



RUBBER PARK INDIA (PVT) LTD

(A Joint Venture of KINFRA & Rubber Board)

2 A, "Kautileeyam", Rubber Park, Valayanchirangara, P.O, Ernakulam, Kerala-683 556.

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Notice Inviting Tender (NIT)

Tender No : RP/E/T/03/2024-25

Name of the Work : Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500 kW/1 MWh at Rubber Park, Irapuram.

EMD : Rs. 1,00,000/-

Period of Completion : 7 Months

Tender Fee : Rs. 8,850/- (Including GST)



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Section - 1

TENDER NOTICE



1.0 TENDER NOTICE

1.1. The Managing Director, Rubber Park India (P) Ltd. invites **item rate** online tenders in **two cover (Technical and Price)** system for the work detailed below in the prescribed form, from competent, experienced, technically and financially sound Contractors, who fulfill the eligibility criteria prescribed in Clause 1.02.

Tender No.	Name of the work	EMD (Rs.)	Period of contract	Last date of submission of Tender documents	Time & Date of opening of technical bid	Tender Fee (Non refundable)
RP /E/T/03/2024-25	Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500 kW/1 MWh at Rubber Park, Irapuram.	Rs .1,00,000/-	7 Months.	11:0 AM on 08.10.2024	03:00 PM on 09.10.2024	Rs. 8,850/- (Inclusive of GST) Remitted Through online Payment

1.02. Minimum Eligibility Criteria

The intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily fulfilled the following criteria. Joint ventures and consortiums formed for the purpose of bidding are not eligible to participate in this tender.

1.02.1. The bidder shall have satisfactorily completed the work of Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System in India/abroad with in the last five years as on date of submission of bid ((Self attested/original performance certificate issued by the Client shall be submitted).

1.02.2. The bidder shall have GST registration and PAN number and proof of same shall be submitted.

1.02.4. The bidder shall be a proprietary firm, partnership firm, Limited Liability Partnership, Private Ltd Company, Public Ltd Company and proof of same shall be submitted.



1.02.5. The average annual turnover of the firm / company for the last three years shall not be less than Rs.5 Crores (FY 2020-21, 2021-22 and 2022-23. (Self-attested/original documents of Turnover / Balance Sheet & P&L issued by Chartered Accountant shall be submitted).

1.02.6. Those Bidders who are awarded contract earlier and whose contract has been terminated due to violation of contract terms and has been blacklisted by any State/Central Govt./Autonomous bodies / Public sector organization and / or any Contractor who has got any uncleared dues or financial/contractual liability with Rubber Park India (P) Ltd. are not eligible and will not be able to participate in this tender.

Before participating in the tender, the intending bidders are advised to satisfy themselves whether the conditions set out above are fully met by the bidders. The tender documents of those companies / firms who fail in the PQ process would be rejected summarily and no correspondence or intimation would be given to such companies or firm and the decision of Rubber Park India (P) Ltd. in this regard is final. The intending bidders have to quote their corresponding item rates in schedule of quantities along with the price bid.

1.03. General Tender Terms & Conditions for e-Procurement

This tender is an e-Tender and is being published online for the work “***Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500 kW/1 MWh at Rubber Park, Irapuram***”. The tender is invited in two cover system from the registered and eligible firms through e-procurement portal of Government of Kerala (<https://www.etenders.kerala.gov.in>). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, Rubber Park India (P) Ltd. shall not be responsible for any kind of such issues faced by bidder. Ineligible bidders or bidders who do not possess valid & active registration, on the date of bid submission, are strictly advised to refrain themselves from participating in this tender. If such instances are noticed, the same shall be treated as “fake bidding” by the respective bidder and such bidder shall be blacklisted by Rubber Park India (P) Ltd.

1.02.01 Online Bidder registration process:

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.



The bidders, who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including the Form/ Annexures of this tender. Mentioning of price details at any place other than the designated place, shall disqualify the bid and the bid shall be summarily rejected.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471-2577088/188/388 or 0484-2336006, 2332262 or 0497-2764788, 2764188 or 0483-273294 or through email: etendershelp@kerala.gov.in or helpetender@gmail.com for assistance in this regard.

1.02.02 Online Tender Process:

The tender process shall consist of the following stages:

- i. **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
- ii. **Publishing of Corrigendum:** All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.
- iii. **Pre-Bid Meeting:** Pre-Bid meeting shall be held at Office of Rubber Park at Irapuram, Ernakulam Dist. **on 23.09.2024 at 11.00 am** to clear the doubt of intending bidders, if any. The bidders can also attend the pre-bid meeting. For those **who are not able to attend pre-bid meeting shall send all their queries, if any, to the mail id md@rubberparkindia.org on or before 20.09.2024 at 11.00 am. No queries received after the stipulated time shall be encouraged.** All clarifications for the queries of bidders, if any, will be uploaded in e-tender website as addendum.
- iv. **Bid submission:** Bidders have to submit their bids **on or before 11:00 am (IST) on 08.10.2024** along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in. No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances. The Rubber Park India (P) Ltd doesn't take any responsibility for any technical snag or failure that has taken place during document upload.

No alterations shall be made by the bidder in the notice inviting tender, instructions to the bidders, contract form, general conditions of contract, special conditions, drawings, technical specifications and schedule of quantities and if any such alterations are made, the tender is liable to be rejected.
- v. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid. The technical bids will be opened online at the office of the **Rubber Park India (P) Ltd. 2A Kautileeyam, Valayanchirangara, Ernakulam 683 556 at 03:00 pm (IST); on 09.10.2024.** If the tender (technical bid) opening date happens to be on a holiday or



non-working day due to any other valid reason, the tender opening process will be done on the next working day at same time and place.

- vi. **Opening of Price Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the price bid. The time and date of opening of Price Bid/BOQ (cover – 2) of the tender shall be intimated only to the qualified and technically acceptable bidders at a later date.

1.02.03 Documents Comprising Bid:

(i). The First Stage (Pre-Qualification / Technical Bid – Cover - 1):

Pre-Qualification or Technical proposal shall contain the scanned copies of the following documents which every bidder has to upload:

- 1) Tender Document.
- 2) Copy of Audited Balance Sheet, P&L Account and IT Returns.
- 3) Copy of Performance Experience Certificates issued by the Clients.
- 4) Copy of GST registration Certificate
- 5) Copy of PAN Card
- 6) Duly signed Preliminary Agreement in stamp paper worth Rs.200/- (form 4)
- 7) Duly filled Formats for Qualification (form 5A TO 5E)
- 8) Duly filled Bid Forms (form 1, 2, 3)
- 9) Any other Document as specified in the tender notice

(ii). The Second Stage (Price Bid/BOQ- Cover 2):

The Bidder shall complete the Price bid as per format given for download along with this tender. This shall contain only duly filled BOQ – file in MS-Excel format and shall be uploaded using the digital signature of the Bidder in the e-tender portal.

Note: The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

Fixed price: Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/variable price quotation will be treated as non - responsive and rejected.

1.02.04 Payment of Tender Fee and Earnest Money Deposit (EMD)

The Bidder shall pay, a tender document fees of **Rs. 8,850/-** (Rupees Eight thousand eight hundred and fifty only) and Earnest Money Deposit of **Rs.1,00,000/-** (Rupees One lakh only). The EMD is required to protect the purchaser against risk of Bidder's conduct, which would warrant the forfeiture of security.

Online Payment modes: The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Procurement system



State Bank of India Multi Option Payment System (SBI MOPS Gateway): Bidders are required to avail Internet Banking Facility in any of below banks for making tender remittances in eProcurement System.

A) Internet Banking Options (Retail)			
1	Allahabad Bank	32	Kotak Mahindra Bank
2	Axis Bank	33	Lakshmi Vilas Bank
3	Andhra Bank	34	Mehsana Urban Co-op Bank
4	Bandan Bank	35	NKGSB Co-operative Bank
5	Bank of Bahrain and Kuwait	36	Oriental Bank of Commerce
6	Bank of Baroda	37	Punjab and Maharashtra Cooperative Bank
7	Bank of India	38	Punjab National Bank
8	Bank of Maharashtra	39	Punjab and Sind Bank
9	Bassein Catholic Co-operative Bank	40	RBL Bank
10	BNP Paribas	41	Saraswat Cooperative Bank
11	Canara Bank	42	ShamraoVithal Cooperative Bank
12	C S B Bank	43	South Indian Bank
13	Central Bank of India	44	Standard Chartered Bank
14	City Union Bank	45	State Bank of India
15	Corporation Bank	46	Syndicate Bank
16	Cosmos Bank	47	Tamilnad Mercantile Bank
17	DCB Bank	48	Tamilnadu Cooperative Bank
18	Dena Bank	49	The Kalyan Janata Sahakari Bank
19	Deutsche Bank	50	TJSB Bank (Erstwhile Thane Janata Sahakari Bank)
20	Dhanalaxmi Bank	51	UCO Bank
21	Federal Bank	52	Union Bank of India
22	HDFC Bank	53	United Bank of India
23	ICICI Bank	54	Vijaya Bank
24	IDBI Bank	55	YES Bank
25	Indian Bank		
26	Indian Overseas Bank		
27	IndusInd Bank		
28	Jammu & Kashmir Bank		
29	Janata Sahakari Bank		
30	Karnataka Bank		
31	Karur Vysya Bank		
B) Internet Banking Options (Corporate)			



1	Bank of Baroda	21	Laxmi Vilas Bank
2	Bank of India	22	Oriental Bank of Commerce
3	Bank of Maharashtra	23	Punjab & Maharashtra Coop Bank
4	BNP Paribas	24	Punjab & Sind Bank
5	Canara Bank	25	Punjab National Bank
6	C S B Bank	26	RBL Bank
7	City Union Bank	27	Shamrao Vitthal Co-operative Bank
8	Corporation Bank	28	South Indian Bank
9	Cosmos Bank	29	State Bank of India
10	Deutsche Bank	30	Syndicate Bank
11	Development Credit Bank	31	UCO Bank
12	Dhanalaxmi Bank	32	Union Bank of India
13	Federal Bank	33	UPPCL
14	HDFC Bank	34	Vijaya Bank
15	ICICI Bank	35	Axis Bank
16	Indian Overseas Bank		
17	Janta Sahakari Bank		
18	Jammu & Kashmir Bank		
19	Karur Vysya Bank		
20	Kotak Bank		

During the online bid submission process, bidder shall select **SBI MOPS** option and submit the page, to view the **Terms and Conditions** page. On further submitting the same, the e-Procurement system will re-direct the bidder to MOPS Gateway, where two options namely **SBI** and **Other Banks*** will be shown here. Bidder may proceed as per below:

- SBI Account Holders shall click **SBI** option to with its Net Banking Facility., where bidder can enter their internet banking credentials and transfer the Tender Fee and EMD amount.
- Other Bank Account Holders may click **Other Banks** option to view the bank selection page. Here, bidders can select from any of the 54 Banks to proceed with its Net Banking Facility, for remitting tender payments.

**Transaction Charges for Other Banks vide SBI Letter No. LHO/TVM/AC/2016-17/47 – 1% of transaction value subject to a minimum of Rs. 50/- and maximum of Rs. 150/-*

**Bidders who are using Other Banks option under SBI MOPS Payment Gateway, are advised by SBI to make online payment 72 hours in advance before tender closing time.*

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing “**Success**” during bid opening.

1.03.05 SUBMISSION PROCESS:



For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their technical bid and Price bid online on www.etenders.kerala.gov.in along with online payment of tender fee and EMD.

For page-by-page instructions on bid submission process, please visit www.etenders.kerala.gov.in and click “Bidders Manual Kit” link on the home page.

It is necessary to click on “Freeze bid” link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process

Further details and clarifications can be had from the office of **Rubber Park India (P) Ltd., 2A, Kautileeyam, Rubber Park, Valayanchirangara P.O, Irapuram, Ernakulam, Pin; 683 556, Phone: 0484 – 2655538/48, 2657218.**

1.04. Rubber Park India (P) Ltd. shall have no responsibility for any errors in downloading the document or due to erroneous online submission. Rubber Park India (P) Ltd., reserves the right to accept or reject any or all tenders without assigning any reason what so ever.

1.05.01. After the public opening of the tenders, the information relating to the examination, clarification, evaluation and comparison of tenders and recommendations concerning the award of contract shall not be disclosed to the bidder and other persons not officially concerned with such process.

1.05.02. Rubber Park India (P) Ltd. right to accept any tender and reject any or all tenders, will award the contract to the bidder whose bid has been determined to be substantially responsive and who has offered the lowest Evaluated Tender Price provided further that the bidder has the capability and resources to carry out the contract effectively.

1.05.03 Prior to the expiry of the period of validity of the tender “Rubber Park India (P) Ltd.” will notify the successful bidder in writing that his tender has been accepted. The work order (WO) shall be issued by the concerned distribution licensees separately and shall name the sum, which “Distribution licensees (Owners).” will pay to the contractor in consideration of the execution, completion, operation, maintenance and guarantee of the work by the contractor as specified by the contract (hereinafter called the contract price). This letter of acceptance will constitute the formation of a contract.

1.05.04. Before commencing the work within 15 (Fifteen) days from the date of Work Order the bidder shall make a Performance Guarantee as given in Clause 1.09 of this notice and furnish the same for the proper fulfilment of the contract and shall execute an Agreement separately with different Distribution licensees for the work in required non-judicial stamp paper in the format given as “Articles of Agreement”.

1.05.05. If the bidder fails to execute the Agreement as stated above within the specified period, his Earnest Money Deposit shall be forfeited to the Rubber Park India (P) Ltd. and Black listed. Such case, fresh tenders called for or tender of the next lowest bidder will be considered. If as a



result of such measures due to the default of the bidder to pay the required deposit, execute the agreement or take possession of the work site, any loss to Rubber Park India (P) Ltd and/or other Distribution licensees (Owners), results, the same will be recovered from the bidder by deducting from any amount due to him from other works or revenue recovery or by suitable course of action including legal proceedings.

1.06. Tenders not properly filled, mutilated with incorrect calculations or generally not complying with the conditions are likely to be rejected.

1.07. The tender submitted on behalf of a firm shall be digitally signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract. Otherwise the tender may be rejected by the Rubber Park India (P) Ltd.

1.08. EARNEST MONEY DEPOSIT (EMD)

Earnest Money Deposit (EMD) is **Rs 1,00,000/-** (Rupees One lakh only). It shall be remitted through online payment mechanism of e procurement system of Govt. of Kerala. The EMD will not carry any interest. Tenders submitted without EMD will be summarily rejected.

E.M.D. deposited with Rubber Park India (P) Ltd. will be forfeited,

- i) If a Bidder withdraws his bid during the period of validity specified.
- ii) If the successful Bidder fails within the time limit to sign the Contract agreement or fails to furnish the required Performance Guarantee.

EMD will be discharged when the successful Bidder has furnished the Performance Guarantee and execution of the agreement with Distribution licensees (Owners).

1.09. PERFORMANCE GURANTEEE

The successful Tenderer on receipt of the Work Order, shall deposit an amount equal to 5 % (five percent) of the contract value, as Performance Guarantee. At least 50 % (fifty percent) of this amount shall be in the form of DD in favour of Managing Director, Rubber Park India (P) Ltd. payable at Valayanchirangara and the rest in the form of Bank Guarantee from a Scheduled/ Nationalized bank in favour of Rubber Park India (P) Ltd. and shall execute an Agreement for the work in required non-judicial stamp paper in the format given as “Articles of Agreement” within fifteen days from the date of the work order. The validity of BG shall be up to 3 months after defects liability period. On completion of Defects Liability Period, the Engineer-in-Charge/Consultant shall recommend on demand from the Contractor to refund to him the Performance Guarantee and the same will be refunded/ released by the Clint/Accepting Authority provided that the Engineer-in-Charge. is satisfied that there is no demand outstanding against the contractor.

1.10. SECURITY DEPOSIT

Security Deposit is the retention amount deducted from the running bill of the contractor in addition to Performance Guarantee. This will be deducted from each running bills of the



Contractors @ 2.5% of the gross amount of running bill so that the amount so retained shall be 2.5% of value of the work done till then.

On virtual completion of the work and passing of Final bill, recording of completion certificate, the Security Deposit will be released based on the report from the Engineer-in-Charge of the Owner.

All the deposits of EMD, SECURITY DEPOSIT AND PERFORMANCE GURANTEE will not bear any interest whatsoever.

1.11. All statutory payments in connection with the employment of the workmen for this work will be borne by the Contractor. The contractor is the employer of all the workers engaged for this work and should therefore take all required registrations and liable to pay premium correctly to labour welfare funds, constituted by the Union Government and Government of Kerala from time to time and insurance policy premium.

1.12 All statutory deductions shall be made from the amount eligible to the contractor in each part bill at current rates. The deduction towards the turn over tax shall be at the prevailing rates, and shall be changed if the government revises the rate. Income-tax at the rate prevailing at the time of payment will be deducted from each running bill and final bill. Any tax omitted, to be deducted in any part bill shall be deducted in the subsequent part bills/ final bill.

1.11. PERIOD OF VALIDITY

The tender shall remain valid for acceptance for a period of 90 days from the date of opening of the technical bid. If any tenderer withdraws his tender before the said period or makes any modifications in terms and conditions of the tender, then the "RUBBER PARK INDIA (P) LTD" has the liberty to forfeit the said Earnest Money Deposit and blacklist the contractor.

1.12. INSPECTION OF SITE

Every tenderer is expected to inspect the site of the proposed work and acquaint himself with the site conditions approaches, availability of raw materials, geological and weather conditions, the quantities and nature of work and the means of access to the site, the accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender etc. before quoting his rates. He must go through the conditions/specifications in the tender documents. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

1.13. QUANTUM OF WORK

A schedule of approximate quantities for various items accompanies this tender. It shall be definitely understood that the "RUBBER PARK INDIA (P) LTD" do not accept any responsibility for the correctness or completeness of this schedule in respect of items and quantities and this schedule is liable to alteration by deletions, deductions, or additions at the discretion of the "RUBBER PARK INDIA (P) LTD" without affecting the terms of the contract.



“RUBBER PARK INDIA (P) LTD” reserves the right to increase or decrease the quantum of work during the period of contract without assigning any reason for which agreed rate will not be changed.

1.14. ALL INCLUSIVE RATES

The rates quoted by the Contractor shall be inclusive of all charges like cost of all materials, labour charges, transportation, packing, freight and insurance charges, all overheads, contingencies, profits, taxes (ie. Income tax etc.), duties/ levies, cost of scaffoldings, tools for installation and commissioning, loading and unloading charges, cost of statutory approvals etc., complete, excluding GST and the Contractor shall not be entitled to make any other demands monetary or otherwise from the RUBBER PARK INDIA (P) LTD during the term of this contract. The GST will be paid only as per the GST Act/Rules. The rates quoted shall be firm throughout the period of contract and there shall be no upward revision of the rates quoted by the contractor for any reason whatsoever. All applicable taxes and duties will be deducted from the bills.

1.15. DEFECT LIABILITY / GUARANTEE PERIOD

All the items of works shall be guaranteed to be free from defective workmanship or materials for a period of **36 Months** from the date of virtual completion of the work as mentioned at Clause No. 4.9.7. The Contractor at his own cost shall rectify any defect that may appear during this period. During this period, the contractor shall without any extra cost, carry out all routine and special maintenance of the work executed by him and attend to any difficulties and defects that may arise in the operation.

1.16. PERIOD OF COMPLETION

Time is the essence of this Contract. The period of work shall be **7 months** from the date of commencement. The Commencement of the work shall be considered from the 10th day of issue of letter of award. The contractor shall execute the work as priority fixed by Rubber Park India (P) Ltd. The Contractor shall draw a detailed schedule of program in the form of a Pert Chart / bar Chart for the whole work, within ten days of award of work and submit to Rubber Park India (P) Ltd. for their approval showing the milestones.

1.17. Matters not covered by the specifications given in the contract as a whole shall be covered by the relevant Indian Standard Codes. If such codes on a particular subject have not been framed, the decision of the Rubber Park shall be final.

1.18. No alterations shall be made by the tenderer in the Notice Inviting Tenders, Instructions to the contractors, Contract form, conditions of the contract and specifications and if any such alterations are made or any special conditions attached, the tender is liable to be rejected.



1.19. The acceptance of a tender shall rest with the Authorized Representative of the Rubber Park, who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all the tenders received without assigning any reasons whatsoever.

1.20. The Owner's decision with regard to the performance of the contractor will be final and binding.

1.21. The contractor must co-operate and co-ordinate with other contractors involved in other works on the site.

This Notice Inviting Tender will form part of the tender document and the agreement executed by the successful bidder.

Place: Irapuram
Date: 09.09.2024

Managing Director
Rubber Park India (P) Ltd.



