE NOTICE (PIN)

OPEN TENDER SUMMARY

IO/26/OT/10034652/VML

for

Feasibility Study on RPC&HF Stage 2

Prior Indicative Notice annexes:

- Annex I: Expression of Interest Form
- Annex II: Technical Summary FCEPJL v3.0

IO Contact Persons: Virginie.Michel@iter.org and Andrew.Brown@iter.org

Abstract

The purpose of this summary is to provide prior notification of the ITER Organization's intention to launch a competitive Open Tender process in the coming weeks. This summary provides some basic information about the ITER Organization, the technical scope for this tender, and details of the Feasibility Study on RPC&HF Stage 2.

1 Introduction

This Prior Indicative Notice (PIN) is the first step of an Open Tender Procurement Process leading to the award and execution of a Service Contract.

2 Background

The ITER project is an international research and development project jointly funded by its seven Members being, 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 is being constructed in Europe at St. Paul–Lez-Durance in southern France, which is also the location of the headquarters (HQ) of the ITER Organization (IO).

For a complete description of the ITER Project, covering both organizational and technical aspects of the Project, visit www.iter.org.

3 Scope of Supply

The scope of this procurement is to provide a Feasibility Study to explore and analyse the Reactive Power Compensation and Harmonic Filtering system upgrade architectures (RPC&HF-St2) to function and perform in parallel with the existing system (RPC&HF).

For the scope of services, please see the attached Technical Summary, ref. FCEPJL v3.0.

Note that the detailed technical specifications will be provided during the call for tender process.

4 Procurement Process & Objective

The objective is to award a Supply Contract through a competitive bidding process.

The Procurement Procedure selected for this Tender is a so-called **Open Tender** procedure.

The Open Tender procedure is comprised of the following four main steps:

- Step 1- Prior Information Notice (PIN)

The PIN is the first stage of the Open Tender process. The IO formally invites interested Suppliers to indicate their interest in the competitive process by returning to the Procurement Officer in charge the attached “Expression of Interest and PIN Acknowledgement” (Annex I) by the date indicated in the procurement timetable below.

Special attention:

Interested tenderers are kindly requested to register in the IO Ariba e-procurement tool called “I-PROC”. You can find all links to proceed along with instruction going to: <https://www.iter.org/fr/proc/overview>.

When registering in Ariba (I-PROC), suppliers are kindly requested to nominate at least one contact person. This contact person will be receiving the notification of publication of the Request for Proposal and will then be able to forward the Tender documents to colleagues if deemed necessary.

- Step 2 - Invitation to Tender – Request for Proposal (RFP)

The Request for Proposals (RFP) will be published on our digital tool “Iproc” after the submission of Expression of Interest. This stage allows interested bidders who have indicated their interest to the Procurement Officers in charge AND who have registered in IPROC to receive the notification that the RFP is published. They will then prepare and submit their proposals in accordance with the tender instructions detailed in the RFP.

Only companies registered in this tool will be invited to the tender.

➤ Step 3 – Tender Evaluation Process

Tenderers’ proposals will be evaluated by an impartial evaluation committee of the IO. Tenderers must provide details demonstrating their technical compliance to perform the works in line with the technical scope and in accordance with the particular criteria listed in the RFP.

➤ Step 4 – Contract Award

One Supply Contract will be awarded on the basis of Best Value for Money with a sharing of 60% for the technical offer and 40% for the financial offer according to the evaluation criteria and methodology described in the RFP.

Procurement Timetable

The tentative timetable is as follows:

Milestone	Date
Publication of the Prior Indicative Notice (PIN)	13 March 2026
Submission of expression of interest form	25 March 2026
Request for Proposal launched on I-PROC	30 March 2026
Tenderers Conference (via teams)	Not applicable
Tender Submission	12 May 2026
Contract Award	End May 2026
Contract Signature	June 2026

5 Quality Assurance Requirements

The Candidate shall have ISO 9001 or shall submit to the IO for approval its “Quality Assurance Program” in the Tender Submission for the IO’s review and acceptance.

6 Contract Duration and Execution

The IO shall award the Contract around end May 2026. The Time for Completion is 12 to 18 months.