Section - 2

BID SYNOPSIS



2.0 BID SYNOPSIS

1	Tender No:	RP/E/T/03/2024-25
2	Name and address of Owner	Managing Director, Rubber Park India (P) Ltd., 2A, Kautileeyam, Rubber Park, Valayanchirangara P.O, Irapuram, Ernakulam, Kerala, Pin: 683 556.
3	Name of Work	Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500 kW/1 MWh at Rubber Park, Irapuram.
4	Issue of Tender Documents	Tender documents can be down loaded free of cost from the e-GP website www.etenders.kerala.gov.in
5	Prebid Meeting Date & Time	On 23.09.2024 at 11:00 am (Venue: Rubber Park India (P) Ltd., 2A, Kautileeyam, Valayanchirangara P.O, Ernakulam – 683 556)
7	On line bid submission starting Date & Time	On 25.09.2024 by 10:00 am (IST) onwards.
8	On line bid submission closing Date & Time	Submission till 08.10.2024 at 11:00 am (IST).
9	Tender Opening Date (Technical bid)	On 09.10.2024 at 03:00 pm (IST)
10	Time of Completion	7 Months
11	Bid system	Two bid system (On line) (Cover. I: Technical Bid along with EMD and Cover II: Price Bid)
12	Tender Fee	Rs. 8,850/- (Inclusive of GST)
13	Earnest Money Deposit (EMD)	Rs 1,00,000/-



14	Performance Guarantee to be made within 15 days from the date of Work Order	Contractor should submit a Security Deposit of 05 % of the average annual contract amount as per clause no. 1.09
15	Validity period of tender	90 days from the date of opening of technical bid
16	Defect Liability Period	36 Months
17	AMC Period	120 Months from date of completion of Defect liability period.



Section - 3

INSTRUCTIONS TO BIDDERS



3.0 INSTRUCTIONS TO BIDDERS

3.01. GENERAL INSTRUCTIONS

This tender is an e-Tender and is being published online for the “*Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500 kW/1 MWh at Rubber Park, Irapuram*”. The tender is invited in two cover system from the registered and eligible firms through e-procurement portal of Government of Kerala (<https://www.etenders.kerala.gov.in>). The details of work is as detailed in the Notice inviting Tender (NIT). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

3.02. ONLINE SUBMISSION

Only those bidders having a valid and active registration, on the date of bid submission, shall submit bids online on the e-GP website. All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No manual submission of bids shall be entertained for the tenders published through e-GP system under any circumstances.

The tender document(s), may be downloaded free of cost from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). No payment is required for downloading the tender documents from the above website however a bid submission fee, as mentioned below in this document, is required to be submitted along with the online bid.

The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, the department shall not be responsible for any kind of such issues faced by bidder.

The bidders, who submit their bids for this tender after digitally signing using their Digital Signature Certificate (DSC), accept that they have clearly understood and agreed the terms and conditions including the Form / Annexure of this tender.

Mention of price details at any place other than the designated place, shall disqualify the bid and the bid shall be summarily rejected.

Tender duly signed using bidder's valid Digital Signature Certificate shall be submitted online on e-GP website www.etenders.kerala.gov.in on or before 11.00 am on 08.10.2024. The bids will be opened online at the office of the tender inviting authority on 09.10.2024 at 03.00 pm (IST), in the presence of those bidders or their authorised agents who wish to be present. If the tender opening date happens to be on a holiday or non-working day due to



any other valid reason, the tender opening process will be done on the next working day at same time and place.

The amount of EMD and tender fee shall be furnished through online banking system of e-GP website www.etenders.kerala.gov.in.

All amendment(s)/ corrigendum(s) shall be published on the e-GP website and bidders are advised to check the website regularly for the same. Rubber Park India (P) Ltd. shall not be responsible for bidder's negligence in checking the website regularly for any updates on this tender.

3.03. LOCATION

The location of the work is in the land under the possession of Rubber Park India (P) Ltd. at Irapuram village, at Ernakulam District, Kerala. The exact location shall be pointed out by the Client.

3.04. SCOPE OF THE CONTRACT

The Bidder shall be responsible for deployment of 1x500kW / 1000kWh BESS at Rubber Park-Irapuram (Ernakulam Dt.) comprising Site Survey, design, engineering, planning, manufacturing, supply, packaging and forwarding, transportation, unloading, handling, transit & storage insurance, storage of material, Construction/ installation, Erection, commissioning and testing (including labour and supervision) of BESS and its components, establish grid connectivity of BESS at 11 kV Grid Point, associated civil & fabrication works, EMS system and its integration with KSEBL SCADA System, supply of mandatory spares and Technical Support of BESS for Contract period (10 Years). The detailed scope mentioned below: BESS shall comprises of Battery Modules & Connectors, Racks, Rack Control Boxes, Containers, BMS, EMS, PCS, AC & DC Cables, Earthing System, DCP, PCS, 11/0.433kV Transformers, 11 kV RMU Panel, Protection System, Auxiliary Power Supply System (UPS, ACDB, DCDB, Battery Chargers, Aux. Power DBs, LT Power Cables), Battery Cooling System, HVAC, Fire Detection & Suppression System, Temperature Scanning System, Communication System, Monitoring & Control System and all other associated materials and accessories necessary for trouble free operation and maintenance of BESS System. The configuration and internal layout of the BESS shall provide suitable safe access to all equipment for installation, operation, maintenance and repair in all weather conditions. Bidder shall include in their proposal all the materials and services necessary to ensure the completeness of the project, even if the same are not specifically appearing in these specifications. Bidder shall be responsible for identifying and providing any and all the equipment, Components and services necessary for fully functional grid connected BESS. Equipment, materials and services required for satisfactory operation of BESS shall be deemed to be included in the scope of turnkey package work and shall not be limited to the following. Detailed design, engineering, Manufacturing, fabrication, Supply, transport, shipping, assembling, installation, erection, commissioning, testing (including pre commissioning and



commissioning) of all the equipment and system(s) including civil works. Warrant and make ready for service a fully functional battery energy storage system on turnkey basis, including but not limited to:

- Lithium-ion Battery modules, Battery Racks, Containers, Rack Control Boxes, Battery module connectors, DC Combiner Panel, DC Cables along with cable trays / trenches, cable terminations and earthing system,

- Compatible and redundant Liquid / Air Cooling System for BESS including indoor or Outdoor Units, Controllers, Ducts & Piping system.

- Compatible Electrical system (including protection) up to Point of Connect (11kV) comprising Power Conditioning System (PCS), Distribution Transformer (11/0.433kV,630kVA Delta/star,Dyn-11), 11 kV SF6-RMU Panels, HT/LT AC/DC Cables (along with cable trays / trenches), Earthing System, 11 kV grid integration.

- Compatible Auxiliary Power Supply System comprising UPS, Station battery, Battery Chargers, ACDBs / DCDBs, LT Cables (along with cable trays / trenches), Distribution Boards, Earthing system.

- Compatible Fire Detection & Suppression System for BESS including smoke detectors, Gas Detectors, Fire Dampers, Manual Call Points, Fire Controller, Abort &Emergency release switches, Cabling & integration along with Trays, Switches & Racks, etc. complete. Firefighting system shall be provided as per NFPA.

- Compatible Temperature Scanning System for BESS including Temperature sensors, Temperature loggers, Controllers, Panels, Cabling & integration along with Trays, Switches & Racks.

- Compatible local EMS system for Monitoring & Control of 11 kV RMU Panels, DT, PCS, DC Combiner Panels, batteries, Cooling System, Auxiliary Power Supply System and any other system.

- Metering in AC & DC System for energy accounting purpose at requisite points (11 kV breakers, ACDBs, Auxiliary Distribution boards, DT, PCS, DCP, Battery Containers etc.

- BESS Local EMS comprising of Control Panel, network connectivity, network Racks, LCD Screen, Precision AC, workstations, keyboard, mouse, LAN Cable and all associated items.

- Supply of major spares required for a period (10 Yrs) - Price for the same may please be submitted along with Price Bid- cover 2.

- Instrumentation & Communication cables, terminations and all other communication devices (hardware at both end) required for successful and cybersafe integration of BESS.



-Painting of all equipment and structures: The quality and finish of paints shall be as per standards of BIS or approved equivalent.

-Complete all Type, routine, and acceptance tests. Develop detailed test acceptance Plan. Perform FAT, SAT for BESS System & its components. Successful trial run of BESS System for 7 days from date of commissioning and submission of relevant Test Reports. Carry out Reliability and functional guarantee tests after successful completion of trial Operation. Ensure adequate warranty for the battery energy storage system and its constituent equipment / Components including bought out items.

-Training for Engineers proposed by RPIPL.

-Providing project documents in English including O&M / instruction manuals, as built drawings, block diagrams, single line diagrams, technical characteristics of equipment, Test Reports, features of BESS System & its components, System Configuration, System Architecture, Contact details of Bidder etc. (2 sets in Hard copy& 1set in PDF).

The detailed technical specifications for the work are provided in Annexure-3.

3.05. THE BIDDER

3.05.1 The bidder should have fully met with the eligibility criteria as detailed below.

- i) The bidder shall have satisfactorily completed the work of Design, Supply, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage System in India/abroad with in the last five years as on date of submission of bid ((Self attested/original performance certificate issued by the Client shall be submitted).
- ii) The bidder shall have GST registration and PAN number and proof of same shall be submitted.
- iii) The bidder shall be a proprietary firm, partnership firm, Limited Liability Partnership, Private Ltd Company, Public Ltd Company and proof of same shall be submitted.
- iv) The average annual turnover of the firm / company for the last three years shall not be less than Rs.5 Crores (FY 2020-21, 2021-22 and 2022-23. (Self-attested/original documents of Turnover / Balance Sheet & P&L issued by Chartered Accountant shall be submitted).
- v) Those Bidders who are awarded contract earlier and whose contract has been terminated due to violation of contract terms and has been blacklisted by any State/Central Govt./Autonomous bodies / Public sector organization and / or any Contractor who has got any uncleared dues or financial/contractual liability with



Rubber Park India (P) Ltd. are not eligible and will not be able to participate in this tender.

Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily fulfilled the following criteria. Joint ventures and consortiums formed for the purpose of bidding are not eligible to participate in this tender.

All documentary proof for the eligibility criteria shall be submitted along with the tender. Partnership firms shall furnish full names of all partners in the tender. It may, however, be signed in the partnership name by one of the partners or by a duly authorized representative, followed by the name and designation of the persons signing. Tenders by Corporations shall be signed in the name of the Corporation by a person duly authorized to do so. In case an authorized representative, with a power of attorney, signs it, the power of attorney also should be enclosed. A copy of the constitution of the firm with names of partners shall be furnished.

3.05.2 THE DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS

3.05.2.1 The bidder shall furnish as part of its bid, documents establishing the bidder's eligibility to bid and its qualifications to perform the contract. The bidder shall also give other information required in the format attached to the tender document such as:

3.05.2.2 Copy of Experience Certificates issued by the Clients

3.05.2.3 Copy of PAN Card, and GST registration etc.

3.05.2.4 Copy of Audited Balance Sheet, P&L Account and IT Returns

3.06. METHOD OF TENDERING PRICE

The Bidder shall carefully and fully study the Tender documents, before preparing and submitting the tender.

It will be deemed that the Bidder has thoroughly studied and obtained all clarifications and all relevant details regarding prices and provisions necessary for successfully carrying out the work as per the tender documents. No claim/objections will be entertained at a later date on account of lack of clarity /misinterpretation of any data.

The bidder shall visit the site before hand and acquaint himself fully of the site conditions. No claim whatsoever would be entertained later on the plea of any difficulties involved in the execution of work which was or was not foreseen by the bidder.



3.07. RATES

The Bidder shall bid for the whole work as described in the schedule of quantities/Bill of Quantities (BoQ). The rate quoted as item rate for each items in the schedule, the bidder shall fill in rates in figures and should not leave any cell blank. The line item total in words and the total amount shall be calculated by the system and shall be visible to the Bidder. Any tender containing percentage rates is liable to be rejected.

The quoted price will be considered as all-inclusive rates but excluding GST. Bidder will be deemed to include the cost of all materials, labour, hire charges for all machinery, cost of fuel, power, all leads and lifts, royalties, transportation, all overheads, contingencies, profits, expenses for inspection major equipment at factory, cost for quality testing, testing and commissioning, taxes (value added tax, purchase tax, turnover tax, income tax etc.), workers welfare fund, insurance premiums, duties/ levis, royalty, octroi and other levies etc. but excluding GST. The total Contract price shall also be worked out and entered in. The rates and price quoted by the bidder shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the bidder for any reasons whatsoever.

In event no rate has been quoted for any item(s), leaving space both in figure(s), word(s) and amount blank, it will be presumed that the bidder has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.

The bidder shall pursue carefully the tender notice, conditions of contract, schedule of quantities/ BoQ, relevant drawings, specifications, general conditions, special conditions etc. All these documents shall be uploaded along with the tender and digitally signed as token of unqualified acceptance of all the conditions.

3.08. SUBMISSION OF TENDER

The tender document(s), may be downloaded free of cost from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). No payment is required for downloading the tender documents from the above website however a bid submission fee, as mentioned in this document, is required to be remitted through online payment mechanism for e-procurement system of Govt. of Kerala. Only those bidders having a valid and active registration, on the date of bid submission, shall submit bids online on the e-GP website. All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No manual submission of bids shall be entertained for the tenders published through e-GP system under any circumstances, however signed copies of documentary evidences as the proof of eligibility criteria shall be submitted to Rubber Park India (P) Ltd. in hard copies also.

During the online opening of online Envelope-1 (technical Bid), only the names of agencies who have furnished EMD, shall be read out and no other information, whatsoever shall be given.



3.09. OTHER INFORMATION

3.09.01. DRAWINGS AND SPECIFICATIONS

Specifications and quantities shown are only for the purpose of tendering and are subject to changes and modifications on actual execution or to suit the revised requirements of the project.

3.09.02. OVERALL WORK SCHEDULE

Work schedule of each item of work has to be submitted along with the tender for monitoring the progress of work.

3.10. DEFECT LIABILITY / MAINTENANCE PERIOD

All the items of works shall be guaranteed to be free from defective workmanship or materials for a period of 36 months from the date of completion of the work as mentioned at Clause 4.9.7. The Contractor at his own cost shall rectify any defect that may appear during this period. During this period, the contractor shall without any extra cost, carry out all routine and special maintenance of the work executed by him and attend to any difficulties and defects that may arise in the operation.

3.11. TENDER DOCUMENT

The Bidder shall use only the documents downloaded for the e-tender site of government of Kerala. If any part of the Tender document is missing or not duly filled in, the Tender may be rejected. Rates shall be quoted in figures in appropriate position only.

The bidding documents shall consist of the following unless otherwise specified

- a) Notice Inviting Tender (NIT)
- b) Instructions to Bidders
- c) General and special Conditions of Contract
- d) Technical Specifications
- e) Form of Bid, Appendix to Bid
- f) Bill of Quantities

The Tender shall be electronically signed by persons legally authorised for the purpose and if required, proof of such authorisation shall be furnished by the bidder. The complete set of Tender document along with the drawings is to be returned. The bidder shall digitally sign all statements, documents, certificates uploaded by him, owing sole and complete responsibility for their correctness/authenticity as per the provisions of the IT Act. 2000.



3.12. TENDER CLARIFICATIONS

If there is any deviation/clarification in the details furnished in the Tender document, the same shall be forwarded digitally through the e-GP portal.

3.13. BID OPENING AND EVALUATION

3.13.01 Bid Opening

- a) Bids shall be opened on the specified date & time, by the tender inviting authority or his authorised representative in the presence of Bidders or their designated representatives who choose to attend.
- b) Opening of bids shall be carried out in the same order as it is occurring in invitation of bids or as in order of receipt of bids in the portal. The Bidders & guest users can view the summary of opening of bids from any system. Bidders are not required to be present during the bid opening at the opening location if they so desire.
- c) In the event of the specified date of bid opening being declared a holiday for the Client, the bids will be opened at the same time on the next working day.

3.13.02. Confidentiality

- a) Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award has been announced in favour of the successful Bidder.
- b) Any effort by a Bidder to influence the Tender Inviting Authority during processing of bids, evaluation, bid comparison or award decisions shall be treated as Corrupt & Fraudulent Practices, mentioned under Clause 3.16 and may result in the rejection of the Bidders' bid.

3.13.03. Clarification of Bids

- a) To assist in the examination, evaluation, and comparison of bids, and qualification of the Bidders; the Tender Inviting Authority may ask the Bidder for required clarification on the information submitted with the bid. The request for clarification and the response shall be in writing or by e-mail, but no change in the price or substance of the Bid shall be sought, offered, or permitted.
- b) Subject to clause 3.13.03 a. no Bidder shall contact the Tender Inviting Authority on any matter relating to the submitted bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Tender Inviting Authority, it shall do so in writing.



3.13.04. Examination of Bids, and Determination of Responsiveness

(i) During the detailed evaluation of Technical Bid, the Tender Inviting Authority will determine for each Bid.

- a. meets the eligibility criteria as required in the NIT;
- b. meets the qualification criteria in accordance with the provision of NIT; and
- c. is accompanied by the required bid submission fee, bid security and the required documents and certificates.

(ii) A substantially responsive bid is one which conforms to all the terms, conditions, and requirements of the bidding documents, without material deviation or reservation.

(iii) A material deviation or reservation is one:

- a. which affects in any substantial way the scope, quality, or performance of the Works;
- b. which limits in any substantial way, inconsistent with the bidding documents, the Client's rights or the Bidder's obligations under the Contract; or
- c. whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

(iv) If a Bid is not substantially responsive, it may be rejected by the Tender Inviting Authority, and may not subsequently be made responsive by correction or withdrawal of the nonconforming material deviation or reservation.

(iv) . Non submission of legible or required documents or evidences may render the bid non-responsive.

(v) The Technical evaluation of all the bids shall be carried out as per information furnished by Bidders. The Tender Inviting Authority will evaluate bid and finalize list of responsive Bidders.

(vi) The technical bid submitted by the responsive Bidders shall be evaluated as per the pre-qualification criteria by a Committee for selecting the pre-qualified Bidder.

(vii) The Price Bids of the technically responsive and pre-qualified Bidders shall only be opened. The Bid Inviting Officer shall log on to the system and open the Price Bid in sequence. At the time of opening of "Price Bid", Bidders, whose Technical Bids were found responsive, can be present, if they desire so.



(vii) Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.

3.14 AWARD OF CONTRACT

3.14.01. Subject to Clause 3.13, the Tender Inviting Authority will award the Contract to the Bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price.

3.14.02. In the eventuality of failure on the part of the lowest successful Bidder to produce the original documents, submit the Performance Guarantee or enter into agreement with the Agreement Authority within the specified time limit, subjected to Clause 1.08, the Bidder shall be debarred in future from participating in all Bids

3.14.03. The rates for the various items quoted by the Bidder shall be rounded to two decimal places. The decimal places in excess of two will be discarded during evaluation.

3.14.04. Clients Right to Accept any Bid and to Reject any or all Bids

Notwithstanding Clause 3.14.01 to 3.14.03, the Tender Inviting Authority reserves the right to accept or reject any Bid and to cancel the Bidding process and reject all Bids at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Tender Inviting Authority's action.

3.14.05. Notification of Award and Signing of Agreement

(a) The Bidder, whose Bid has been accepted, shall be notified of award by the Agreement Authority prior to expiration of the Bid validity period by facsimile or e-mail confirmed by letter sent through post. This letter (hereinafter and in the Conditions of Contract called the "Work Order") will state the sum that the Client will pay the Bidder in consideration of the execution, completion and remedying defects, if any in the Works by the Contractor as prescribed by the Contract.

(b) . The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance Guarantee in accordance with the provisions of Clause 1.09.

3.15 QUALITY CONTROL TESTS

Primary responsibility of maintaining quality of all items of work as per specifications and standards prescribed in the CPWD Quality Control Manual vests with the Contractor. The Contractor shall carry out all Quality Control tests prescribed in the Manual at his own expense and submit it Client/Consultant. He shall also bear expenses towards rectification works, if any required during the Technical Audit conducted after completion of the work.

3.16. CORRUPT OR FRAUDULENT PRACTICES



3.16.01. It is required that the Bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, it is defined, for the purposes of this provision, the terms set forth below as follows:

(a). “Corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

(b). “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition.

(c). “Collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(d). “Coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.

3.16.02. The Client will reject a proposal for evaluation, and/or award if it determines that the Bidder recommended for award has engaged in any of the corrupt or practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract, if it at any time determines that the bidder has engaged in corrupt or fraudulent practices in competing for, or in executing the contract.

3.17. FORMS AND DECLERATIONS

Various forms and formats for declarations to be submitted by the Bidder for Bid submission and pre-qualification detail submissions are included in the sections- FORMS and Pre-qualification Information. Bidders are requested to fill in the required forms and declarations and submit the same with their bids through online.



Section – 4

GENERAL CONDITIONS OF CONTRACT



GENERAL CONDITIONS OF CONTRACT

4.1 DEFINITIONS

In the contract (as hereinafter defined) the following words and expressions shall have the meaning hereby assigned to them except where the contract otherwise requires.

4.1.01 The **Client/Owner** shall mean Rubber Park India (P) Ltd. or their officers or representatives duly authorised to deal with any matter regarding this work on its behalf.

4.1.02 The **“Contractor”** shall mean person or persons, firm or company, whose tender has been accepted by the Rubber Park India (P) Ltd. and includes the Contractor’s legal representatives, successors and permitted assigns.

4.1.03 The **“Consultant/PMC”** shall mean, any firm/ competent agency duly appointed by the Rubber Park India (P) Ltd, for the supervision and project management pertaining to the execution of the project/work covered under this contract.

4.1.04 **“Bidder/Tenderer”** shall mean person, firm or corporation who has submitted a tender against invitation to tender and shall include his legal representatives, successors and assignees.

4.1.05 **“Bid or Tender”** means the Contractor’s priced offer to the Client for the execution and completion of the Work and the remedying of any defects therein in accordance with the provisions of Contract.

4.1.06 The **“Work”** shall mean and include all works to be executed in accordance with the contract or part thereof as the case may be and shall include all extras, additional, altered or substituted works required for the purpose of the contract.

4.1.07 The **“Contract”** shall mean the agreement between the Rubber Park India (P) Ltd. and the Contractors for the execution of the work including therein all documents such as the Notice Inviting Tender, Tender Forms, Conditions of Contract, Specification, Schedule of Quantities, Special Conditions, Letter of Acceptance, Agreed Variation if any, drawings, Work Order and / or any other / correspondences or records as regards negotiations, etc.

4.1.8 **“Specifications”** shall mean all directions, various technical specifications, provisions and requirements attached to the contract which pertain to the method and manner of performing the work, and the quantity of materials to be furnished under the contract for the work as may be amplified or modified by the Architect/Consultants, drawings for the performance of the contract in order to provide the unforeseen conditions or in the best interest of the work. It shall also include the latest revised version of the relevant B.I.S. specifications and other relevant codes.



4.1.09 “Site” shall mean the land handed over by Rubber Park India (P) Ltd. under, in or through which the work is to be carried out.

4.1.10 “Work Order ” shall mean intimation by letter, email to the bidder/tenderer that the tender has been accepted in accordance with the provisions contained therein.

4.1.11 “Engineer” / Engineer – in – charge” means the person appointed by the Owner / Client/Consultant for the supervision of work at the site.

4.1.12 “Contract Price” is the price stated in the Letter of Award and thereafter as adjusted in accordance with the provision of the contract.

4.1.13. “Bill of Quantities” means the priced and completed Bill of Quantities forming part of the bid.

4.1.14. “Drawings” means all drawings, calculations and technical information related to the Work provided by the Engineer from time to time to the Contractor under the Contract.

4.1.15. “Time of completion” means the period allowed for completing all works related to the Work including carrying out and passing the required quality control tests.

4.1.16. “Date of completion” shall be the date of completion of the works, including commissioning and trial run of the plant.

4.1.17. A “Defect” is any part of the work not completed in accordance with the contract.

4.1.18. “Plant” is any integral part of the works which is to have a mechanical, electrical, civil, electronic or biological function.

4.1.19. “Equipment” means contractor’s machinery and vehicles brought temporarily to site for execution of the Work.

4.1.20. “Materials” means all supplies, including consumables used by the contractor for incorporation in the works.

4.1.21. “Works” are what the Contract requires the contractor to construct, install and run over to the Client as defined in Contract Data.

4.1.22. “Days/Months” are calendar days, months calendar months.

4.1.23. “Codes” shall mean the following, including the latest amendments, and/or replacements, if any:



- a. Bureau of Indian Standards/Indian Roads Congress relevant to the works under the Contract and their specifications. If Indian Standards are not available British Standards or AASHTO Standards are to be followed.
- b. Other Internationally approved Standards and/or rules and regulations touching the subject matter of the Contract.
- c. Any other laws, rules, regulations and Acts applicable in India with respect to labour, safety, compensation, insurance etc.

4.1.24. Words importing singular only shall also include the plural and vice-versa where the context so requires.

4.1.25. Words importing "Person" shall include firms, companies, corporations, and associations or bodies of individuals, whether incorporated or not.

4.1.26. Terms and expressions, not defined herein, shall have the same meaning as are assigned to them in the Indian Contract Act, and failing that in the General Clauses Act.

4.2.0 SCOPE OF WORK

4.2.1 The Bidder shall be responsible for deployment of 1x500kW / 1000kWh BESS at Rubber Park- Irapuram (Ernakulam Dt.) comprising Site Survey, design, engineering, planning, manufacturing, supply, packaging and forwarding, transportation, unloading, handling, transit & storage insurance, storage of material, Construction/ installation, Erection, commissioning and testing (including labour and supervision) of BESS and its components, establish grid connectivity of BESS at 11 kV Grid Point, associated civil & fabrication works, EMS system and its integration with KSEBL SCADA System, supply of mandatory spares and Technical Support of BESS for Contract period (10 Years). The detailed scope mentioned below: BESS shall comprises of Battery Modules & Connectors, Racks, Rack Control Boxes, Containers, BMS, EMS, PCS, AC & DC Cables, Earthing System, DCP, PCS, 11/0.433kV Transformers, 11 kV RMU Panel, Protection System, Auxiliary Power Supply System (UPS, ACDB, DCDB, Battery Chargers, Aux. Power DBs, LT Power Cables), Battery Cooling System, HVAC, Fire Detection & Suppression System, Temperature Scanning System, Communication System, Monitoring & Control System and all other associated materials and accessories necessary for trouble free operation and maintenance of BESS System. The configuration and internal layout of the BESS shall provide suitable safe access to all equipment for installation, operation, maintenance and repair in all weather conditions. Bidder shall include in their proposal all the materials and services necessary to ensure the completeness of the project, even if the same are not specifically appearing in these specifications. Bidder shall be responsible for identifying and



providing any and all the equipment, Components and services necessary for fully functional grid connected BESS. Equipment, materials and services required for satisfactory operation of BESS shall be deemed to be included in the scope of turnkey package work and shall not be limited to the following. Detailed design, engineering, Manufacturing, fabrication, Supply, transport, shipping, assembling, installation, erection, commissioning, testing (including pre commissioning and commissioning) of all the equipment and system(s) including civil works. Warrant and make ready for service a fully functional battery energy storage system on turnkey basis, including but not limited to:

- Lithium-ion Battery modules, Battery Racks, Containers, Rack Control Boxes, Battery module connectors, DC Combiner Panel, DC Cables along with cable trays / trenches, cable terminations and earthing system,
- Compatible and redundant Liquid / Air Cooling System for BESS including indoor or Outdoor Units, Controllers, Ducts & Piping system.
- Compatible Electrical system (including protection) up to Point of Connect (11kV) comprising Power Conditioning System (PCS), Distribution Transformer (11/0.433kV,630kVA Delta/star,Dyn-11), 11 kV SF6-RMU Panels, HT/LT AC/DC Cables (along with cable trays / trenches), Earthing System, 11 kV grid integration.
- Compatible Auxiliary Power Supply System comprising UPS, Station battery, Battery Chargers, ACDBs / DCDBs, LT Cables (along with cable trays / trenches), Distribution Boards, Earthing system.
- Compatible Fire Detection & Suppression System for BESS including smoke detectors, Gas Detectors, Fire Dampers, Manual Call Points, Fire Controller, Abort &Emergency release switches, Cabling & integration along with Trays, Switches & Racks, etc. complete. Firefighting system shall be provided as per NFPA.
- Compatible Temperature Scanning System for BESS including Temperature sensors, Temperature loggers, Controllers, Panels, Cabling & integration along with Trays, Switches & Racks.
- Compatible local EMS system for Monitoring & Control of 11 kV RMU Panels, DT, PCS, DC Combiner Panels, batteries, Cooling System, Auxiliary Power Supply System and any other system.
- Metering in AC & DC System for energy accounting purpose at requisite points (11 kV breakers, ACDBs, Auxiliary Distribution boards, DT, PCS, DCP, Battery Containers etc.
- BESS Local EMS comprising of Control Panel, network connectivity, network Racks, LCD Screen, Precision AC, workstations, keyboard, mouse, LAN Cable and all associated items.



-Supply of major spares required for a period (10 Yrs) - Price for the same may please be submitted along with Price Bid- cover 2.

-Instrumentation & Communication cables, terminations and all other communication devices (hardware at both end) required for successful and cybersafe integration of BESS.

-Painting of all equipment and structures: The quality and finish of paints shall be as per standards of BIS or approved equivalent.

-Complete all Type, routine, and acceptance tests. Develop detailed test acceptance Plan. Perform FAT, SAT for BESS System & its components. Successful trial run of BESS System for 7 days from date of commissioning and submission of relevant Test Reports. Carry out Reliability and functional guarantee tests after successful completion of trial Operation. Ensure adequate warranty for the battery energy storage system and its constituent equipment / Components including bought out items.

-Training for Engineers proposed by RPIPL.

-Providing project documents in English including O&M / instruction manuals, as built drawings, block diagrams, single line diagrams, technical characteristics of equipment, Test Reports, features of BESS System & its components, System Configuration, System Architecture, Contact details of Bidder etc. (2 sets in Hard copy& 1set in PDF).

The detailed technical specifications for the work are provided in Annexure-3.

4.3.0 LOCATION OF WORK

4.3.1 The location of the work is in the land under the possession of Rubber Park India (P) Ltd. at Irapuram village, at Ernakulam District, Kerala. The exact location shall be pointed out by the Client. Unless specifically mentioned in the item, the work described there in may be at any location or elevation, inside the project area. The intending bidder should inspect the site and familiarise himself with site conditions and available communication facilities, water sources and availability of power etc.

4.3.2 Entry into the project area will be restricted. Passes and permits will have to be obtained from the client for entry of all persons and vehicles into the project area.

4.4.0 ASSIGNMENT AND SUB-CONTRACTING

4.4.1 ASSIGNMENT

The Contractor shall not assign the contract or any part thereof or any benefit or interest therein or there under without the written permission of the Owner/Client.



4.4.2 SUB-CONTRACTING

The Contractor shall not sub-contract the whole of the contract. The Contractor shall not sub-contract any part of the work without the written consent from the Client and such consent, if given, shall not relieve the Contractor from liability or obligation under the contract and the Contractor shall be responsible for the acts, defaults and neglects of the Sub-Contractor, his agents, employees or workmen as fully as if they were the acts, defaults or neglects of the Contractor or his agents, servants or workmen.

For enabling Owner and its Client/Consultant to consider the request for sub-contracting part of the work as above, the Contractor shall furnish documentary evidence to the satisfaction of the Owner/Client that the Sub-Contractor has satisfactorily completed in the last three years (ie. 2021-22, 2022- 23 & 2023-24) at least one work of similar nature and same magnitude as that part of the work to be sub-contracted, it being made clear that this will not be the sole consideration for Owner/Client to decide whether to grant consent for sub-contracting the work.

4.5.0 DRAWING

All drawings supplied to the Contractor are deemed to be the property of the Rubber Park India (P) Ltd. The Contractor should not divulge or use, except for the purpose of this contract, any information contained in the drawings.

4.5.1 Deleted.

4.5.2 Deleted.

4.5.3 Deleted.

4.5.4 EXECUTION AS PER DRAWINGS

The Contractor must not vary or deviate from the drawings in any respect while executing the work or executing any extra work of any kind whatsoever unless authorised by the Client/Consultant.

4.5.5 ROYALTIES AND PATENT RIGHTS

All royalties or other sums payable in respect of the supply and use in carrying out the work as desired by or referred to in the schedule of quantities of any patented articles, process or inventions shall be deemed to have been included in the contract sum and the Contractor shall indemnify the “client” from and against all claims, proceedings, damages, costs and expenses which may be brought or made against the “clients” or to which he may be put by reason of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, process and inventions.

4.6.0 GENERAL OBLIGATIONS



4.6.1 INSPECTION OF SITE ETC. BEFORE SUBMISSION OF TENDER

The Contractor shall inspect and examine the site and its surroundings, and shall satisfy himself before submitting his tender, as to the nature of the ground and nature of the site, the quantities and nature of work and materials and its availability required for the completion of the works, the means of access to the site, the local labour conditions, the accommodation he may require and in general shall obtain all necessary information as to the risks, contingencies and other circumstances which may influence or affect his tender. All labour disputes shall be settled by the contractor, for which no time extension will be granted.

4.6.2 SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices stated in the priced bill of quantities and the schedule of rates and prices, if any, with tender rates and prices which shall cover all the obligations under the contract and all matters and things necessary for the proper completion and maintenance of the work.

4.6.3 CLARIFICATION BEFORE SUBMITTING TENDERS

Should the Contractor notice any discrepancy or error in the statement made, or quantities or units shown against items, he shall immediately bring the same to the notice of CLIENT and obtain the clarification before submitting the tender. The tender shall be based on such clarifications received and shall be recorded as such in the covering letter to the tender, failing which the CLIENT shall have the right to ask the Contractor to execute the work according to the statement made or quantities or units shown in the tender, without any compensation.

4.6.4 RATES QUOTED FOR FINISHED WORK

The rates quoted in the tender by the Contractor must be for the finished work as per the drawings and specifications.

4.6.5 TENDER OPEN FOR

The tender shall remain open for acceptance for a period of 90 days from the date of opening of technical bid of the tender.

4.6.7 COMMENCEMENT OF WORK

The Commencement of the work shall be considered from the 10th day of issue of letter of award.



4.6.8 PROGRAMME OF WORK

Soon after the award of contract, the contractor shall submit to the Consultant/Client for his approval a programme in MS project to match with the planned completion of the whole job showing the order of procedure and method in which he proposes to carry out the works and the Contractor shall whenever required by the Client/Consultant or his representative, furnish further detailed programme and particulars in writing of the Contractor's arrangements for carrying out the works and the details of the constructional plant and temporary works, which the Contractor intends to supply use or construct as the case may be. The programme so prepared by the Contractor shall include details of time required for the completion of each and every major individual item of work under the overall contract. The submission to, and approval, if any, by the Client/Consultant or their representative, of such programmes or particulars, shall not relieve the Contractor of any of his duties or responsibilities under the contract.

The Contractor has also to submit bar chart / PERT chart for the execution of work and submit programme for procurement of materials, equipment and deployment of men duly signed by the Engineer, who will be in charge of the site and the Contractor so as to complete the work in stipulated time period of **7 months** as per Clause 4.9.2. These details shall be submitted before execution of agreement.

Any delay / failure on the part of the contractor to arrange for men and materials at required time shall not be considered as valid hindrance.

The Contractor has also to submit monthly progress report of the preceding month before 10th of next month.

The contractor has to submit advance weekly schedule of works on every Friday during the contract period.

If programme schedule is not submitted by the contractor a penalty of Rs. 5000/- per day will be recovered from the bill.

If monthly report is not submitted by the contractor a penalty of Rs. 5000/- per day will be recovered from the bill.

4.6.9 CONTRACTOR'S EMPLOYEES

The Contractor shall provide all necessary superintendence during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract. The contractor shall immediately after receiving work order and before commencement of the work, intimate in writing to the Client/Consultant, the name(s), qualifications, experience, age, address(s) and other particulars along with certificates, of the Site Engineer to be in charge of the work.

Minimum requirement of such technical representative – One



Graduate / Diploma in Electrical Engineering – Minimum Experience 5 years for Graduates and 10 years for Diploma holders in ETP/STP/WTP works.

If the contractor is not posting the minimum required technical staff in the work, recovery shall be made from the contractor at the rate of **Rs. 25,000/-** per month or part thereof from the bills.

Only such technical assistants as are skilled and experienced in their respective fields and such agents, foreman and leading hands as are competent to give proper supervision to the work they are required to supervise and, such skilled, semi-skilled and un-skilled labour as are necessary for the proper and timely execution and maintenance of works shall be provided.

4.6.10 REMOVAL OF WORKMEN

The Client /Consultant shall be at liberty to object to and require the Contractor to remove forthwith from the works any person employed by the Contractor in or about the execution or maintenance of the works who in the opinion of the Client /Consultant misconduct himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Client /Consultant to be undesirable and such person shall be replaced by the Contractor without delay by a competent substitute approved by the Client /Consultant.

4.6.11 COMMUNICATIONS TO BE IN WRITING

All references, communications, correspondences made by the Client/ Consultant, or the Contractor concerning the works shall be in writing and no reference, communication, or complaint which is not in writing, shall be recognised.

4.6.12 OCCUPATION AND USE OF LAND

No land, building belonging to or in the possession of the Client, shall be occupied by the Contractor. The Contractor shall not use, or allow to be used, the site for any purpose other than that for executing the works.

4.6.13 CONSTRUCTION OF SITE-SHED

Any site-shed, proposed to be temporarily constructed by the Contractor for his office work, storage of materials, etc. shall conform to the standard sketch, or to the plan approved by the Client/Consultant. Permission for the construction of such sheds shall be obtained in writing.

4.6.14 MATERIALS, TOOLS AND PLANT

The Contractor shall supply all materials required for the execution of the works other than those mentioned in the Notice Inviting Tenders. Materials so supplied shall have



the approval of the Client/Consultant before using on the works. All the rejected materials shall be removed at once from the site of work at the Contractor's own cost.

4.6.15 TOLLAGES ETC.

The Contractor shall pay all tollages and other royalties, rent and other payments or compensations, if any, for all materials required for the works.

4.6.16 SETTING OUT

The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the works any error shall appear or arise in the position, level, dimensions or alignment of any part of the works, the Contractor on being required to rectify such error by the Client/Consultant or Client's/Consultant's representative, shall at the Contractor's own cost do so to the satisfaction of the Client/Consultant or his representative. The Contractor shall provide all necessary instruments, appliances and labour required by the Client/Consultant for checking the accuracy of setting out. Such check by the Client/Consultant shall not in any way absolve the Contractor of the responsibility of accurately setting out various works under the contract. The contractor shall carefully protect and observe all bench marks, site lands, pegs and other things used in setting out the work. The rate quoted for the work should also include the cost of reference and land pillars and their dismantling when no longer requires.

4.6.17 DAMAGE TO PERSONS AND PROPERTY

The Contractor shall indemnify and keep indemnified the Client against all losses and claims for injuries or damages to any person or property whatsoever which may arise out of or in consequence of the construction and maintenance of works and against all claims, demands proceedings, damages, costs, charges, expenses, whatsoever in respect thereof in relation thereto.

4.6.18 CO-OPERATION WITH OTHER AGENCIES

The Contractor shall co-operate with the work of other agencies or Contractors that may be employed or engaged by the “**Client**” as far as it relates to the Contractor's work. The sequence of work shall be so arranged that the work of other agencies can also attain satisfactory progress simultaneously.

4.6.19 BARRICADING AROUND EXCAVATED TRENCHES ETC.

The contractor shall at his own cost provide around excavation, temporary barricading with bellies and bamboo with warning signals during day and night and shall maintain it so long as the trenches are not filled up. Similar barricades shall also be provided at all



dismantling work, erection of structural, sheeting work etc. No extra claim shall be entertained for providing, maintaining and removing such barricades.

4.6.20 FABRICATION DRAWINGS

Contractor shall prepare at his own cost all fabrication drawings of all structural steel works and bar bending schedule for RCC works and submit them to the Client/Consultant for their approval at least before 15 days of commencing the fabrication. All the details like sizes, capacities, dimensions, arrangement of fabrication etc. should be clearly indicated on these drawings.

4.6.21 PROTECTION OF UNDERGROUND SERVICES

The Contractor must take precautionary measures to protect the existing underground and other service lines viz. power cables, water and sewer lines etc. and observe any specific instructions which may be given in this regard by the Client/Consultant. Sufficient safety precautions must be taken like barricading around excavated trenches etc.

4.6.22 DEWATERING TRENCHES AND PITS AND PROTECTION OF EARTHEN BUND UNDER CONSTRUCTION

The tendered rates shall always be deemed to have taken into account the cost of removal of silt and materials that may slip in the trenches and pits and dewatering the trenches or pits of water accumulated or collected through seepage or subsoil water or rain water. The Contractor shall in no case be entitled to claim any extra amount for the above work. The Contractor shall remain prepared with necessary pumps and equipment for dewatering the trenches or pits so as to avoid unnecessary delay and possible damage to the property, etc. The contractor shall protect the earthen bund under construction by temporary protections and diverting the storm water safely through property protected temporary spillway arrangements.

4.6.23 WORK IN OR AROUND OPERATING PLANT OR OFFICES ETC.

Where the work is being carried out in or around an operating plant where the plant must run uninterrupted, the Contractor shall work only at specified place and times as mutually arranged between the Contractor and the Client /Consultant. Similar arrangement must be made while executing works inside the offices, buildings, etc. without causing disturbance to the office work. For this the work may be required to be done during off-hours and Sundays. No extra charges will be allowed beyond the rates quoted for doing work in the manner described above.

4.6.24 WORK IN SHIFTS AND ON OFF-DAYS

The Contractor shall work in one or more shifts as also on Sundays and off days to complete the work on time, if so required by the Client/Consultant for which Client shall



not be liable to pay any extra charge. If instructed by the Client / Consultant, the Contractor should carry out the work in the night also.

4.6.25 SITE ORDER BOOK AND OTHER RECORDS

A site order book, cement register and all other records must be maintained and always be available at site for inspection and to record the instructions by the Client/Consultant or their representative in duplicate. The Contractor must see that the instructions noted there in are properly carried out.

4.6.26 SITE TO BE KEPT CLEAN

The surplus spoil and dismantled debris shall be removed to a place as directed by the Client/Consultant and stacked, levelled and dressed as directed. Rehandling charges will not be allowed.