7 Candidature

Participation is open to all legal entities participating either individually or in a grouping/consortium. A legal entity is an individual, company, or organization that has legal rights and obligations and is established within an ITER Member State, being: the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

Legal entities cannot participate individually or as a consortium partner in more than one application or Tender of the same contract. 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 IO.

In order for a consortium to be acceptable, the individual legal entities included therein shall have nominated a leader with authority to bind each member of the consortium, and this leader shall be authorised to incur liabilities and receive instructions for and on behalf of each member of the consortium.

It is expected that the designated consortium leader will explain the composition of the consortium members in its offer. Following this, the Candidate's composition must not be modified without notifying the IO of any changes. Evidence of any such authorisation shall be submitted to the IO in due course in the form of a power of attorney signed by legally authorised signatories of all the consortium members.

All consortium members shall be registered in I-PROC.

8 Sub-contracting Rules

Subcontracting is limited to 40 % of the contract value and up to level 2.

All sub-contractors who will be taken on by the Contractor shall be declared with the Tender submission in I-PROC. Each sub-contractor will be required to complete and sign forms including technical and administrative information which shall be submitted to the IO by the Tenderer as part of its Tender.

All declared sub-contractors must be established within an ITER Member State in order to participate.

The IO reserves the right to approve (or disapprove) any sub-contractor which was not notified in the Tender and request a copy of the sub-contracting agreement between the Tenderer and its subcontractor(s). Rules on sub-contracting are indicated in the RFP itself.

ANNEX I

EXPRESSION OF INTEREST & PIN ACKNOWLEDGEMENT

To be returned by e-mail to: Virginie.Michel@iter.org with Andrew.Brown@iter.org in cc

Tender reference: **IO/26/OT/10034652/VML**
Description: **Feasibility Study on RPC&HF Stage 2**
Procurement Officer: **Virginie Michel - Procurement Division ITER Organization**

WE ACKNOWLEDGE HAVING READ THE PIN NOTICE FOR THE ABOVE-MENTIONED TENDER

WE INTEND TO SUBMIT A TENDER

Are you registered in Iproc (only entities registered in iPROC will be invited to tender):

YES

Please indicate your registration number:

NO, but we shall register ASAP and before the indicated tender launch date

Please list the users of ARIBA/IPROC that you wish to add as response team for this tender:

Name	E-mail
...	...

Signature:

COMPANY STAMP

Name:

Position:

Tel:

E-mail

Date:

Technical Specifications (In-Cash Procurement)

Technical Summary for a Feasibility Study on RPC&HF Stage 2.

This Technical Summary intends to give an overall view of the scope of a Feasibility Study to explore and analyse the Reactive Power Compensation and Harmonic Filtering system upgrade architectures (RPC&HF-St2) to function and perform in parallel with the existing system (RPC&HF).

SUPPLY

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1 Background

The ITER Organization (IO) is a joint international research and development project for which the initial construction activities are underway. The seven members of the IO are the European Union (represented by F4E), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

The project aims to demonstrate the scientific and technological feasibility of fusion power for peaceful purposes and to gain necessary data for the design, construction and operation of the first electricity-producing fusion plant. It will also test a number of key technologies, including the heating, control, diagnostic and remote maintenance that will be needed for a full-scale fusion power station.

The ITER electrical network is divided in two parts: Steady State Electrical Network (SSEN) and the Pulsed Power Electrical Network (PPEN). The SSEN provides distribution from the grid to the balance of plant of the Iter consumers and has an average load of 120 MW and 48 MVAR.

The PPEN represents the part of the grid devoted to the supply and distribution of the energy from the French grid to the power converters. These converters are connected to the inductive magnets that will sustain and control the plasma operation during each pulse. The 400kV French grid Transmission system provides up to 500MW and 200 Mvar for the pulsed loads. PPEN is composed by three main busbars at 400 kV, each one with a three power transformer with secondary and tertiary voltage level of 66 kV and 22.5 kV respectively.

The above referred power converters absorb a large amount of reactive power. The Reactive Power Compensation and Harmonic Filtering System (RPC&HF) is installed in order to compensate this reactive power absorbed by the converters. This system is rated 750 Mvar, 250 Mvar connected to each 66kV busbar. The technology is SVC with Thyristor base converters, Thyristor Control Reactors (TCR) and Harmonic Filters (HF).