4.6.27 CONFLICT IN MEANING BETWEEN SCHEDULE OF QUANTITIES AND SPECIFICATIONS

The specifications of each item of work given in the schedule of quantities shall be read in conjunction with the general specification also and in the event of a conflict in meaning between the two, the specification of each item in the schedule of quantities shall always have precedence over the general specifications.

4.7.0 LABOUR

4.7.1 LABOUR RULES

In respect of all labour directly or indirectly employed on the works by the Contractor, the Contractor shall comply with the provisions of the contract labour (Regulation and Abolition) Act 1970, Minimum Wages Act 1948, Payment of Wages Act 1936, ESI Act. 1948, Workmen compensation Act. 1923 and any amendments thereof and all legislation and rules of the State and/or Central Government or other local authorities, framed from time to time, governing the protection of health, sanitary arrangements, wages, welfare and safety for labour employed on building and construction works. The Contractor will be liable for claims on bonus, retirement benefits, retrenchment/lay off, compensation and all other matters of liabilities. The rules and the other statutory obligations with regard to fair wages, welfare and safety measures, maintenance of register, etc. shall be deemed to be part of the contract.

4.7.2 REPORTING ACCIDENT OF LABOUR

The Contractor shall be responsible for the safety of all employees and/or workers employed or engaged by him on and in connection with the works and shall forthwith report all cases of accidents to any of them, however caused and whenever occurring, to



the Client /Consultant or his representative and shall make every arrangement to render all possible assistance and aid to the victims of the accident.

4.7.3 PROVISION OF WORKMEN'S COMPENSATION ACT

The Contractor shall at all times indemnify and keep indemnified the Client against all claims for compensation under the provisions of the workmen's Compensation Act 1923 or any other law for the time being in force by or in respect of any workmen employed by the Contractor in carrying out the contract and against all cost and expenses or penalties incurred by the Client in connection therewith. In any case in which, by virtue of the provision of the said act, the Client is obliged to pay compensation to a workman employed by the Contractor in executing the works, the Client shall recover from the Contractor the amount of the compensation so paid and without prejudice to the rights of Client under the said Act. The Client shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any amount due by the Client to the Contractor, whether under this contract or otherwise without prejudice to any other remedy that may be available to the Client, in law. The Client shall not be bound to contest any claim made against it under the said Act, except on the written request of the Contractor and upon his giving to the Client full security for all cost for which the Client might become liable in consequence of contesting such claim.

4.7.4 ACCIDENT OR INJURY TO WORKMEN

The Client shall not be liable for, in respect, or any damages or compensation payable as per regulations or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor shall indemnify and keep indemnified the Client against all such damages and compensation and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation there to.

4.7.5 PRESERVATION OF PEACE

The Contractor shall take requisite precautions to prevent any riotous or unlawful behaviour by or amongst his workmen and/or others employed on the works by him, for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the works.

4.7.6 AGE LIMIT OF LABOUR

The age limit for employment of labour shall be in strict accordance with the existing labour legislation.

4.7.7 RETURN OF LABOUR EMPLOYED

The Contractor, if required by the Client/Consultant, shall submit return in detail in such form and at such interval as the Client/Consultant may prescribe showing number of different classes of labour employed on the work from time to time by the Contractor.



4.7.8 OBSERVANCE BY SUB-CONTRACTOR

The Contractor shall be responsible for the observance of the provisions of aforesaid clauses by the Sub-Contractors employed by him in the execution of the contract.

4.8.0 MATERIAL TESTS AND WORKMANSHIP

4.8.1 QUALITY OF MATERIALS, WORKMANSHIP AND TESTS

All materials and workmanship shall be of the respective kinds described in the contract and in accordance with the Client/Consultant or their representative's instructions and shall be subject, from time to time, to such tests as the Client/Consultant or his representative may direct at the place or any of such places. The Contractor shall provide such assistance instruments, machines, labour and materials, as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the works for approval as may be required by the Client/Consultant. The quality of material and the tests made to check such quality shall conform to relevant standards prescribed by BIS.

The Contractor shall provide all facilities and equipment including cube testing machine core cutter apparatus for a Quality Control Laboratory. Proper record shall be maintained of tests results duly signed by the concerned official of Client/Architect/Consultant

4.8.2 COST OF SAMPLES

The Contractor at his own cost shall supply all samples.

4.8.3 COST OF TESTS

The cost of making any test as per specifications shall be borne by the Contractor, and the Contractor should arrange for all facilities like meters, instruments etc. as required for carrying out such tests.

4.8.4 INSPECTION OF OPERATION

The Client /Client/Consultant or their representative shall at all times have access to the works and to the site and to all workshops and places where materials, manufactured articles or machinery are being obtained for the works and the Contractor shall afford every facility and every assistance in obtaining the right to such access.

4.8.5 EXAMINATION OF WORK BEFORE COVERING UP

No work shall be covered up or put out of view without the approval of the Client /Consultant or the Client/Consultant's representative and the Contractor shall afford full



opportunity to the Client/Consultant or the Client /Consultant's representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Client/Consultant wherever any such work or foundations is or are ready or about to be ready for examination and the Client/Consultant's representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations.

4.8.6 UNCOVERING AND MAKING OPENINGS

The Contractor shall uncover any part or parts of the works or make opening in or through the same as the Client /Consultant may, from time to time, direct and shall reinstate and make good such part or parts to the satisfaction of the Client /Consultant. If any such part or parts have been covered up or put out of view after compliance with the requirements of clause 4.8.6 hereof and found to be executed in accordance with the contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Client /Consultant but in any other case all such expenses shall be borne by the Contractor and shall be recoverable from him by the Client and deducted by the Client from any money due, which may become due to the Contractor, without prejudice to any other remedy that may be available to the Client, by law.

4.8.7 REMOVAL OF IMPROPER WORK AND MATERIALS

The Client /Consultant or his representative shall during the progress of the works have power to order the following in writing from time to time of which no extra payment will be made to the Contractor.

- a) The removal from the site within such time or times as may be specified in the order of any materials which in the opinion of the Client/Consultant or his representative are not in accordance with the contract.
- b) The substitution of proper and suitable materials.
- c) The removal and proper re-execution notwithstanding a previous test thereof or interim payment thereof of a work which in respect of materials or workmanship is not in the opinion of the Client /Client/Consultant or his representative in accordance with the contract.

4.8.8 SUSPENSION OF WORK

The Contractor shall, on the written order by the Client /Client/Consultant suspend the works or any part thereof for such time or times and in such manner as the Client/Consultant may consider necessary and shall during such suspension, properly



protect and secure the work, so far as is necessary in the opinion of the Client /Architect/Consultant

4.9.0 TIME OF COMPLETION AND TAKING OVER

4.9.1 POSSESSION OF SITE

Save in so far the contract may prescribe the extent of portions of the site of which the Contractor is to be given possession from time to time and the order in which such portions will be available to him and subject to any such portions will be available to him and subject to any requirement in the contract as to the order in which the work shall be executed, the Client /Consultant shall give to the Contractor possession of so much of the site as may be required to enable the Contractor to commence with such reasonable proposals of the Contractor as he will make in writing to the Client/Consultant and shall, from time to time as the work proceeds give the Contractor possession of such further portions of the site as may be required to enable the Contractor to proceed with the construction of the works in accordance with the said programme or proposal.

4.9.2 TIME OF COMPLETION

Time is deemed to be the essence of this contract and the whole of the works shall be completed within the time frame as stipulated below or within such extended time as has been allowed under Clauses 4.9.3 and 4.9.4.

The period of completion of the work is **7 (Seven) months** counting from the date of signing of agreement.

4.9.3 EXTENSION OF TIME OF COMPLETION

Should the amount of extra or additional work of any kind or changes in scope of work or other special circumstances of any kind whatsoever which may occur, be such as fairly to justify the Contractor's request for extension of time for the completion of the works, the Client/Consultant shall determine the amount of such extension and with the approval of the Client shall intimate the Contractor in writing provided that the Client/Consultant is not bound to take into account any extra or additional work or other special circumstances unless the Contractor has within 28 days, after such work has been commenced or such circumstances have arisen, submit to the Client/Consultant full and detailed particulars of any request for the extension of time to which he may consider to be justified.

4.9.4 EXTENSION OF COMPLETION TIME DUE TO UNAVOIDABLE CASUALTIES.

If in the opinion of the Client/Consultant the progress of the work has at any time been delayed by fire and un-avoidable casualties, etc. beyond the control of the Contractor



then the time of completion of the work may be extended for such reasonable time as the Client/Consultant may decide with the approval of Client and this will be indicated in writing.

4.9.5 WORK TREATED AS COMPLETE

The works shall not be treated as complete until:

- i) The site is clear from all materials, site shed, etc. and the Client/Consultant is satisfied with the job done by the Contractor.
- ii) Rectification of any damage done by the Contractor to the work has been completed by the Contractor.
- iii) The works shall not be considered as completed until the Client/Consultant has certified in writing that the works have been completed in all respects and the Defects Liability Period shall commence from the date of such certificate.

4.9.6 TAKING OVER

After completion of works or any substantial part of the works before the completion of the whole of the works, the Contractor shall notify the Client /Consultant in writing, who within 15 days of receipt of the said notice shall give such certificate with respect to any substantial part of the works which has been both completed to the satisfaction of the Client/Consultant and occupied or used by the Client or refuse to issue the same stating the reasons thereof in writing. When any such certificate is given in respect of a part of the work, such part shall be considered as completed for the purpose of taking over and computation of the period of maintenance of such part that is such period of the work as certified. The works in whole or part shall not however, be treated as completed for the purpose of other relevant clauses.

4.9.7 DEFECT LIABILITY/MAINTENANCE PERIOD

Defect liability Period is the period of 36 months commencing after the completion of the work. The Contractor's liability shall be to replace the defective parts, rectify/reconstruct the defective work that may develop of his own construction or those of his Sub-Contractor approved by the Client arising solely from faulty materials or workmanship.

If it is necessary for the Contractor to rectify/reconstruct any defective portions of the work under the contract, the provision of this condition shall apply to the portions of work so replaced or renewed until the expiry of three months from the date of such replacement or renewal or until the end of the above-mentioned period of 36 months, whichever may be later. If any defects were not remedied within a reasonable time the Client” may proceed to do the work at Contractor’s risk and expense, but without



prejudice to any other rights, which the Client may have against the Contractor in respect of such defects. The amount required for the rectification/repair/replacement of the damaged items will be recovered from the performance guarantee of the contractor without any additional notice.

The Contractor shall bear the cost of such repair/rectification carried out on his behalf at site. Immediately upon expiry of the defect liability period Client shall issue a final certificate indicating that the Contractor has completed his obligation under the contract.

4.10 TERMINATION OF CONTRACT

4.10.1 If the Contractor has abandoned the contract or has failed to proceed with the work due to negligence or the progress on any particular item/ items is slow or has failed to execute the work in accordance with the terms and conditions of the contract, is persistently or frequently neglecting to carry out his obligation under the contract, then it shall be lawful for the Client to terminate the contract forthwith under written notice and to proceed with the balance of the work through any other agencies. During the course of execution of the job, in case the Contractor has done any substandard work, he shall be asked in writing to dismantle and redo the same at his own expense. If the Contractor fails to comply with the above instructions immediately, then the Client shall proceed with the above rectification work, through another agency or agencies. Similarly, if the Contractor goes slow on any particular item or items of work, the Client shall have the right to execute this item or items through another agency or agencies, including its own department, at Contractor's risk and cost.

4.10.2 BACK CHARGING THE CONTRACTOR

Extra cost and expenses incurred for completing the balance work or carrying out the rectification of any work as mentioned above through another agency or agencies including its own department, shall be debited to Contractor's account and shall be recovered from any money due or that may become due to the Contractor without prejudice to any other remedy that may be available to the Client in law. If there is any savings in cost due to re-arrangement or supplementing through other agencies the original Contractor will not have any claim on this.

4.11.0 ALTERATIONS, ADDITIONS AND OMISSIONS

4.11.1 VARIATION

The Client/Consultant with the approval of the Client shall be entitled to make any variation of the quality or quantity of the works or any part thereof that may in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:

- a) Increase or decrease the quantity of any work included in the contract.



- b) Omit any portion of work.
- c) Change the character or quality or kind of any such work.
- d) Change the levels, lines, position and dimensions of any part of the works and
- e) Execute additional work of any kind necessary for the completion of the works, and no such variation shall in any way vitiate or invalidate the contract and the value, if any, of all such variations shall be taken into account in ascertaining the amount of the contract price.

4.11.2 ORDER FOR VARIATIONS TO BE IN WRITING

No such variation shall be made by the Contractor without an order in writing of the Client / Consultant, provided that no order in writing shall be required for increase or decrease in the quantity of any item or work where such increase or decrease is the result of the actual quantities exceeding or being less than those stated in the bill of quantities which are estimates. In such cases, the Contractor shall be paid only for the actual quantity of work done as certified by the Client/Consultant at the accepted unit item rate and no compensation shall be allowed. Provided also that if for any reason the Client/Consultant shall consider it desirable to give any such order verbally, the Contractor shall comply with such order but it must be followed by confirmation in writing of such verbal order given by the Client /Consultant, which shall be deemed to be an order in writing within the meaning of this clause.

4.12.0 QUANTITIES

The quantities set out in the bill of quantities are the estimated quantities of the work. They are not to be taken as the actual and correct quantities of the works, to be executed by the Contractor in fulfilment of his obligations under the contract.

4.13.0 SETTING OUT

The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the works any error shall appear or arise in the position, level, dimensions or alignment of any part of the works, the Contractor on being required to rectify such error by the Client/Consultant or Consultant's representative, shall at the Contractor's own cost do so to the satisfaction of the Client/Consultant or his representative. The Contractor shall provide all necessary instruments, appliances and labour required by the Client/Consultant for checking the accuracy of setting out. Such check by the Client/Consultant shall not in any way absolve the Contractor of the responsibility of accurately setting out various works under the contract. The contractor shall carefully protect and observe all bench



marks, site lands, pegs and other things used in setting out the work. The rate quoted for the work should also include the cost of reference and land pillars and their dismantling when no longer requires.

4.14.0 MEASUREMENTS OF WORK DONE

Client/Consultant shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract.

All measurements of all items having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measurement Book having pages of A-4 size as per the format prescribed by the Client/Consultant so that a complete record is obtained of all the items of works performed under the contract.

All such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor or his authorized representative as per interval or program fixed in consultation with Client/Consultant or his authorized representative. After the necessary corrections made by Client/Consultant, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to client for the dated signatures by the client and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements & test checked from client and/or his authorized representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft computerized measurements, and submit to Client/Consultant a computerized measurement book, duly bound, and with its pages machine numbered. Client/Consultant and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks.

The final, fair, computerized measurement book given by the contractor, duly bound, with its pages machine numbered, should be 100% correct, and no cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound, after getting the earlier MB cancelled by Client/Consultant. Thereafter, the MB shall be taken in the Client's/Consultant's office records, and allotted a number as per the Register of Computerized MBs. This should be done before the corresponding bill is submitted to the Client's/Consultant's office for payment. The contractor shall submit two spare copies of such computerized MB's for the purpose of reference and record by the various officers of the client.

The contractor shall also submit to the Client's/Consultant's office separately his computerized Abstract of Cost and the taxable invoice in the GST format based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the bill. Thereafter, this bill will be processed by the Client's/Consultant's office and allotted a number as per the computerized record in the same way as done for the measurement book meant for measurements.



The contractor shall, without extra charge, provide all assistance with every appliance, labor and other things necessary for checking of measurements/levels by Client/Consultant or his representative.

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.

The contractor shall give not less than seven days' notice to Client/Consultant or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work in order that the same may be checked and/or test checked and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of checking and/or test checking measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of client or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of checking and/or test checking measurements without such notice having been given or client's consent being obtained in writing the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Client/Consultant or his authorized representative may cause either themselves or through another officer of the Client/Consultant to check the measurements recorded by contractor and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and/or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

4.15.0 BILLING AND PAYMENTS

4.15.1 BILLING

a) Interim Bills

The contractors can claim their bills for the works completed by monthly once with a minimum value of 25% of the awarded contract value.



i. **Civil:** 80% on measured civil works on prorata basis & balance 20% after satisfactory completion of trial run and commissioning of the plant.

ii. Electrical works

On progress of supply: Up to 60% of rate of items, on pro-rata, would be released after the satisfactory supply of materials with MIR (Material Inspection Report) at site as assessed by the Engineer-in-Charge of RPIL/Consultant, which are required in accordance with the contract and are safeguarded against loss due to any cause whatsoever covered by an insurance to the satisfaction of the Engineer-in-charge of RPIL/Consultant

On progress of erection: Up to 75% of the rate of items including supply and installation, on pro-rata, less the payment already released against above will be made against the completion of installation at site.

On taking over: 100% of the contract amount, less amount already paid and security deposits due, if any, shall be paid on completion of testing, trial run and satisfactory commissioning of the installation and issue of the final completion certificate, and on acceptance of the same by RPIL/Consultant.

All the payments are made, after deducting there from the amounts already paid, the security deposit, income tax and other amounts as may be deductible or recoverable in terms of the contract.

Any interim certificate given relating to work done or materials delivered, may be modified or corrected by any subsequent interim certificate or by the final certificate. No certificate of the Engineer-in-charge supporting an interim payment shall have itself be inclusive evidence that any work or materials to which it relates is/are in accordance with the contract.

The contractor has to submit three sets of Computerized MBs along with the computerized Abstract of Cost and the taxable invoice in GST format based on the cost abstract, duly bound, and its pages machine numbered. Payment against interim bills shall be released only on the certification by the Engineer-in-charge/Consultant in the following manner.

- i) 75 % of the interim bill, after deductions will be released within 30 working days of submission of the bill on the basis of checking and certification by the Engineer-in-charge/Consultant.
- ii) Balance 25% of the interim bill, after deductions will be released within 60 working days of submission of the bill on the basis of checking and certification by the Engineer-in-charge/Consultant.



The payment against bills shall be made only after making necessary deductions as stipulated elsewhere in the contract document, for materials, advances, security deposit, taxes, duties, welfare fund etc. **GST portion of the invoice will be released only upon reflection of the same in GSTR 2B of Client**

b) Final Bill

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by Client/Consultant whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Client, will, as far as possible be made within the period specified herein under, the period being reckoned from the date of receipt of the bill by Client/Consultant or his authorized officers, complete with account of materials issued by Client and dismantled materials. The bill will be settled within 3 months of submission of the bill on the basis of checking and certification by the Engineer-in-charge/Consultant.

4.15.2 PAYMENTS

- (a) The payment to the Contractor for the performance of the works under the Contract will be made by the Owner as per the guidelines and conditions specified herein. All payment made during the Contract shall be on account payments only. The final payment will be made on completion of all the works and on fulfillment by the Contractor of all his liabilities under this contract and also after issue of Completion Certificate by the Consultant/ Engineer-in-Charge.
- (b) All payments under the Contract shall be in Indian Rupees only. All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Consultant/ Engineer-in-Charge relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Consultant/ Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.



- (c) Pending consideration of extension of date of completion, interim payments shall continue to be made as herein provided without prejudice to the right of the department to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

All the applicable taxes and duties will be deducted from the bills. The bill submitted should be as per goods and service tax rules. **GST portion of the invoice will be released only upon reflection of the same in GSTR 2B of Client.**

4.16.0 EXTRA ITEMS

Any item of work that does not find a place in the schedule of quantities, in the original tender or in the accepted tender or contract as has been directed by the Client/Consultant to execute, is deemed as an extra item of work. All such works that are necessary to be carried out under the direction of the Client/Consultant shall be carried out by the Contractor. No such variation will violate the Contract.

- (i) Extra items of work thus carried out by the Contractor will be paid at the rates worked out by Client/Consultant in the following manner.

(ii). In the case of all extra items whether additional, altered or substituted, if accepted rates for identical items are provided for in the Contract such rates shall be applicable. The contractor shall bear all additional costs for unloading or other such works done.

(iii). In the case of extra items whether altered or substituted, for which similar items exists in the Contract, the rates shall be derived from the original item by appropriate adjustment of cost of affected components, on the basis of provision of standard data book of CPWD / DSR 2018. The percentage (%) excess or reduction of the contract rate for the original item with reference to the estimated rate shall then be applied in deriving the rate for such items.

(iv) In the case of extra items, whether additional altered or substituted, for which the rates can only be partly derived from similar items in the Contract and CPWD data and DSR 2018 and partly from market rates the rate will be worked out as follows:

The contractor will immediately after the execution of the work as mentioned above shall communicate to the Engineer and Client/Consultant the rate claimed for the item with supporting documents as regards the prevailing market rates. The Client/Consultant shall examine those reports and work out the rate in the following manner. As regards the first part involving in the CPWD data and DSR 2018 the rate will be worked out as given in (iii) above and as regards the second part involving market rate the rate will be worked out as given below in (v)



(v) In the case of extra item whether additional, altered, substituted, for which the rates cannot be derived either from similar items of work in the Contract or from the departmental schedule or rates, the rate will be worked out fully on the basis of prevailing market rates (giving due consideration to the analysis of the rate furnished by the contractor with supporting documents). The Contractor immediately after execution of the work as mentioned above and shall within 14 days of the receipt of order to carry out the said extra item of work, communicate to the Client/Consultant the rate which he proposes to claim for the item, supported by analysis of the rate claimed and the Client/Consultant shall determine, the rate on the basis of the market rate giving due consideration to the rate claimed by the contractor and forward the same to Client/Consultant. In the case the requirement for labour such item is available in the CPWD data / DSR 2018; this shall be taken as the basis for working out rate. If this is not available observed data during the actual execution of work will be taken as the basis. An allowance of 15% will be added towards contractors overhead, profit and establishment charges. The percentage (%) excess or deduction in the contract rate over the estimate rate shall not be applied in this case.

(vi) The Contractor shall make his own arrangement for water and electricity required for the work. Client/Consultant takes no responsibility for the supply of either electricity or water. While all efforts will be made to finalize the rate before the extra item of work is ordered, the contractor shall not stop the work on account of non finalization of the rates.

4.17.0 DEVIATIONS, VARIATIONS EXTENT AND PRICING

4.17.1 Deviations/ Variations Extent

Owner/Client shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by Owner/Client and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

Different Deviation Limit

- a) Super structure - 30%
- b) Foundation - 100%



4.17.2. The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows :

- (i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus
- (ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by Client/Consultant.

4.17.3 Deviated Quantities and Pricing

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in Clause 4.17.1, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, Client/Consultant shall within prescribed time limit of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

4.17.3.1 The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Clause 4.17.1 and Client shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

4.17.4 The contractor shall send to the Client/Consultant/Engineer-in-Charge once every three months, an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Client/Consultant/Engineer-in-Charge which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right.

4.17.5 For the purpose of operation of Clause 4.17.1 the following works shall be treated as works relating to foundation unless & otherwise defined in the contract:

- (i) For Buildings: All works up to 1.2 metres above ground level or up to floor level whichever is lower.
- (ii) For abutments, piers and well staining: All works up to 1.2 m above the bed level.
- (iii) For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/tanks and other elevated structures: All works up to 1.2 metres above the ground level.



- (iv) For reservoirs/tanks (other than overhead reservoirs/tanks): All works up to 1.2 metres above the ground level.
- (v) For basement: All works up to 1.2 m above ground level or up to floor 1 level whichever is lower.
- (vi) For Roads, all items of excavation and filling including treatment of sub base.

4.17.6 Any operation incidental to or necessarily has to be in contemplation of tenderer while filing tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

4.18.0 INSURANCE

The successful contractor shall, at his cost take out Contractor's All Risk (CAR) insurance policy, jointly in the name of the "RPIPL" and the contractor, and the original policy shall be deposited with the "RPIPL" before signing of agreement and starting of works. The value of the CAR policy will be equivalent to the contract value and the validity of the policy will be date of completion/ extended time of completion of work. The policy should cover third party liability also.

4.19.0 SAFETY PRACTICES

4.19.1 The Contractor shall observe all statutory and legal requirement of safety by Central and State Governments applying to the work as well as any local regulations applying to the site issued by Client/Consultant or any authority. The contractor shall adhere with the CEA (Measures relating to Safety and Electric Supply) Regulations, 2023 and its amendments.

It shall be the sole responsibility of the contractor to ensure all safety measures giving proper prior notices etc. and obtaining prior permission from concerned local authorities as per bye-laws or directions issued by them all at his own cost. No claim of the contractor in this regard shall be entertained.

4.19.2 Particular attention is drawn to the following:

1. Suitable platform should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and hand-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 ($\frac{1}{4}$ horizontal and 1 vertical.)



2. Scaffolding of staging more than 3.6 m (12ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
3. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6 m (12ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm. (3ft.)
5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder up to and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least ¼" for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit; action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.
6. (a) Excavation and Trenching - All trenches 1.2 m. (4ft.) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof, Ladder shall extend from bottom of the trench to at least 90 cm. (3ft.) above the surface of the ground. The side of the trenches which are 1.5 m. (5ft.) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m. (5ft.) of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done



from top to bottom. Under no circumstances, undermining or undercutting shall be done.

7. Demolition - Before any demolition work is commenced and also during the progress of the work,
 - (i) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
 - (ii) No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.
 - (iii) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
8. All necessary personal safety equipment as considered adequate by the Client/Client/Consultant official-in-charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned:- The following safety equipment shall invariably be provided.
 - (i) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
 - (ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes, shall be provided with protective goggles.
 - (iii) Those engaged in welding works shall be provided with welder's protective eye shields.
 - (iv) Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
9. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions :-
 - (i) (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.
 - (b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.
 - (ii) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding winch or give signals to operator.
 - (iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working



load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

10. When workers are employed on electrical installations which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
11. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.
12. These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.
13. To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the contractor shall be open to inspection by the Client/Consultant official-in-charge or their representatives.
14. Notwithstanding the above clauses from (1) to (13), there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

4.20.0 COMPENSATION FOR DELAY IN WORK

If the contractor fails to maintain the required progress or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority specified in (whose decision in writing shall be final and binding) may decide on the amount of executed value of the work for every completed day/month (as applicable) that the progress remains below or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

- Compensation for delay of work - @ 1.5 % per month of delay to be computed on per day basis

Provided always that the total amount of compensation for delay to be paid under this



Condition shall not exceed 10% of the Executed Value of work. The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with Owner/Client.

4.21.0 WATER

Water required for the construction will have to be provided by the Contractor at his own cost. It will be the responsibility of the Contractor to make arrangements for drawing and bringing it to the various construction points. Non-availability of water from the Clients property will not be ground for any delay in work or any claim for any compensation whatsoever. The quality of water used for concrete and masonry works should have the minimum standards prescribed in the relevant BIS Codes.

4.22.0. ELECTRICITY

4.22.1 Electricity required for the construction and general lighting of the site will have to be provided by the Contractor at their own cost. Non-availability of power from distribution licensee will not be a ground for any delay in work or any claims for any compensation whatsoever.

4.22.2 All the instruments used by the Contractor shall have valid calibration certificate meeting the National Standards

4.23.0 FACILITIES TO BE PROVIDED

The Contractor shall extend all facilities to Client as well to the Consultant's staff for inspection/supervision/checking the activities involved in this work at all stages.

4.24.0 OTHER CONDITIONS

4.24.1 The various works shall be done true to line level and grade. The periodical checking of these by the Client/Consultant shall not absolve the Contractor of his responsibility regarding their accuracy. In case of any deviation or discrepancy in line, level or grade at the meeting faces, the Contractor shall make good the discrepancy at his own cost and without any compensation for the additional work if any involved. The Client/Consultant has the unquestioned right, if need be, to arrange to rectify the discrepancies and to recover the cost from the Contractor. The Contractor shall protect the earthen bund under construction by temporary protection and diverting the storm water safely without damaging the bund through properly protected temporary spillway arrangements.

4.24.2 In the case of all works whether fully completed or incomplete, all materials, machinery's, plants, tools, etc. shall remain on the risk and in the sole charge of the



Contractor until the complete work has been delivered to the Client and till completion certificate has been issued by the Client/Consultant.

4.24.3 The Site Order Book has to be maintained by the Contractor in the site office, in which the Client/Consultant and their representatives shall enter orders regarding the work in the book in duplicate. All entries therein shall be signed by the Contractor or his authorised representative within two days and one copy given to the Client. It is the responsibility of the Contractor to follow the instructions given in the Site Order Book.

4.24.4 All the items of the work are to be executed as per CPWD specifications and relevant I.S. specifications.

4.24.5 The Contractor has to agree and strictly abide by all the conditions stipulated in the tender and any offer with deviation or request for deviation is liable to be rejected.

4.24.6 The Contractor has to take back all dismantled equipment's, pumps, motors, blower, valves, old M S structural materials, roofing sheets, bio fills etc. from the plant/store. The value of such item shall be entered in the schedule (BoQ). The Client will issue GST invoice to the Contractor for the same at the quoted rate, the invoice value (including GST) will be deducted from the contract sum at the time of settlement of the final bill of the work.

4.25.0 NOTICE TO CONTRACTOR

All certificates, notices or instructions to be issued to the Contractor by the Client or the Engineer under the terms of the contract shall be sent by post, email or facsimile transmission to or left at the contractor's principal place of business or such other address as the contractor shall nominate for that purpose or hand over to the site in charge of the Contractor.

4.26.0. NOTICE TO OWNER/ CONSULTANT

Any notice to be given to the Client/Consultant under the terms of the Contract shall be sent by post, email or facsimile transmission to or left at the respective addresses as stipulated in clause 4.29.0

4.27.0 CHANGE OF ADDRESS

Either party any change a nominated address to another address in the country where the works are being executed by prior notice to the other party, with a copy to the Client/Consultant and the Client/Consultant may do so by prior notice to both parties.

4.28.0 JURISDICTION



For all matters arising out of or concerning this contract or any dispute or difference between the parties to this contract the courts in Perumbavoor alone shall have jurisdiction being the place where this contract is entered into between two parties.

4.29.0 TRANSMISSION OF CORRESPONDANCE.

All Correspondence to the Owner/Client regarding the bid shall be in English and at the following addresses:

The Managing Director,
Rubber Park India (P) Ltd.
2A, “ Kautileeyam”
Valayanchirangara P.O, Ernakulam, Kerala, Pin : 683 556
Phone : (0484) - 2657218, 2655538, 2655548
E-mail : md@rubberparkindia.org



Section - 5

FORMATS FOR QUALIFICATION

(Duly filled and upload the scanned copies in line with the e-Procurement system of Govt. of Kerala)



5.A DETAILS OF THE BIDDER

<i>(TO BE SUBMITTED IN THE LETTER HEAD OF THE BIDDER)</i>	
<i>Name of Work:</i>	
1. Details of the Bidder	
1.1. Name of the Firm/Bidder	
1.2. Address	
Tel. No. (O)	
Mobile No.	
E mail	
1.3 Nature of Firm Note:- 1. Tick whichever is applicable 2. Attach certified documentary proof.	Proprietary/ Partnership/ LLP / Company (Private Limited)/ Company (Public Limited)/
1.4 Details of proprietor/ partners/ Directors.	
1.5 Name of the responsible contact person:	
Tel No. (O)	
Mobile No.	



1.6.	Date & No of Registration of Firm/company (Attach copy of certificate.)	
1.7	Permanent Account Number Attach documentary proof	
1.8	GST Number Attach documentary proof	
1.9	Contractor license Number if any (Attach copy)	
1.10	Name of Bankers with address and telephone nos., IFSC Code and Account Number.	

Signature of the Bidder

Name :

Designation :



5 B. DETAILS OF EXPERIENCE

	Details of similar works which are undertaken and successfully completed by the bidder in a single contract as prime contractor in the last seven years.							
Sl.No	Name & address of client with Tele. phone No. Email Id	Value of contract	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Completed value of work.	Litigation/ arbitration cases pending/ in progress with details *	Full particulars of work carried out by the Bidder

Attach copies of completion certificate issued by the client with detailed description of work, work start date, work completion date, completed value of work etc for each works. Works without proper documentary evidence will not be considered for evaluation.

I/We hereby affirm that the details furnished above are true to the best of my/our knowledge.

Signature of the Bidder



5 C. CONCURRENT COMMITMENTS

Sl. No.	Full postal address of client & telephone No. Email Id	Description of the work.	Value of contract	Date of commencement of work.	Scheduled completion period (months)	Percentage completion as on date	Expected date of completion	Remarks

Certified that the details furnished above are correct.

Signature of the Bidder



5 D. DETAILS OF STAFF AVAILABLE FOR THE PROPOSED WORK

Sl. No.	Details (Name & Address)	Total Experience in years	No. of Years in the present organisation
1	Site Engineers		
2	Site Supervisors (Diploma/ITI holders in Engineering)		
3	Others		

Note:

1. Rubber Park India (P) Ltd. may insist to engage the listed number of staff with the above specified qualifications and experience.

I/We hereby certify that the details given above are correct to the best of my/our knowledge. I/We have no objection for M/s. Rubber Park India (P) Ltd. in contacting our clients/Bankers for Reference.

Place:

Date :

Signature :

Name :

Designation :



5 E. FINANCIAL INFORMATION

Furnish the turnover for the last 3 years in the following format (Enclose Copies of Audited balance sheet, P & L statement and copies of the acknowledgements of the IT retunes).

S/N	Year	Turnover (Rs. in lakhs)	Remarks
1	2020-21		
2	2021-22		
3	2022-23		

Average Annual turnover on construction works for the last three financial years. (ie FY 20-21, FY 21-22, FY 22-23).

Rs.Lakhs

I/We.....hereby affirm that the details furnished above are true to the best of my/our knowledge.

Signature and Seal of Bidder



SECTION – 6

BID FORM AND OTHER FORMS



FORM 1
TIME SCHEDULE

NAME OF BIDDER:

Bidders shall submit in the proposal, as per this form, a project schedule covering all activities detailed scope of work. The Bidder shall include in the proposal the techniques to be used to control the work schedule, measure and report progress to assure meeting the project schedule.

Activity Description	Duration	Expected date (MM/DD/YY)	
		Start	Finish

Note:

Bidder to furnish the schedule detailing linkages and time required for completion of all activities given in the **scope of work**.

Signature :

Date :

Seal :



FORM 2

FORM OF BID

Note: Bidders are required to furnish this form in the letter head filling all the blank spaces.

To

Date:

The Managing Director,
Rubber Park India (P) Ltd.,
2A, “ Kautileeyam”
Valayanchirangara P.O
Ernakulam,
Pin : 683 556

Dear Sir,

Sub: Tender for the at Rubber Park, Irapuram

Ref: Tender No., dated

I/We have read and examined the notice inviting tender, General Conditions, Special Conditions, Technical Specifications and the Drawings included in or referred to in the Tender Documents, the receipt of which is hereby duly acknowledged, I/We, the undersigned, offer to supply and deliver goods and services including installation and commissioning as detailed in the work schedule, in conformity with the technical specifications and drawings and the terms and conditions as mentioned in or referred to in the said tender documents for the sum as quoted in the Priced part or such other sums as may be ascertained in accordance with the work schedule attached herewith and made part of this bid and the said conditions.

My/Our acceptance to all the conditions of the tender document in this bid form shall persist over any other terms and conditions, deviations, if any, given in my/our bid.

I/We undertake, if my/our bid is accepted, to commence and complete delivery of all the goods and services including supply and installations and commissioning as specified in the tender document, from the date of receipt of your Work Order.

If my/our bid is accepted, I/We will obtain the bank guarantees as per the terms and conditions for the due performance of the contract.



I/We agree to abide by this bid for the period of 90 days from the date fixed for bid opening and it shall remain binding upon me/us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your Letter of Intent shall constitute a binding contract between me/us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”.

I/We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this.....day of 2024

(Signature of Bidder)

For and on behalf of



FORM 3

ACCEPTANCE LETTER

Note: Bidders are required to furnish this form in the letter head filling all the blank spaces.

To

The Managing Director,
Rubber Park India (P) Ltd.,
2A, “ Kautileeyam”
Valayanchirangara P.O
Ernakulam,
Pin : 683 556

Dear sir,

I/We hereby unconditionally accept the tender terms and conditions in its entirety for tender No, dated: for the
.....
..(Name of work) at Rubber Park, Irapuram, Ernakulam.

I/We also confirm that payment of EMD, Tender Fee has been **remitted through online payment mechanism for e -procurement system** of Govt. of Kerala www.etenders.kerala.gov.in.

Date:

(Signature of Bidder)

For and on behalf of



FORM 4

DECLARATION FORM

Note: Bidders are required to furnish this form in the letter head filling all the blank spaces.

To

The Managing Director,
Rubber Park India (P) Ltd.,
2A, “ Kautileeyam”
Valayanchirangara P.O
Ernakulam,
Pin : 683 556

DECLARATION

I/We hereby declare that I/We read and understood that Terms & Conditions of contract, Technical Specifications, Drawings, Schedule of Requirements etc for the tender No., for the (Name of work) and hereby agree to abide by them. In token of I/We also understand that otherwise this tender is liable to be rejected.

I/We hereby confirm that only the relevant entries asked for, have been made within the Tender documents issued to us. I/We also confirm that in the event of any entry in this tender document, other than the relevant entry, shall make this tender invalid.

I/We hereby confirm that I/We am/are authorised to sign on behalf of the bidder.

Date:

(Signature of Bidder)

For and on behalf of



SECTION – 7

PRICE BID



FORM FOR PRICE BID

Note: Bidders are required to furnish this form in the letter head filling all the blank spaces.

To

The Managing Director,
Rubber Park India (P) Ltd.,
2A, “ Kautileeyam”
Valayanchirangara P.O
Ernakulam,
Pin : 683 556

Dear sir,

I/We hereby unconditionally accept the tender terms and conditions in its entirety for tender No , dated: for the at, Rubber Park, Irapuram, Ernakulam.

I/We also confirm that the price bid for the work is also submitted through the **online e -procurement system** of Govt. of Kerala www.etenders.kerala.gov.in.

I/We also understand that until a formal Contract is prepared and executed, this bid, together with your written acceptance thereof and your letter of award, shall constitute a binding Contract between us.

I/We understand that you are not bound to accept the lowest or any bid you may receive.

Date:

(Signature of Bidder)

For and on behalf of



Section - 8

ANNEXURES



Annexure - 1

ARTICLES OF AGREEMENT

Agreement of no:

This AGREEMENT made on this the ...th day of 2024, by and between **Rubber Park India (P) Ltd.**, a joint venture of Kerala Industrial Infrastructure Development Corporation (KINFRA) and Rubber Board, incorporated as a company under the Indian Companies Act. 1956, having its registered office at 2 A, "Kautileeyam", Rubber Park, Valayanchirangara P.O, Ernakulam Dist., Kerala Pin : 683 556, duly authorized and represented by its **Managing Director**, Sri., son of, aged (.....) years, residing at....., P.O, Pin PAN (herein after referred to as 'RPIPL'), which expression shall include, unless repugnant to the context, be deemed to include its successors and permitted assigns on the ONE PART.

And

M/s., having its registered office at ,.....
....., (state) , Pin : , duly authorized and represented by its, Sri., son of Sri....., aged(.....) years, residing at”,P O,(state) Pin:, Aadhaar No. (hereinafter referred to as the “CONTRACTOR” which expression shall, unless repugnant to the context, be deemed to include his legal representatives, executors administrators, successors and permitted assigns) of the OTHER PART.

WHEREAS, RPIPL is desirous of carrying out “.....” hereinafter referred as ‘WORK’. WHEREAS, RPIPL has invited competitive tender with two cover item rate bids, on bidders participated in the tender and bidders were pre-qualified. The price bids of the prequalified bidders were opened on On evaluation, it was found that M/s., has quoted the lowest amount of Rs./- (Rupees only). Accordingly, RPIPL has issued work order No., dated awarding the contract to M/s., for the work of



“.....” at his agreed contract amount of **Rs...../-** (Rupees
... ..only). The applicable GST will be paid extra, if applicable.

AND WHEREAS Contractor has agreed to execute upon and subject to the conditions set forth herein and to the conditions set forth in the special conditions, unit rate, specifications, technical specifications & in the schedule of quantities and conditions of contract (all of which are collectively hereinafter to as the said conditions and forming part and parcel of this articles of agreement) the work shown upon the said drawings and/or described in the said specifications and included in the said schedule of quantities at the respective rates therein set forth amounting to the sum as therein arrived at or such other sum as shall become payable there under (herein after referred to as the “said Contract amount”).

The following documents and correspondence also form part of this agreement as if they are specifically incorporated herein.

1. Tender document No., dated
2. Work order No., dated

NOW THEREFORE THIS PRESENTS WITNESSED AND IT IS MUTUALLY AGREED AS FOLLOWS:

1. In consideration of the said contract amount to be paid at the time and in the manner set forth in the conditions, the Contractor shall upon and subject to the conditions of the contract and General Conditions of Contract execute and complete the work shown upon the said drawings and described in the said specifications and schedule of quantities at the agreed rates.
2. The “RPIPL” shall pay the Contractor, the Contract Amount or such other sum that may become payable at times and in the manner hereinafter specified in the said conditions.



3. The said conditions thereto shall be read and constructed as forming part of this agreement and the parties hereto shall respectively abide by and submit themselves to the said conditions and perform the agreement on their part respectively in the said conditions.
4. The documents mentioned herein above shall form the basis of this contract.
5. The Contractor hereby agrees and undertakes to perform and fulfil all the conditions and obligations connected with the execution of the said contract work viz.-
“.....”.
6. The Contractor has furnished 5% of contract value as performance guarantee amounting to Rs./-, in the form of Demand Draft for Rs./- vide DD No., dated and Bank Guarantee No....., dated for Rs...../- at Bank., for due performance of obligation of the Contractor under the contract.
7. The “RPIPL” reserves to them the right of altering the drawings and nature of the work by adding or omitting any items of work from the contract or having portions of the same carried out by themselves or through any other agency without prejudice to the right of “RPIPL” under this contract.
8. The Contractor shall indemnify and keep indemnified “RPIPL” against all losses and claims for injuries or damages to any person or property whatsoever which may arise out of or in connection with the construction or maintenance of the work and against all claims, demands, proceedings, damages, cost, charges, expenses whatsoever in respect thereof in relation thereto.
9. It is specifically understood that the Contractor shall not be eligible for or entitled to claim any amount except to the extent allowed or due under the terms of this contract. It should be understood that on no account, the rates once agreed to and quoted in the tender, shall be revised.