However, and in the basis of escalation of power conversion to reach from SRO to a Deuterium-Tritium phase, the RPC&HF system power will not be enough to compensate the additional power. A new system, referred from now as RPC&HF Stage 2, will be necessary. This system is preliminary rated at 250 Mvar.

A feasibility study to analyse, simulate different scenarios, help to select the technology (between SVC and STATCOM), and prepare the Conceptual Design Review (CDR) is necessary and is the object of this service contract.

2 Purpose

This Technical Summary intends to give an overall view of the scope of a Feasibility Study to explore and analyse the Reactive Power Compensation and Harmonic Filtering system upgrade architectures (RPC&HF-St2) to function and perform in parallel with the existing system (RPC&HF).

SUPPLY

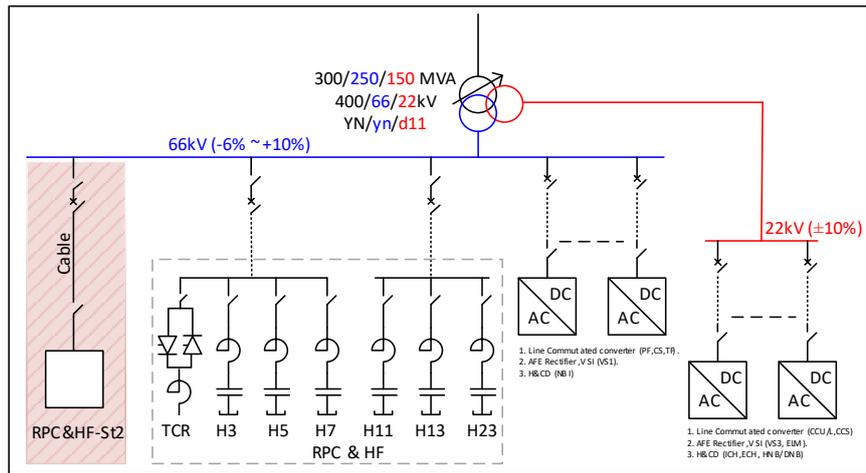


Figure 1 : ITER PPEN Power Distribution Configuration (bay1)

During the analysis, simulations, descriptions, benchmarking... performed during the Feasibility Study, it will provide results and conclusion on the performance requirements, selection of technology, conceptual engineering design and definition of required interfaces.

It is intended to study three alternative systems, with the goal of enabling ITER to select the most suitable solution. The architectures under consideration are:

- Thyristor Switched Capacitor (TSC)
- Static Var Compensator (SVC)
- Static Synchronous Compensator (STATCOM)

Each architecture shall be developed and assessed independently as a complete and fully functional system.

The present study shall explore different RPC&HF St2 system schemes to enhance reactive power compensation in coordination with the existing RPC&HF system, and to improve the overall response time.

In addition to the above architecture studies, the analysis will also include a detailed assessment of low-order harmonic distortion—particularly low-order non-characteristic and inter-harmonic components—arising from the dynamic operation of the converters in response to commands issued by the Plasma Control System and shall propose appropriate mitigation measures to effectively compensate these harmonics.

It also includes support for preliminary civil engineering, such as developing indicative layouts, preparing preliminary routing for power and control cables, loads and weights definitions for foundations, and defining interfaces with the existing plant.

Present contract does not cover supply, installation, acceptance of equipment/components, construction and testing of prototypes.

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3 Scope of Feasibility Study

3.1 Scope of work

The scope of work is organized into the following sequential technical activities:

- 1) The feasibility study will begin with preliminary simulation studies and system analysis of the existing ITER plant electrical network under the selected plasma scenarios, to size the rating of the RPC&HF-St2 system and evaluate voltage regulation, harmonic behaviour (including characteristics and non-characteristics components -especially low order even and inter harmonics)), and active/reactive power dynamics. This phase concludes with the definition of the main system parameters and performance criteria, considering coordinated operation with the existing RPC&HF system.
- 2) Based on the results of the simulation studies, the next phase focuses on the identification and technical and economical evaluation of suitable reactive power compensation technologies, with specific focus on TSC, SVC and STATCOM solutions. Each technology will be evaluated in terms of functional requirements, control capabilities, dynamic response, harmonic performance, system integration aspects, and operational flexibility. The Proposals also will include mitigation measures for low order and inter harmonics as part of the overall architecture recommendation.
- 3) This is followed by a technical and performance-based comparison of TSC, SVC and STATCOM solutions, considering system behaviour, response speed, interaction with existing equipment, footprint, expandability, and economical aspects. The comparison leads to the selection of the most suitable technology for the ITER project.