10. It is specifically understood that work should be completed in all respects within the stipulated time showing proportionate progress at each and every stage of work. Any delay in completing the project in time will attract compensation as per tender condition.
11. The Period of Completion for this work is Months from (ie on).
12. The rates quoted by the Contractor shall be firm and there shall be no upward revision of the rates quoted by the Contractor for any reasons whatsoever.
13. It is specifically understood that the any part of the work is not completed in time as agreed by the contractor it will be carried out at the risk and cost of the contractor.
14. The several parts of the contract have been read by the Contractor and fully understood by the Contractor.
15. This agreement has deemed to have come into force from and has validity till actual completion of work, as per tender condition plus defects liability period of months.
16. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in Kerala and only courts in Perumbavoor shall have jurisdiction to determine the same.

In witness WHEREOF the Managing Director, Rubber Park India (P) Ltd and the CONTRACTOR have set their hands on the day and year above written.

Signed by, Managing Director, Rubber Park India (P) Ltd.	Signed by, M/s.
--	--

In the presence of witnesses:



Annexure- 2

BANK GUARANTEE FORMAT FOR PERFORMANCE GURANTTEE

Bank Guarantee

Guarantee Number	:
Date of Issue	:
Guarantee Amount	:
Expiry Date	:
Date of Claim	:
Applicant Name	:
Beneficiary Name	:
Form of Undertaking	:
Applicable Rule	:
Expiry Type	:

This deed of guarantee executed by (name of the Bank), constituted under the Act, having its Central Office at and amongst other places, a branch at (address of the branch), (hereinafter referred to as “the Bank”) in favour of THE MANAGING DIRECTOR, (hereinafter referred to as “the Beneficiary”) of an amount not exceeding, INR (Rupees.....only) at the request of (hereinafter referred to as the “Contractor/s”).



To
The Managing Director
Rubber Park India (P) Ltd
2 A, 'Kauteeliyam', Rubber Park,
Valayanchirangara, Ernakulam
Kerala – 683556

Dear Sir,

Guarantee No:

Amount of Guarantee:

Guarantee Cover from:

Last date for lodgment of claim:

This Deed of Guarantee is executed by (Bank), constituted under the Act,, having its Head Office at, and amongst other places, a commercial branch at (hereinafter referred to as the 'Bank') in favour of the Managing Director, Rubber Park India (P) Ltd., 2A Kautileeyam, Rubber Park, Valayanchirangara, Ernakulam – 683 556, Kerala (hereinafter referred to as Rubber Park India (P) Limited) for an amount not exceeding Rs...../- (Rupees only) at the request of M/s.(full name and address of the Contractor) (hereinafter referred to as the 'Contractor').

In consideration of Rubber Park India (P) Limited having demanded from M/s. (name of the contractor) for the production of a Bank Guarantee for Rs...../- (Rupees only) as performance guarantee for the due fulfilment by the contractor of terms and conditions in the agreement for the work of “.....” as per work order # dated



We,(name of Bank), at the request of the Contractor do hereby undertake to pay to the Rubber Park India (P) Ltd. an amount not exceeding Rs...../- (Rupees only) on demand by Rubber Park India (P) Limited.

We, (name of Bank), do hereby undertake to pay the amount due and payable under this guarantee without demur, merely on a written demand from the Rubber Park India (P) Limited stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs...../- (Rupees only).

We, (name of Bank), undertake to pay to the Rubber Park India (P) Limited any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.

We, (name of Bank), further agree that the guarantee herein contained shall remain in full force and effect the period that would be taking for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Rubber Park India (P) Limited under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till the Managing Director on behalf of Rubber Park India (P) Limited certifies that the terms and conditions of the said agreement have been fully and property carried out by the said contractor and accordingly discharges this guarantee or till whichever is earlier.

We, (name of Bank), further agree with Rubber Park India (P) Limited that the Rubber Park India (P) Limited shall have the fullest liberty without our consent and



without affecting in any manner our obligation here under to vary any of the terms and condition of the said contract from time to time or to postpone for any time or from time to time any of the powers exercisable by the Rubber Park India (P) Limited against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor or for any forbearance, act or omission on the part of the Rubber Park India (P) Limited or any indulgence by the Rubber Park India (P) Limited to the said contractor or by any such manner or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so reliving us.

This guarantee will not be discharged due to the change in the condition of the bank or the contractor.

We, (name of Bank), lastly undertake not to revoke this guarantee except with the previous consent of the We, (name of Bank), in writing.

This guarantee shall be valid up to unless extended on demand by Rubber Park India (P) Limited.

Notwithstanding anything contained herein above : -

1. Bank's liability under this Bank Guarantee shall not exceed Rs...../- (Rupees only).
2. This bank guarantee shall be valid up to
3. The bank is liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if you serve upon us a written claim or demand on or before

Dated thisday of 2024 at



Annexure - 3

Detailed Specifications

Design, Supply, Installation, Testing & Commissioning of Grid Connected Battery Energy Storage System (BESS) of 500kW/1MWh

Rubber Park India (P) Ltd
J/V of Rubber Board & KINFRA

1) Project Location:

The Rubber Park India P Ltd is located at Irapuram, in Mazhuvannoor Panchayat near Perumbavoor, Ernakulam Dist, Kerala 30 KM from Ernakulam, 25 KM from Aluva, 17 KM from Muvattupuzha and 10 KM from Perumbavoor.

2) Connectivity with the Grid:

Rubber Park India P Ltd(RPIPL) is a small DISCOM in Kerala State. The Project should be designed for interconnection with the distribution network in accordance with the prevailing KSERC regulations in this regard. For interconnection, With the grid and metering, the bidder shall abide by all rules and regulations framed under the Electricity Act, 2003 including the applicable Grid Code, Grid Connectivity Standards, Regulations on Communication System for transmission of electricity and other Regulations/Procedures (as amended from time to time) issued by KSERC and Central Electricity Authority (CEA).

3) Performance Criteria of the Project :

The Contracted Capacity of the Project shall be in terms of “kW”, which shall also be referred to as the Project Capacity. For a Contracted Capacity of 500 kW/1000 kWh, assuming an RtE of ≥85%. The Bidder shall make the BESS available for maximum 2 operational cycles per day, i.e. 2 complete charge-discharge cycles per day.

4) Scope of the Project:

The Bidder shall be responsible for deployment of 1x500kW / 1000kWh BESS at Rubber Park- Irapuram (Ernakulam Dt.) comprising Site Survey, design, engineering, planning, manufacturing, supply, packaging and forwarding, transportation, unloading, handling, transit & storage insurance, storage of material, Construction/ installation, Erection, commissioning and testing (including labour and supervision) of BESS and its components, establish grid connectivity of BESS at 11 kV Grid Point, associated civil & fabrication works, EMS system and its integration with KSEBL SCADA System, supply of mandatory spares and Technical Support of BESS for Contract period (10 Years). The detailed scope mentioned below:

BESS shall comprises of Battery Modules & Connectors, Racks, Rack Control Boxes, Containers, BMS, EMS, PCS, AC & DC Cables, Earthing System, DCP, PCS, 11/0.433kV Transformers, 11 kV RMU Panel, Protection System, Auxiliary Power Supply System (UPS, ACDB, DCDB, Battery Chargers, Aux. Power DBs, LT Power Cables), Battery Cooling System, HVAC, Fire Detection & Suppression System, Temperature Scanning System, Communication System, Monitoring & Control System and all other associated materials and accessories necessary for trouble free operation and maintenance of BESS System. The configuration and internal layout of

the BESS shall provide suitable safe access to all equipment for installation, operation, maintenance and repair in all weather conditions. Bidder shall include in their proposal all the materials and services necessary to ensure the completeness of the project, even if the same are not specifically appearing in these specifications. Bidder shall be responsible for identifying and providing any and all the equipment, Components and services necessary for fully functional grid connected BESS. Equipment, materials and services required for satisfactory operation of BESS shall be deemed to be included in the scope of turnkey package work and shall not be limited to the following.

Detailed design, engineering, Manufacturing, fabrication, Supply, transport, shipping, assembling, installation, erection, commissioning, testing (including pre commissioning and commissioning) of all the equipment and system(s) including civil works. Warrant and make ready for service a fully functional battery energy storage system on turnkey basis, including but not limited to:

- Lithium-ion Battery modules, Battery Racks, Containers, Rack Control Boxes, Battery module connectors, DC Combiner Panel, DC Cables along with cable trays / trenches, cable terminations and earthing system,

- Compatible and redundant Liquid / Air Cooling System for BESS including indoor or Outdoor Units, Controllers, Ducts & Piping system.

- Compatible Electrical system (including protection) up to Point of Connect (11kV) comprising Power Conditioning System (PCS), Distribution Transformer (11/0.433kV,630kVA Delta/star,Dyn-11), 11 kV SF6-RMU Panels, HT/LT AC/DC Cables (along with cable trays / trenches), Earthing System, 11 kV grid integration.

- Compatible Auxiliary Power Supply System comprising UPS, Station battery, Battery Chargers, ACDBs / DCDBs, LT Cables (along with cable trays / trenches), Distribution Boards, Earthing system.

- Compatible Fire Detection & Suppression System for BESS including smoke detectors, Gas Detectors, Fire Dampers, Manual Call Points, Fire Controller, Abort & Emergency release switches, Cabling & integration along with Trays, Switches & Racks, etc. complete. Firefighting system shall be provided as per NFPA.

- Compatible Temperature Scanning System for BESS including Temperature sensors, Temperature loggers, Controllers, Panels, Cabling & integration along with Trays, Switches & Racks.

-Compatible local EMS system for Monitoring & Control of 11 kV RMU Panels, DT, PCS, DC Combiner Panels, batteries, Cooling System, Auxiliary Power Supply System and any other system.

Metering in AC & DC System for energy accounting purpose at requisite points (11 kV breakers, ACDBs, Auxiliary Distribution boards, DT, PCS, DCP, Battery Containers etc

BESS Local EMS comprising of Control Panel, network connectivity, network Racks, LCD Screen, Precision AC, workstations, keyboard, mouse, LAN Cable and all associated items.

Supply of major spares required for a period (10 Yrs) - Price for the same may please be submitted along with Price Bid- cover 2.

Instrumentation & Communication cables, terminations and all other communication devices (hardware at both end) required for successful and cybersafe integration of BESS.

Painting of all equipment and structures: The quality and finish of paints shall be as per standards of BIS or approved equivalent.

Complete all Type, routine, and acceptance tests. Develop detailed test acceptance Plan. Perform FAT, SAT for BESS System & its components. Successful trial run of BESS System for 7 days from date of commissioning and submission of relevant Test Reports. Carry out Reliability and functional guarantee tests after successful completion of trial Operation. Ensure adequate warranty for the battery energy storage system and its constituent equipment / Components including bought out items. Training for Engineers proposed by RPIPL.

Providing project documents in English including O&M / instruction manuals, as built drawings, block diagrams, single line diagrams, Technical characteristics of equipment, Test Reports, features of BESS System & its components, System Configuration, System Architecture, Contact details of Bidder etc.(2 sets in Hard copy & 1set in PDF).

5) Earthing System:

IEEE Std 80 shall be followed for the earthing of the whole system. Earthing system drawing shall be submitted by the contractor for approval. An earth Mat using 32mm MS Road having grid spacing of 4x4M with down rods of 3M length at each cross points of vertical & horizontal conductors, along the periphery shall be supplied and installed. Depth of burial of vertical & horizontal conductors will be 0.5M from Ground level. DC welding set shall be used for all welding purposes. Jointing of conductors shall be done with an overlapping of 150mm. 11/0.415kV, Transformer neutral shall

be connected the mat and a down rod of 3M shall be provided. For Connection of Container of Battery, structures, neutral earthing shall be done with risers of 50x6mm GI strip from the Earth Mat. 11/0.415kV transformer shall be provided with Chain link fencing and same shall be earthed to mat. 11/0.415kV transformer will be cable termination type and armour of the cable shall be earthed to Mat. One earth test pit shall be provided as per standards shall be provided.

Masonry enclosure with the earth pit of size not less than 450mm X 450 mm(depth) complete with cemented brick work (1:6) of minimum 150mm width duly plastered with cement mortar (inside)shall be provided. Hinged inspection covers of size not less than 300mm X 300mm with locking arrangement shall be provided.

6) Commissioning of Project

The Commissioning of the Project shall be carried out by the bidder in line with the procedure as per the bidder, subjected to the approval of the client. The bidder shall commission the Project in line with provisions of CEA regulations- IECGC-2023.

The client may authorize any individual or committee or organization to witness and validate the commissioning procedure on site. Commissioning certificates shall be issued by bidder after successful commissioning. The bidder shall obtain necessary safety clearances from the Central Electricity Authority/KSEI prior to commissioning of the Project.

It is clarified that for the purpose of commissioning, the Project Capacity shall refer to the rated capacity of the Energy Storage System as declared by the bidder in the agreement. Any reduction in the Project Capacity on account will have no bearing on the obligation of the bidder to provide the Contracted Capacity as per the agreement

Bidder shall include in his proposal all the Industrial Grade Hardware, Software, Panels, Power Supply, electronic items such as HMI, Gateway, Networking equipment and associated Cable etc. needed for the completeness even if the same are not specifically appearing in these specifications.

Approvals - Bidder shall complete design and engineering, arrange / coordinate and conduct technical meetings with RPIPL team, finalize drawings & documents and submit the same for approval of RPIPL .Bidder shall also conduct submission, in proper shape and format, of all types of manuals, handbooks and documents in requisite numbers to RPIPL during different phases of the project as per RPIPL requirement.

Failure of any equipment to meet the specified requirements of tests carried out at works or at site shall be sufficient cause for rejection of the equipment. Bidder shall not hold rejection of any equipment as a valid reason for delay in completion of the

works as per schedule. Bidder shall be responsible for removing all deficiencies and supplying the equipment that meet the requirement.

Bidder shall dispatch the battery system in a way so as to avoid any accident either due to road conditions, environmental conditions and any other conditions which may arise due to transportation. Bidder shall follow all the rules, regulations, and standards applicable for transport of batteries in India.

All materials, components and equipment covered under this specification shall be procured, manufactured, erected, commissioned and tested at all the stages, as per a comprehensive work schedule, construction plan and Quality Assurance plan. Bidder shall submit work schedule, construction plan and Quality Assurance plan for each stage to RPIPL for approval before commencement of any work.

Bidder shall make his own arrangement for water and electricity for Project execution / Site and cost towards the same shall be part of the bid.

The bidder shall opt for Comprehensive Insurance Policy to cover the costs of all the equipment, compensation claims for injury sustained by labours, engineers, supervisors, guests, visitors to the site and shall be submitted to RPIPL before start of works.

Site shall be kept neat and clean every day. The material shall be stacked properly as per the requirement without obstructing the movement of persons, vehicles etc. No labours can stay at site. No labour camp is allowed at site.

Bidder shall develop the BESS strictly in accordance with the approved plan and the layout. No deviation in any case shall be entertained.

Lighting arrangement, necessary signal display, Project work in progress boards, barricading , safety, and security of labour and material cost shall be part of the bid proposal. No labour, supervisor, engineer is allowed to work without the safety devices (PPE) like helmet, safety shoes, safety rope and belt, safety jacket, gloves, goggles etc.

Bidder shall abide by all the necessary law viz., the Provident Fund Act, Minimum Wages Act, the Payment of Wages Act, ESIC, Bonus Act, Indian Contract Act, Sales Tax Act and all such other acts which may be applicable to bidder from time to time. In case of any liability raised by any of such authorities on RPIPL in relation and in connection to our work including manpower, such liability if any shall be recovered from bidders' payment.

Bidder shall organize the project work through skilled and experience workmen who are qualified to do such skilled and specialized job. Bidder shall submit the Site organization chart for RPIPL Approval.

7) General design features of BESS:

S.No.	Parameter	Remark
1	BESS Grid Connectivity Voltage	11 kV
2	Useful Power Capacity at Grid Point (11 kV)	500 kW/1000kWh at 45 Deg C and 0.95 PF
3	BESS Type	Indoor or outdoor
4	Installed Battery Capacity at 25 Deg Cel & Full Load	1000kWh*
5	BESS Cycles per day	Min 1 cycles per day Max 2 cycles per day
6	Guaranteed complete charge and discharge cycles	7500 Cycles*
7	Battery Type	Lithium ion
8	Cell Type	Bidder to Specify
9	Battery Life	10 Years from Date of Commissioning or 7500 cycles whichever is earlier
10	BESS Life excluding Battery	25 Years from Date of Commissioning
11	Min. Battery Capacity at the end of 10th Year (after degradation)	75% of Battery Capacity rating
12	Response Time	1 Second
13	Power Factor at PCC	0.95 lead or lag in Four Quadrant Operation
14	Positive and Negative Ramp Rate	BESS Shall have suitable positive and negative ramp rate to support BESS Operation in Grid Connected and islanded mode.
15	Equipment Efficiency	
15.1	Battery cell discharge efficiency	≥95%

S.No.	Parameter	Remark
15.2	LV Cable efficiency between Battery to PCS, PCS to Transformer and PCS Transformer to Switchgear	>99.5%
15.3	PCS Efficiency	>98.5%
15.4	Transformer Efficiency	>98.9%
15.5	HV Cable efficiency between Transformer to 11 kV Switchgear & 11 kV Switchgear to Grid Point of Connect (PoC)	>99.8%
15.6	BESS Auxiliary Consumption (%) (Discharging)	>98.8%
15.7	RoundTrip Efficiency with Auxiliary Consumption	≥86%
15.8	Round Trip Efficiency without Auxiliary Consumption	≥ 85%

Vendors shall share assumptions considered while calculating the total battery capacity in terms of Battery Module capacity (kWh), No of Modules / Rack, Installed capacity/Rack, No of Battery Racks, total Installed capacity (MWh), One-way conversion efficiency considered, Battery Rack operating voltage (Vdc), Auxiliary power.

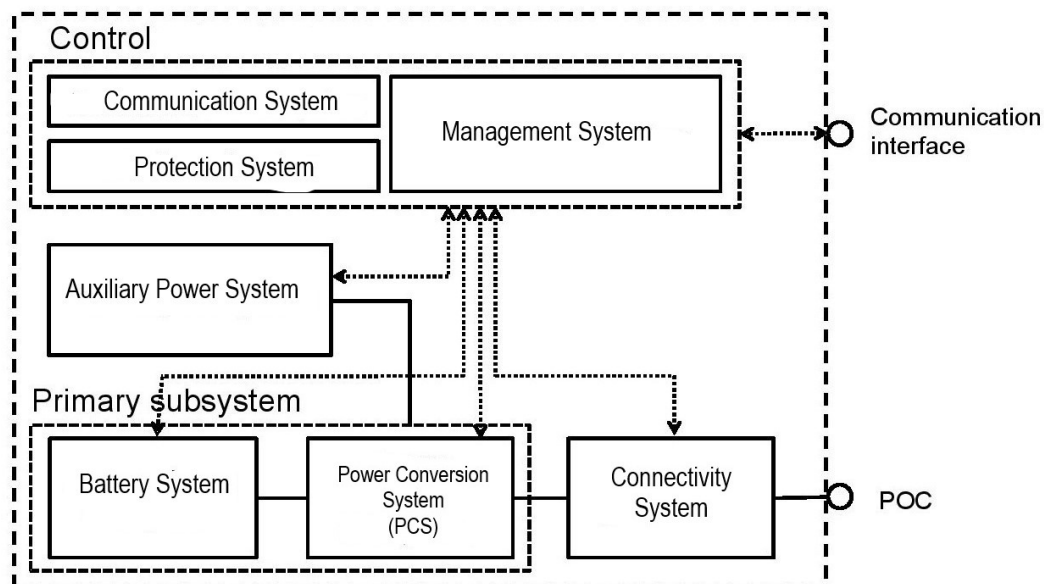
Vendors shall also share 10-year (wise) Capacity availability calculations considering 80% DoD, Standard Operating Conditions @25°C & Full Load

- a. Year
- b. No. of Cycles
- c. Degradation in %
- d. SoH
- e. Rated / Installed MWh
- f. DC Usable MWh

- g. Available Capacity (MWh) at POC (11KV bus)
including Aux consumption
- h. Available Capacity (Mwh) at POC (11kV Bus)
excluding Aux consumption

Vendors shall also share equipment wise (PCS, Battery (BMS & Fan), EMS @Vdc, HVAC, FSS, Lighting and accessories etc.) Auxiliary power consumption in terms of Power loss(KW), Operating Time, Net Consumption (KWh) during Charging, discharging and standby time.

Cycle - Complete one charge cycle is used when an amount that equals 100% of battery's capacity is discharged — but not necessarily all from one charge. For instance, if 75% of your battery's capacity is used one day, then recharged it fully overnight. If 25% capacity is used the next day, then total discharged 100 % capacity, and the two days will add up to one charge cycle.



Proposed Architecture of BESS

8) Codes & Standards

Material, equipment and methods used in the manufacturing of BESS and its components shall confirm to the latest edition of standards as per Annexure – I.

Other Standards:

Standard Number	Title
Grid Connectivity	<p>Relevant CEA 2019 Regulations (including LVRT / HVRT compliance) and Grid Code as amended and revised from time to time.</p> <p>The BESS shall remain connected to the grid as per Central Electricity Authority Technical (standards for connectivity to the grid) regulation 2007 with all latest amendments and its components shall be designed accordingly</p> <p>BESS and its components shall conform to the CEA / CEIG and local statutory requirements for Commissioning, Testing and integration with Grid.</p>
IEC61180	High Voltage test techniques for LV equipment's
IEC 60076	Transformers
IEC 61439	Low Voltage Switchgear and Control Assemblies

IEC-63056: Safety requirements for secondary lithium cells and batteries for use in electrical energy storage systems.

Battery systems and the cells they contain shall comply with the applicable general safety considerations of IEC 62619.

The safety of lithium secondary cells and battery systems requires the consideration of two sets of applied conditions: 1) intended use; 2) reasonably foreseeable misuse.

For LiFePO₄ cell/battery, safety standards as UL9540A, UL 1973, IEC 62933-2 to be confirmed.

Insulation and wiring and its insulation shall be sufficient to withstand the maximum anticipated voltage, current, temperature, altitude and humidity requirements. The design of wiring shall be such that adequate clearances and creepage distances are maintained between conductors in accordance with IEC 60950-1:2005, 3.1 and 3.2 (test temperature relies on the battery system's operating region specified by the manufacturer). Hazardous live parts of the battery system shall be protected to avoid the risk of electric shocks, including during installation.

9) Battery Particulars

Lithium-ion battery cells with different chemistry are allowed so as far as the following technical specifications are met by bidder. Please refer Annexure – II for details.

The sizing calculations with detailed supporting documents shall be submitted for approval during detailed engineering.

Ramp up and Ramp Down – Bidder shall also submit battery selection technical parameters based on which battery is selected for BESS. Bidder shall also submit battery particulars such as C Rate, E rate, SoC, DoD, terminal voltage, nominal voltage, nominal capacity (Ah), nominal energy (Wh), Cycle life, Open-circuit voltage (V), Internal Resistance, Cut-off Voltage, Specific Energy (Wh/kg), Specific Power (W/kg), Energy Density (Wh/L), Power Density (W/L), Maximum Continuous Discharge Current, Maximum 30-sec Discharge Pulse Current, Charge Voltage, Float Voltage, (Recommended) Charge Current and (Maximum) Internal Resistance along with bid proposal.

Battery system shall have suitable positive and negative ramp rate to support BESS Operation in Grid Connected and islanded mode. Bidders shall consider highest ramp up/down load profile of power transformers while designing the BESS Solution.

Cell Covers - The cell covers shall be capable to withstand internal pressure without bulging / cracking. It shall also be fire retardant. Fixing of pressure regulation valve (if provided) & terminal posts in the cover shall be such that seepage of electrolyte, gas escape, and entry of electrostatic spark are prevented.

Separator - The separators used in manufacturing of battery cells, shall be of suitable material with large porosity, low acid / alkaline solubility and good insulating properties depending on the type of technology used for battery. The design of separators shall ensure that there is no misalignment during normal operation and handling.

Terminals - Both the positive and negative terminals of the cells shall be capable of proper termination and shall ensure its consistency with the life of the battery. The surface of the terminal post extending above the cell cover including bolt hole shall be coated with an acid / alkaline resistant and corrosion retarding material. Terminal posts or any other metal part which is in contact with the electrolyte shall be made of the same alloy as that of the plates or of a proven material that does not have any harmful effect on cell performance. Both positive and negative posts shall be clearly and unambiguously identifiable. Terminal post seals shall not transmit stresses between the cover or container and posts. All battery modules shall be supplied with terminal covers to avoid unintentional contact.

Connectors, Nuts and bolts, Heat Shrinkable sleeves - Where it is not possible to bolt the cell terminals directly to assemble a battery, separate non-corroding lead or copper connectors of suitable size shall be provided to enable connection of the cells. Copper connections shall be suitably coated to withstand corrosion due to acid / base at a very high rate of charge or discharge. Nuts and bolts for connecting

the cells shall be made of copper, brass, or stainless steel, which shall be effectively coated to prevent corrosion.

Mounting - All the batteries shall be mounted in a metallic stand/frame. The suitable isolation should be provided between base of frame and ground to avoid the grounding of frame. All batteries shall be mounted in a suitable metallic stand / frame. The frame shall be properly painted with the acid / base resistant paint.

External connection to the cells, including inter-cells or inter-module connections (such as cables/ straps etc.) shall also be designed to prevent failure during transportation.

The Cell/module terminals and interconnects shall have adequate current carrying capacity. The Cells/modules, wiring, switch gear, and all DC electrical components shall be insulated for the maximum expected voltages plus a suitable factor of safety. The dc bus work and load-carrying cables within the storage subsystem shall have an enough margin for the actual load current. Also, all other components shall have enough margin for the actual load current according to applicable code and/or standard.

Each electrically series-connected battery string shall include a means of disconnecting the string from the rest of the system and of providing over-current protection (during a fault). This protection shall be coordinated with the PCS capabilities and battery string protection, and shall take into account switching or other transients and the inductance/resistance (L/R) ratio at the relevant areas of the dc system. These disconnecting devices should be capable of operating with normal load current and provide physical interruption.

The battery system may be ungrounded or grounded. Grounded configurations may be centre or one-pole-grounded and/or solid or high resistance grounded. Bidder to deploy ground leakage current levels detection and alarm system with field adjustable detection / trip level for each container / bank or, if more than one electrical series string is installed in the container / bank, for each series string.

The DC voltage of battery system shall be selected by the Bidder to suit the PCS and efficient and safe operational requirement of BESS.

Material, equipment, safety requirements and methods used in the manufacturing of Lithium-Ion Battery (Cell, Module, Racks, Enclosure) of BESS shall conform to the relevant IEC / UL / IS latest edition of standards and Codes.

All cells/modules shall be traceable to the point of origin for purpose of addressing safety issues

Each Cell shall be integrated with BMS and each module shall be provided with Battery Management Unit,

Each rack comprising Battery Modules shall be supplied with Battery Control Box. Battery Control Box shall provide Manual switch to isolate Rack from Grid, lifting /

withdrawing arrangement, LED Indications for status (Running, Alarm), Debugging port, Communication ports, Auxiliary Power Supply connection arrangement, Contactor with PoS and Precharge status and Battery Control Unit.

Battery Cell, Modules and Rack system shall be compatible to conduct BMS Functions as mentioned in separate section in this specification.

Suitable ventilation / Air or liquid controlled cooling in battery room/container must be maintained to minimize health hazards to any exposure to hazardous battery elements.

Bidder shall deploy safety measures such as Rubber mats, Fire extinguisher, Emergency Trip provisions, manual call points, etc. complete.

10) Battery Management System Functions

Bidders to deploy BMS at Battery bank/string level using HMI, Controllers, Battery Administration Unit, network & Communication Cables etc where Battery Modules & Battery Control Boxes will communicate with Battery Administration Unit (BAU). BMS of each battery bank / string shall be integrated with EMS over MODBUS TCP connection.

BMS should be designed to provide for automatic, unattended operation of the battery storage system. BMS should provide the necessary monitoring and control to protect the battery cells/module/string from out of tolerance ambient or unsafe operating conditions.

The BMS should automatically control the charge and discharge of the individual cells/module, balancing between cells/module to optimize energy consumption and range, monitor cell/module health and provide critical safeguards to protect the batteries from damage.

Bidder to supply the BMS system as per battery OEM recommendation & requirement and shall be in line with the application requirements.

11) BMS shall perform high level functionalities (illustrative list)

Cell/module Monitoring: Each cell voltage, Module voltage, Rack Voltage, each cell, Module & Rack current, Rack Power, Cell /Module level Temperature.

Cell/module Protection: Protecting the battery from out of tolerance operating conditions such as voltage, Temperature, Current etc. and BMS must provide full cell/module protection to cover almost any eventuality. The protection shall be inbuilt to avoid thermal runaway of Battery system at any condition. Isolate battery cell, Module, Rack in case of emergency.

Charge control: BMS shall automatically control the charge and discharge of the individual cell/module along with PCS.

SOC Determination: BMS shall automatically determine the State of Charge (SOC) of the individual cell/module.

SOH Determination: BMS shall automatically determine the State of Health (SOH) of the individual cell/module

Cell Balancing: BMS shall automatically balance between cells/modules to optimize energy consumption, range and protect the battery

History - (Logbook Function): Monitoring and storing the battery's parameters and communicating the same to EMS.

Alarm and fault generation and communicating the same to SCADA. Isolating the battery in cases of emergency.

Bidder shall deploy multi-tiered framework that allows real time monitoring and protection of the battery within the BESS not just at the cell level but at module , string and system level. The BMS shall constantly monitor the status of battery and use applications specific algorithms to analyse the data, control the battery environment and balance it.

BMS at Battery bank / Container level shall provide following features / information. Bidder shall include in his proposal all the BMS features needed for the completeness and trouble free operation even if the same are not specifically appearing in this specifications and unless otherwise specifically excluded.

Please refer Annexure – III for more details.

12) DC Combiner Panel (DCP)

Bidder shall deploy DCP for combining the multiple Battery Racks and reduce DC Connection channels on PCS.

DCP shall be supplied with necessary DC Protection through DC Breaker / Fuses.

Bidder shall deploy Sensors , controllers to measure input and output parameters like voltage, Current, etc. of DCP and integrate the same to EMS.

The DCP shall be such that input & output termination can be made through suitable cable glands of appropriate sizes for both incoming and outgoing cables.

Suitable markings shall be provided on the bus-bars for easy identification and cable tagging shall be done at the cable termination points for identification

The rating of the Copper bus bars/terminal blocks housed in DCP shall be suitable with adequate safety factor to interconnect the battery rack system.

Bidder shall provide the necessary fittings and structure for DCP installation.

Bidder shall submit the DC Combiner panel details for RPIPL review and approval during detailed engineering. Minimum Technical particular but not limited to are as below.

Particular	Remark
Material	FRP / GRP with full dust, water & vermin proof arrangement
IP level	IP 66
Temperature range (Continuous)	-10 to +150 Deg Cel
Impact Resistance	IK10
Gasket	Silicon / neoprene
Flammability rating	Fire retardant & self extinguishing UL 94 V-0
Toxicity	Halogen free
UV Stabilize	Yes
Compliance to Standards	IEC 62208, CE & RoHS

13) Power Conditioning System(PCS)

The bidder/ sub vendor should have manufactured grid interactive bidirectional PCS of cumulative installed capacity of 500 kVA or higher in last 3 years, out of which at least one PCS installation should be of 200 kVA capacity or higher. The reference PCS installation of 200 kVA or higher capacity must have been in successful operation for at least six (6) months prior to the date of award of contract by RPIPL to the bidder

Bidders shall propose PCS capacity and Type (Indoor / Outdoor as well as Air or liquid cooled) after site survey and considering the Site.

Bidder shall propose the PCS compatible to Battery & distribution Transformer as far as the following technical specifications are met by bidder

PCS is interface between Battery (DC System) and AC Systems carrying out power conversion function i.e. AC to DC conversion during battery charging and DC to AC conversion during battery discharging. It may be a single unit or combination of parallel units.

The PCS, in conjunction with the control system, shall be capable of completely automatic, unattended operation, including self-protection, synchronizing and paralleling with the utility, and disconnect

Proposed PCS shall consist of solid-state devices ,charge controller, associated controls and protection systems and compatible to proposed Battery & two winding Transformer technology.

PCS shall supply rated power to the grid / battery for rated duration without violating the temperature rise limits.

PCS enclosure & Waste heat removal - PCS enclosure must be suitable to withstand the harsh environmental conditions for complete designed life. The cooling necessary to maintain temperature of PCS within design limit .

Bidders scope. In air cooled system: Waste heat rejection shall be done to ambient air. Air handling system to have filters to stop entrance of dust inside PCS. In oil cooled system: Provision to monitor coolant leaks, alarming & protection. Weatherproof & dustproof enclosure/Container of IP-54 with provisions to prevent moisture condensation, water, airborne dust, rodents, insects etc. from air intake / exhaust ports and compliant to IEC-60529 and NFPA 855.

Bidder shall include in his proposal all the Industrial Grade Hardware, Software, Panels, Power Supply, LCD, Networking equipment and associated Cable etc. needed for the completeness even if the same are not specifically appearing in these specifications. PCS PCBs shall have conformal coating, industrial grade Hardware to withstand the harsh environment.

PCS shall contain adequate inbuilt filter bank, harmonic filters etc. for its operation without deteriorating the quality of power in terms of power factor, harmonics, transients, flicker etc.

PCS Flicker shall be as per IEC 61000.

PCS shall have suitable communication port for communication with EMS.

PCS should conform to all applicable IEC / IS and UL standards and IEEE Guidelines

PCS Shall be also have adequate protection against earth leakage faults. Internal Surge Protection Device (SPD – Type 1+2) shall be provided in the PCS on both DC and AC side. It shall consist of MOV Type arrestor. The discharge capability of the SPD shall be at least 10kA at 8/20 microsecond wave as per IEC 61643-12. During earth fault and failure of MOV, the SPD shall safely disconnect the healthy system.

PCS shall have provision to be isolated from grid (AC and DC) through Circuit Breakers (Siemens, Schnider or L&T) which shall be inbuilt within the PCS.

Local LCD Display - PCS shall have Local LCD display to monitor various functions and parameters locally viz. charging / discharging, voltage, current, power, alarms etc. Control and read-out should be provided on the indicating panel integral to the Inverter

PCS should be suitable for parallel operation of multiple PCSs to scale energy storage installations for future expansion.

PCS should be designed with an inbuilt/ separate isolation transformer as a galvanic isolation (as per IS 2026, IP54, type tested) for safety and type test reports shall be submitted for approval.

The bidder shall ensure by carrying out all necessary studies that the PCS will not excite any resonant conditions in the system that may result islanding /

tripping of BESS Plant

PCS should communicate with EMS for its optimized operation & for reporting health parameters to EMS to monitor & control.

Bidders to propose Modular Type of PCS preferably. Bidder shall ensure shall ensure that no abnormal interaction shall take place among the various PCS modules during any grid operating condition which may result in outages. The PCS controller offered by the Contactor shall be such as to ensure stability, reliability and a good dynamic performance .

Automatic 'sleep' mode shall be provided so that unnecessary losses are minimized.

The inverter shall be capable of supplying reactive power as per grid requirement (automatically or manual intervention through EMS) during normal operation. However, reactive power support, beyond 0.95 pf, might be at the behest of active power.

Indoor PCS Arrangement - The PCS room shall be adequately ventilated to prevent temperature in the PCS room to exceed the maximum permissible limit. The Ventilation plant capacity and air quality of inverter room shall be as per PCS and other auxiliaries' manufacturer's recommendations. Filter banks at the air inlet of the PCS room shall be provided to prevent dust ingress. Ventilation shall be designed such that the temperature rise of the inverter rooms doesn't exceed 3 deg above ambient. All exhaust and fresh air fans should be provided with thermostat control. In case Liquid cooled PCS are offered, Bidder to ensure that coolant is used in closed cycle. Complete inverter along with cooling system shall be of proven design.

PCS shall be compatible to conduct functions as mentioned below.:

Monitoring : BMS and EMS shall monitor Battery side parameters such as voltage, charge/discharge current, power quality parameters, protection system readings / status or any other parameter essential for monitoring health of battery. It shall also monitor parameters like charging / discharging current, power quality parameters, voltage, and protection system, etc. on the Grid side of PCS.

Active/ Reactive Power Control: PCS shall have capability to provide both active and reactive power separately as per requirement limited to rated kVA capacity of system and provide power in all four quadrants complied to IEEE 1547 and IEEE 519 . Change in delivery of active/reactive power towards load side should be smooth over the range of 0~100%. Similarly, the change in charging current of batteries should also be smoothly controllable. PCS output power shall remain within 1% of the set value, for AC input variation of +/- 10%. PCS shall be able to provide 0.8 lead to 0.8 lag reactive power support without curtailing the active power

Charge control functions – PCS shall be able to control battery Charge based upon power/energy requirements, Charge battery in float/boost /cc-cv mode as per requirement and regulate float/boost voltage in case of prescribed temperature rise of battery (OEM Recommendation) to avoid thermal runaway through EMS System (Without any manual intervention). The minimum C-rate for charging and discharging shall be 0.5C.

Operation Mode – PCS shall be connected with the distribution grid and operate in grid connected mode. The grid connected mode shall be the default mode and shall be capable for standalone mode as well. Beyond the voltage limits, PCS shall disconnect itself from grid automatically. After normalization of voltage condition, it shall be able to restart / reconnect automatically.

Ramp up and Ramp Down – PCS Shall have suitable positive and negative ramp rate to support BESS Operation in Grid Connected and islanded mode.

PCS upon detecting a grid disturbance, transition from Grid Tied (current source) mode of operation to Micro-grid (voltage source) and back to Grid Tied (current source) mode of operation seamlessly (less than 15ms/instantly after restoration of grid).

PCS shall be capable of supplying reactive power as per grid requirement (automatically or manual input through EMS) during normal operation. However, it should supply required active and reactive power based on load during off grid mode of operation.

PCS should have operational capability for both standalone and grid- connected mode.

PCS include appropriate self-protective and self-diagnostic feature to protect itself and the Battery from damage in the event of PCS component failure or from parameters beyond the PCS's safe operating range due to internal or external causes. Faults due to malfunctioning within the PCS, including commutation failure, shall be cleared by the PCS protective devices.

PCS Shall be capable of starting and operating as black start (Automatically or with external command from EMS). Exercise of the black start capability shall under no circumstance result in an accidental energizing of the Host Utility's bus. PCS black start shall be possible from EMS without any setting modification at PCS panel locally.

The bidder shall specify the conversion efficiency at following load conditions i.e. 25%, 50%, 75% and 100% during detail engineering, which shall be confirmed by type test reports.

PCS Micro grid controller logic shall be customizable at any stage of its life.

The PCS shall have protection against any sustained fault in the feeder line /Grid.

PCS should be designed for volt VAR function i.e., immediate, and automatic voltage support to the grid.

PCS should be designed for Hz-Watt function i.e., immediate, and automatic frequency support to the grid.

PCS should be designed for four-quadrant energy storage applications in both grid-tied and micro-grid applications.

Type test certification of similar enclosure from NABL accredited lab is preferred. However, test report for IP test in accordance with IS 60529 from private lab along with calculations is also sufficient.

PCS Technical parameters: Please refer to Annexure - IV

14) Distribution Transformer(DT) :

The bidder/ sub vendor should have manufactured grid interactive bidirectional Distribution Transformer of capacity of 500kVA or higher. The reference Distribution Transformer must have been in successful operation for at least two (2) years prior to the date of award of contract by RPIPL to the bidder

Bidders may propose Distribution Transformer compatible to PCS and BESS requirement as far as the following technical specifications are met by bidder.

This specification of DT covers design, engineering, manufacture, assembly, stage testing, inspection and testing before supply and delivery at site of oil immersed, naturally cooled 3- phase 11 kV/433 - 250 V normal distribution transformers for outdoor use. ii) The equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to RPIPL, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered equipment shall be complete with all components necessary for their effective and trouble-free operation. Such components shall be deemed to be within the scope of bidder's supply irrespective of whether those are specifically brought out in this specification and / or the commercial order or not. iii) The transformer and accessories shall be designed to facilitate operation, inspection, maintenance and repairs. The design shall incorporate every precaution and provision for the safety of equipment as well as staff engaged in operation and maintenance of equipment. iv) All outdoor apparatus, including cable termination boxes, shall be designed so as to avoid any accumulation of water. The applicable standards are IS - 2026 & Specification for Power Transformers, IEC 76

Please refer Key Technical particulars of Distribution Transformer as per Annexure – V. The bidder shall submit the Guaranteed technical Particulars of the DT along with tender documents.

15) 11kV Switchgear (RMU)

The bidder shall procure 11 kV GIS Switchgear components from approved make / vendors only.

Switchgear relay shall support to integrate following signals with EMS & SCADA System

Circuit Breaker Status – ON/OFF, Auto Trip, Emergency PB Trip, Trip Circuit unhealthy, Service Position, Spring Charge fail, Local / SCADA mode, DC Supply unhealthy, HT Cable live, Heater Faulty, Synchronization status, Goose fail , Heater status, Heater Mode, Humidity Controller, and Distribution Transformer, MCB and Master Trip etc

Circuit Breaker Measurands – KW, MD (KVA), KVAR, Current in each phase, Ph to Ph and Ph to N Voltage, PF etc.

Relay / Protection System – Real time Current, Relay pickup signals. Relay Operation Stage signals, Internal relay fail etc.

Approved 11 kV GIS make (RMU) – ABB, Siemens, Schneider electric. Two load break switch and one VCB type RMU is proposed. Please refer Key Technical particulars of RMU as per Annexure – VI.