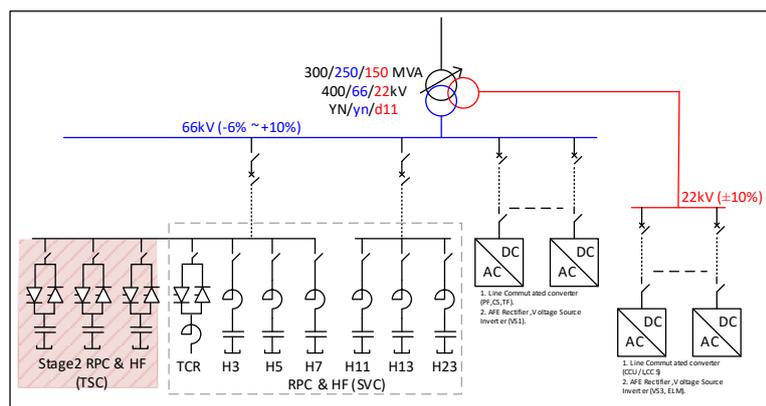


Figure 1. RPC&HF-St2 TSC Configuration

SUPPLY

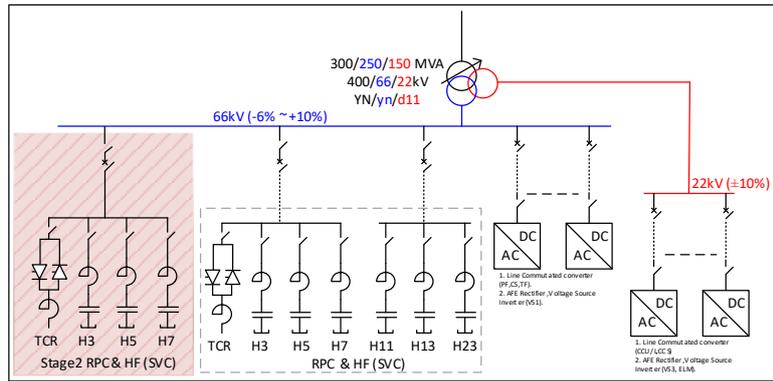


Figure 2. RPC&HF-St2 SVC Configuration

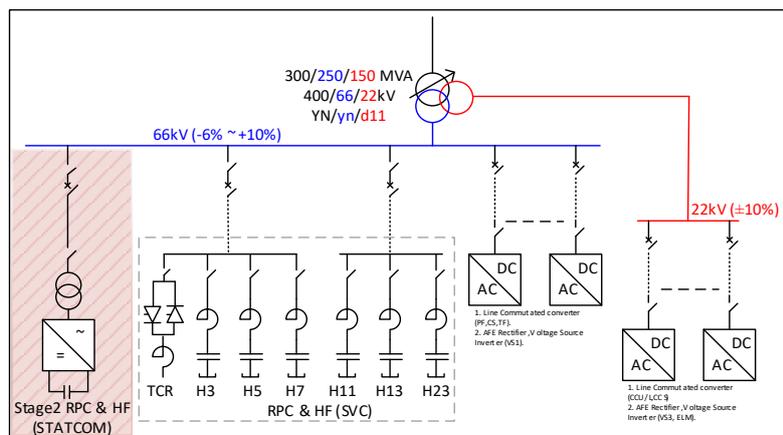


Figure 3. RPC&HF-St2 STATCOM Configuration

- 4) Once the technology is selected, the scope advances to detailed analysis and engineering, including refined modelling, control and protection philosophy, electrical and I&C interfaces, layout and auxiliary system considerations, and verification of compliance with applicable standards and grid requirements. The results of these activities are consolidated into a comprehensive technical report.
- 5) The final stage of the scope involves the preparation of the documentation to serves the Conceptual Design Review of the system.