16. Cables and Accessories:

IS : 5831 Specification for XLPE insulated and PVC sheathed Electrical cables. The construction, performance and testing of the cable shall comply with IS:7098-part-2. 11kV, 3Cx300sqmm XLPE, Al conductor, armoured cable with suitable termination shall be provided by the Bidder, for interconnection between DT & RMU. Suitable termination kits , armour earthing is also in the scope of the Bidder. Details of the Cable manufacturer and technical specification needs to be provided along with tender documents.

Power cables for use on 415 V system shall be of 1100-volt grade, Aluminium conductor, XLPE insulated, PVC sheathed, armoured and overall PVC sheathed cable, strictly as per relevant IS specification.

Control cables for use on 415 V system shall be 1100 volts grade, copper conductor, PVC/XLPE insulated, PVC sheathed, round wire armoured and overall PVC sheathed, strictly as per IS : 1554 (Part I) – 1976 and IS 7098 part 1.

DC Power Cables required for interconnection between Battery Rack & DCP, DCP & PCS & Earthing System shall be sized considering connecting equipment Manufacturers recommendations for Voltage and Cable Loading.

AC Power Cables required for interconnection between PCS & Distribution Transformer(DT), DT to Switchgear(RMU), and Auxiliary Power Supply System shall be sized considering connecting equipment Manufacturers recommendations for Voltage and Cable Loading.

The power cable used shall conform to IS7098 part I & XLPE insulated cu. Cables shall be used for connection. Type test reports shall be submitted for approval.

The communication cables depending on protocol supported by various devices connected to EMS shall be laid at min. safe distance, in separate Cable trays from power cables.

Any other cable including the cables as specified above shall be considered under the scope of bidder.

Cables shall be laid in perforated GI cable trays/cable trench (as per IS 1255) of suitable size. The routing of cable shall be finalized along with RPIPL's representative.

Approved Cable makes:

11 kV – Sterlite, KEC, Universal Cables, Polycab

LT Cable – Apar, Ravin, KEC,

17) General Requirements

Bidder shall deploy all hardware like controller, I/O Cards, Control Panel, Controller, Processors, Firewall, Local Control Hardware, network racks, data cables, routers, display screens, nodes etc required.

RPIPL intends to deploy single EMS System to monitor and control the BESS.

Bidder shall include in his proposal all the Industrial Grade Hardware, Firmware, Software, Panels, Power Supply, Networking equipment and associated Cable etc. needed for the completeness even if the same are not specifically appearing in these specifications.

Bidder shall deploy necessary infrastructure for local EMS control room including Air Conditioning, EMS, LCD Screens, network switches, Firewalls, racks, printer etc.

Bidder shall ensure that workstations deployed at local control room are compatible to the EMS System being deployed by bidder.

All hardware or devices deployed on BESS site for EMS system shall be compatible for remote firmware update and configuration from centralized

location without affecting the operation or taking any outage of BESS and its components.

RPIPL proposes a control philosophy where power flow on 11 kV BESS GIS switchgear(RMU) shall be monitored by the operator at local system. Bidder shall deploy IEC 61850 relays for 11kV BESS GIS panel (RMU) and integrate the 11kV BESS GIS panel through IEC 60870-5-101/104 to SCADA as well as EMS System.

Firewalls and network devices within the architecture shall be redundant and configured with dual LAN to achieve redundant network scenario. At device level if the working port or communication cable or hardware becomes faulty, then the data communication shall continue on the redundant port without any disturbance in the monitoring and control operation of the entire system. Every critical function must be supported by hardware redundancy to ensure that no single hardware failure will interrupt/impact the monitoring and control operations at any point of time.

System shall be capable of device management including Access Control Management, Device Configuration, Firmware Upgrade, Real Time Devices Status, Report compliance configuration, Alarm Event configuration, Threshold configuration for events , reports, triggering DI/DO etc

EMS system Hardware, Software systems procured by bidders for BESS shall comply MoP / CEA guidelines.

Time synchronization – Bidder shall deploy GPS Time base where EMS system shall be time synchronized, every 15 minutes.

Cyber & Data Access Security - Bidders to ensure local login for all Controllers on BESS Site to access the device locally.

18) EMS Input and Output Modules, Controllers :

Bidder shall deploy necessary EMS input and Output modules, Controllers, network switches / Racks, data cables, power supply system and other accessories required at BESS Site for successful integration of BESS Components to EMS.

Bidder shall propose modular input/output system for expansions in future or quick repair / replacement. All input/output cards shall have quick disconnect termination allowing for card replacement without disconnection of external wiring and without switching off power supply

All I/O Cards, controllers circuits shall be powered through protection of fuse units of appropriate rating.

The interfaces of all I/O cards, controller shall have electrical isolation of 1.5kV from plant input/output to avoid damage / maloperation of cards, controllers due to inadvertent voltage are voltage spikes.

In case of power supply failure, hardware fault, loss of I/O communication link, the system shall be automatically switch to fail safe mode to avoid any maloperation. The fail safe mode shall be finalized during detailed engineering.

All proposed Output Modules shall be capable of switching ON/OFF inductive loads like auxiliary relays etc. Without any additional hardware. Analog output modules shall be able to drive a load impedance of 500 ohms minimum and Binary output modules shall have contact rating minimum 10Amp. Vendor shall evaluate and confirm this required contact ratings based on actual system requirements.

Bidder shall ensure and supply the system with additional 25% I/O capacity for each type, along with all the spares I/O and processor modules. All I/O modules, Processor, controller modules shall be prewired upto TBs including contact multiplying relays (DI) and heavy duty relays (DO) within the Panel.

19) Data Communication System (DCS)

Bidder shall provide redundant OFC communication link/backbone between local panels and EMS Controller with ring topology.

The bidder shall furnish details regarding the communication system like communication protocol, bus utilization calculations etc during detailed engineering.

20) Protection System:

All BESS components be capable of monitoring all the operating parameters and sensing all abnormal conditions to isolate the faulty circuit or component without damaging other parts of the system.

Adequate indications/ alarms should also be provided locally as well as at remote control system for identification of faults and taking preventive / corrective action.

Emergency shutdown : Provision shall be given for automatic as well as manual disconnection of the BESS from distribution system if and not limited to following conditions

Protection system fail is detected during self-diagnostic, control healthy check

Breaker trip coil or interruptive device fails

DC Supply lost

Overall BESS components shall be equipped with following protection system:

AC Protection, Under & Over Voltage Protection, Under & Over Current Protection, Earth Fault Protection, Transient / Surge Protection, Breaker Failure Protection, Synchronization check for Relay, Loss in Phase Difference ,DC Protection, Under & Over Voltage Protection, Over Current Protection, Ground Fault Protection, Transient / Surge Protection, Breaker Failure Protection, Synchronization check for Relay.

21) Fire Detection & Suppression Systems(FSS)

The bidder shall design and install a fire alarm and protection system that conforms to national, CEIG requirements and local codes, as applicable.

Bidder shall provide adequate fire protection and BESS shall comply with international standards such as IEC 62897 or NFPA 72.A or NFPA 855.

The fire protection system design and associated alarms shall take into account that the BESS will be unmanned at most times.

Bidder shall also obtain thermal runaway characterization of BESS.

Larger Battery rooms shall be confined /restricted to adequate capacity in case of indoor Type BESS using brick wall partitions.

Bidder shall be deploy smoke detectors, H2, CO & CO2 gas detectors, Spectroscope for early detection of fire in each battery room / Container.

Bidder shall also deploy Fire Detection and suppression system for Battery room / Yard including Gas Release Panel, Fire Dampers, NOVAC / AEROSOL Cylinder & piping, VESDA, Abort and Emergency Release Switches, Manual Call Points for each battery room / Container. Firefighting system shall be provided as per NFPA and shall be proven & certified , duly endorsed by the battery OEM.

Bidder shall deploy Sand Buckets / Portable Fire extinguishers at requisite sites of BESS. Bidder shall also deploy Corner Convex mirrors in Battery room to view any exigency from outside than entering into Battery room.

All the fire equipment to be supplied shall be certified product suitable for operating temperature of 0-55 Deg C in general and/or 0-49 Deg C if UL(US) certified.

Fire protection/ alarm system for the Batteries shall be proven & certified and shall be duly endorsed by the battery OEM. All the hardware, relay and accessories required for completeness of fire alarm system is in Bidder scope

Bidder shall deploy Main Fire Controller panel along with requisite cabling through trays, racks & switches and integration of these sensors for main fire Controller Panel

Bidder shall also deploy Abort & Emergency release switches in Local EMS Control Room.

Bidder shall deploy single integrated Fire detection and Suppression system for BESS and its components including building, batteries, PCS, transformers,

Switchgear room, Control Room etc. Refer Annexure 14 - BESS bldg Fire Alarm Specs for typical Fire Alarm system deployed for building..

21.a) Microprocessor based Fire alarm Panel

Bidder to provide intelligent microprocessor based main fire alarm panel and sensor of modular construction complete with central processing unit, input and output modules, power supply module, supervision control and isolator modules with 10% spare provisions in each loop.

Bidder shall deploy single Fire detection alarm system shall include but not limited to the following items

Fire Alarm control Panel,H2 ,CO & CO2 gas detectors, Multi Sensor smoke detector, Heat Detectors, Fire Dampers,Hooter cum strobe (Outdoor Duty), Manual call Point,Hooter , Fault isolation modules,Control Modules,Cables from Sensors to Fire panels. Digital output from the fire detection system shall be integrated with EMS and SCADA

22) Network Module

Fire Alarm Control Panel Indication - Alarm conditions shall be immediately displayed on the control panel, EMS and SCADA. Alarm LED shall flash on the control panel until the alarm has been acknowledged. LED shall remain lit for acknowledged alarm. Panel display shall show alarms with LED independently for each zone. All alarm signals shall be automatically "locked in" at the control panel until the operated device is returned to its normal condition and the control panel is manually reset

Bidder shall deploy weather proof Hooter cum strobe outside and hooter inside each Indoor location for indication of fire alarm for respective zone/area at suitable location. Each location with fire sensors shall be also be provided with manual call point, Alarm acknowledge and reset facility for alarm for respective zone only.

23) HVAC System for BESS

Bidder shall submit Design, capacity calculation, proposed equipment document, Technical particulars etc for BESS Air cooling or liquid cooling system for review and approval of RPIPL

Bidder shall deploy redundant Air cooling or liquid cooling system for BESS critical infrastructure such as Batteries, PCS (if required), Communication System, etc.

Proposed Air cooling or liquid cooling system shall be integrated with EMS System for real time performance monitoring of the System.

Considering the harsh and saline environment, Bidder shall also include the Air Purifier, dehumidifiers required to maintain the air Quality inside Battery Room, PCS, Switchgear room to improve service life of equipment.

23.a)Temperature Scanning System

Bidder shall deploy Temperature scanning System comprising Temperature sensors, Controllers, etc. for early detection of rise in temperature in battery system, PCS, etc.

TSS shall be integrated with EMS System for real time monitoring of inside and outside temperature of Battery Room / Container.

Bidder shall deploy sufficient temperature scanning sensors / thermostats in Battery room in case of indoor setup (minimum 1 sensor behind 8 Sq.m area)

Bidder shall submit the detailed specifications, documents for about TSS for RPIPL review and approval during detailed Engineering.

24) Name & Rating Plate:

Bidder shall ensure labeling of all sections of BESS and its components (Battery room/Yard, Control room, Washrooms, Transformer yard etc). Bidder shall deploy signages such as Door Push / Pull, First aid Box, section details etc and safety signages such as Emergency exit, Gas Discharged, BESS and its components safety & Operating instructions etc for each section of BESS Premise.

25) Auxiliary Power for BESS

Bidder shall avail redundant power supply from existing Distribution System. Auxiliary Power System for BESS comprises of laying LT Cables from existing distribution Transformers LT Panels through open trenches or cable trenches, deploying ACDB, Uninterrupted Power Supply (UPS) System, Distribution boards at various BESS Site, Battery Chargers, DCDB and earthing, Protection System for this equipment.

Bidders may arrive the rating of Uninterrupted Power Supply (UPS), battery and Battery Chargers, Distribution board busbar and switchgear rating based on overall Auxiliary power requirement of BESS. Bidders shall share the Design, assumptions, Load calculation of BESS Auxiliary Power System during submission of proposal for Technical evaluation and Detailed Engineering. Bidder shall ensure BESS Auxiliary power supply system from main ACDB only.

Auxiliary Power System shall be equipped with Sensors, Controllers, contacts, transducers, Meters to integrate following signals / measurands to EMS system (Illustrative list)

Equipment Type	Signals / Measurands
Battery Charger	Charger Fail, Charger on Boost, Charger Voltage Low, DC Earth Fault, Station AC Supply non redundant, Bus Ethernet switch Non Redundant.
Battery	Battery Voltage, Battery Voltage Low
UPS	Input & Output electrical (V,I,P,Q,PF,Hz) parameters, UPS Status, Protection acted Temperature.
Distribution Boards	Incomer breaker Status (On, OFF, Trip) Incomer electrical Parameters (V,I, P,Q,PF,Hz) phase wise

AC & DC Distribution Boards for BESS – Minimum Technical Particulars:

Critical AC Auxiliary Power supply required for equipment like Battery Modules, BMS Systems, PCS, EMS & SCADA, 11 kV GIS Panel(RMU), Communication & Networking devices, FSS, TSS , Emergency lighting of BESS, etc. shall be powered. Bidders to provide facility for manual transfer of load from one UPS Distribution board to another depending upon emergency in Grid.

Critical DC Auxiliary Power supply required for equipment like Distribution Transformer, 11 kV GIS Panel(RMU), Communication & Networking devices, etc shall be powered through redundant UPS System.

Power required towards flood lighting, common area lighting, supply to non-critical equipment / appliances, Cooling systems of BESS shall be powered through redundant Distribution boards or Main ACDB. Bidders to provide facility for manual transfer of load from one Distribution board to another depending upon emergency in Grid.

Bidder shall propose downstream UPS Power / DC power and AC Power Distribution boards based on area occupied by equipment like battery bank / battery room / container, PCS, Distribution Transformer, 11 kV GIS Panel(RMU), HVAC System, Control room etc.

All Distribution boards shall be supplied with MFM and MCCB, LED indication (

ON, OFF, Trip) on incomer side and same shall be integrated with EMS System to monitor the Auxiliary Power System.

The bus bars shall be of EC grade copper (Purity > 99.95%) of required size.

All switches and the circuit breakers, connectors should conform to IEC 60947:2019, part I, II and III/ IS 60947 part I, II and III.

AC/DC devices / equipment like bus support insulators, circuit breakers, SPDs, Voltage Transformers (VTs) etc., mounted inside the switchgear shall be suitable for operation and satisfactory performance for variation of voltage as per state / CEA regulation (+6% and -10% of nominal voltage)

All panels supplied shall be dust and vermin proof. All proposed panel shall be totally enclosed, rigid, floor / Wall mounted, air insulated , cubicle type suitable for operation on 1Ph/3Ph 415 or 230 Volt.

Power required for all internal / external lighting, sockets, fans, air conditioning, etc. shall be catered through combination of rated capacity MCB & RCCB.

Bidders shall ensure sufficient spare switches (MCCB, MCB, 30mA RCBOs) on ACDB, DCDB & AC Distribution Boards considering requirements in Future. Danger plate for 415 Volt (Anodised Aluminium) shall be provided wherever required.

26) General Operational Requirement:

BESS system & Component deployed and integrated with EMS System shall be supplied with Operation mode as Local and Remote for safety purpose. Any control signal from Local / Centralized EMS system shall be rejected for execution in case BESS Component is in local mode.

Bidder shall provide physical Emergency SWITCH OFF provision at strategic locations which shall be integrated with any Centralized and Local EMS System.

27) Control /Communication Cabinet /Panels

Bidder shall create Local EMS Control Station to monitor and control the system Operation locally from an industrial Computer / PC.

BESS Local EMS comprising of SCADA Panel, Server, network Racks, LCD Screens, workstation, keyboard, mouse, LAN Cable, interior , fit outs and all associated items shall be in bidders scope.

28) Metering System

Bidders to deploy Energy meter of 0.5 class accuracy, Interface meter (ABT Meter) for recording export/import energy from/to BESS including CTs and PTs used in the energy metering at POC point of BESS. In addition energy meters of 0.5 class accuracy shall be provided for Aux. power supply .All Energy Meters shall be integrated with BESS EMS System.

29) Approved makes for BESS and Its Components

Bidder shall ensure to procure the BESS and its components from reputed OEMs/suppliers and list of the same shall be submitted along with the technical bid for evaluation of RPIPL.

30) Testing of BESS:

Bidder shall submit the Type Test report to RPIPL for approval as mentioned in this specification. Type Test carried out by Bidder / OEM on equipment similar to proposed to be supplied under this proposal / Contract, within last ten (10) years from the date of bid opening at an independent laboratory are accepted. However cases where Type Test on equipment is not carried out within applicable period or not meeting the specification requirements, bidder shall conduct all such tests at no additional cost to RPIPL at third party lab and in presence of RPIPL representative and submit the reports for approval.

Bidder shall carry out all acceptance and routine tests as per specification and relevant standards wherein charges for these shall be deemed to be included in the bidders proposal / offer. Bidder shall submit the Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Plan for RPIPL review and approval during detailed engineering.

Continuous operation for 7 days under Trial Operation - BESS plant shall perform trouble-free operation for 7 days during which functionality of all plant components shall be demonstrated and the system shall be in export/import Mode. BESS shall also demonstrate the name plate power continuously for two hour as per RPIPL requirement on daily basis.

Performance Guarantee (PG) test shall be carried out as mentioned below. All equipments, tools & Tackles, instruments measuring devices required for successful conductance of PG test shall be provided by bidder and cost associated with it shall be included in bid price.

AC to AC Round Trip Efficiency (RtE) including Auxiliary Power Consumption

Procedure shall be approved during detailed engineering .Test Period – 1 Month

Incoming & Outgoing energy at interconnection point will be measured using Energy Meters having accuracy class of 0.5s.

Bidder shall guarantee a minimum AC to AC RtE of 85% on monthly basis at Grid Point level.

A Penalty on additional losses incurred in BESS above 15% shall be recovered from bidder at Twice the rate of Tariff during peak time zone for industrial consumer (HT) from the final Bill / performance Bank Guarantee .

Penalty on AC to AC Round Trip Efficiency (RtE) shall be applicable for first 3years.

MWh Capacity Installed Testing - Bidders shall demonstrate the MWh capacity at the point of interaction / Grid Point as per mutually agreed procedure during detailed engineering. Bidders shall augment the battery capacity of BESS at its own risk and cost in case MWh capacity installed is less than required value, within 90 days of demonstration made, failing which cost estimated by RPIPL or OEM for such augmentation of BESS shall be recovered from the Performance Bank Guarantee/ Final Bill .

31) Training for Engineers of RPIPL

The bidder shall include training cost in bid proposal.

Operator Training Course – 7 Man days

This training course shall provide training to RPIPLs operators on EMS Systems so that operators can understand / manage the system effectively.

EMS Application Software Course – 7 Man days

The bidder shall provide training on Application software courses covering all EMS applications.

BESS Hardware and Software Course – 7 Man days

The training course shall be designed to give RPIPL hardware & software personnel sufficient knowledge of the overall design and operation of the system so that they can understand / correct obvious problems, configure the hardware, perform preventive maintenance, run diagnostic programs if required.

32) Standard Warranty

Bidder to ensure adequate warranty of BESS and its components including bought out items from OEMs for a period of three(3) years from the date of taking over by RPIPL.

33) On Site Support during Warranty Period of three years

Preventive Maintenance Services shall be carried out on Monthly / Quarterly or as recommended by equipment manufacturer basis to achieve the Service level agreement mentioned below:

Vendor Qualified Expert Engineer / Supervisor / team shall visit the site every month to carry out routine check-up of BESS and its components.

The vendor engineer / Supervisor will check performance of BESS and its components and will inform RPIPL about observations and necessary actions to be carried out. Vendor shall also diagnose the problem / issues in BESS System.

Replacing of consumable items if necessary, during maintenance shall be without any cost to RPIPL.

Replacing of spare part items if necessary, during maintenance shall be without any cost to RPIPL.

The engineer / supervisor should carry special tools if required for troubleshooting and maintenance of BESS and its components at their own cost.

Vendor shall depute qualified and trained engineers, experienced team for BESS System to take up preventive and corrective maintenance jobs.

Accommodation at Site / to and fro Travel Charges and Local conveyance is in Vendor Scope.

Annual System Availability = System availability of all time-blocks during the year in which the RPIPL has capacity requirement (Power & Energy) for charging/discharging and same is delivered by BESS subject to availability of SoC and operating the BESS within OEM recommended parameters. RPIPL will communicate / Configure the BESS capacity requirement (Power & Energy) in EMS system on 15-minute basis before start of time block. Annual System Availability of individual station shall be calculated through EMS system only.

AC to AC round Trip Efficiency (RtE) shall be derived using data recorded by Energy Meter installed for BESS at Grid Point.

AC to AC Round Trip Efficiency = Sum of Total of Actual energy injected / discharging in a month / Sum of Total Actual Energy drawn / charging in a month.

***** END *****