3.2 Schedule

Table 1 provides a proposed schedule for reference only. The Supplier shall produce a detailed Schedule showing all phases of the Contract. The duration of the full contract shall be between 12 to 18 months.

Table 1 General schedule

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Milestones	Deliverable	Key deliverables	Expected Timing (T0+x) *
#0	D0-Quality Plan	Detailed quality plan (for RPC&HF-St2)	1M
#1	D1-Simulation Analysis and Design	Design models, analysis and simulations reports	4M
#2	D2-Evaluation of Q-compensation technologies	RPC&HF Q-compensation with TSC technology report	7-10M
		RPC&HF Q-compensation with SVC technology report	
		RPC&HF Q-compensation with STATCOM technology report	
		Low order harmonic mitigation solution report	
#3	D3-Technology selection	Technology comparison and selection report	
#4	D4-Detailed analysis and engineering of selected solution	Detailed simulation and analysis report	10-14M
		Detailed engineering and interface report	
		Preliminary civil works report	
#5	D5- CDR documentation	Conceptual Design Review deliverables	12-18M

* TO = Contract signature date.

* Each milestone indicates the accomplishment of the contract phase.

3.3 Requirements and Qualifications to execute work

3.3.1 Skill Profiles

Proposed work should be executed by a team of personnel having expertise on design and development of high current- high power industrial grade power converters, STATCOM /SVC. They must be having adequate proficiency in design / development / analysis of power converter, high and medium voltage electrical power system, advanced electronics and control engineering concepts as well as mechanical engineering aspects too. Team also should be having ability to develop an appropriate technical solution from technical specifications and requirements.

3.3.2 Software tools requirements

The proposed work should contain analysis part and IO prefer to use Matlab Simulink/Simscape Power System, the contractor must be having valid MATLAB Simulink license or other equivalent simulation tool. The team also should be having proficiency to use same. The

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Contractor shall guarantee, that all personnel executing part of this contract shall have all the necessary hardware and software tools required to perform their duties.

SUPPLY

Appendix I – List of Deliverables

List of technical documents and data to be provided by the Supplier:

Deliverable	Deliverable number	Key Deliverables	Documentation
D0- Quality plan	D0	Detailed quality plan (for RPC&HF-St2)	Detailed quality plan
D1- Simulation Analysis & Design	D1.1	Design models, analysis and simulations reports	*Simulation and power flow Analysis for SRO & DT scenarios (Phasor & Transient models): <ul style="list-style-type: none"> - Reactive power demand report - Harmonic filtering report (characteristics and non-characteristics) - Active/reactive power dynamics report - ESCR, resonance and flicker analysis report
D2- Evaluation of Q-compensation Technologies	D2.1	RPC&HF Q-compensation with TSC technology report	Simulation analysis and verification with TSC technology and report submission
	D2.2	RPC&HF Q-compensation with SVC technology report	Simulation analysis and verification with SVC technology and report submission
	D2.3	RPC&HF Q-compensation with STATCOM technology report	Simulation analysis and verification with STATCOM and report submission
	D2.4	Low order Harmonic mitigation solution report	Low order harmonic mitigation solution report submission
D3- Technology selection	D3.1	Technology comparison and selection report	<ul style="list-style-type: none"> - Technology comparison evaluation - Technology selection
D4- Detailed analysis and Engineering of selected solution	D4.1	Detailed simulation and analysis report	Detailed simulation and analysis report.
	D4.2	Detailed engineering and interface report.	Technology and System description: <ul style="list-style-type: none"> - Detailed Interface Assessment report, Interface requirement (PPEN, SSEN, CCWS) - Earthing requirements - HVAC assessment and requirements - Circuit breaker sizing, CT, PT selection, Cable routing. - Cable Analysis report.

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	D4.3	Preliminary civil works report	<p>Civil works report submission.</p> <ul style="list-style-type: none"> - Layout. - CW calculations and drawings. - Foundation report, cable trenches - Building specifications and drawings - Fences arrangement - Others
D5- CDR documentation	D5.1	Conceptual Design Review deliverables	- List of CDR deliverables (Refer below table IDP)

Note:

* Indicates: The initial version simulation models will be provided by IO.