

NEW TOWN KOLKATA DEVELOPMENT AUTHORITY
(A Statutory Authority under Government of West Bengal)
3333, Major Arterial Road • DG Block, Action Area-ID • Kolkata - 700156
Ph. No. (033) 2324-2138 Email Id: eeme@nkda.in

MEMO NO: 4286/NKDA-20099/20/2022-EM SEC (NKDA)-NKDA/2022-23

DATE: 07.06.2022

NOTICE INVITING e-TENDER

Notice Inviting e-Tender No: 03/EE(E)/NKDA/2022-23

Executive Engineer Electrical, New Town Kolkata Development Authority invites detail proposals in two part method (Technical and financial) from resourceful, reliable, bona-fide and experienced working contractors of KMDA, WBHIDCO, PWD, PHED, Railways and other Govt. and semi Govt. organizations having experience in similar nature of work, and are requested to submit their Quotation for the work detailed below.

(Submission of Bid through **online**)

List of Schemes: -

Name of work	Estimated Amount (Rs.)	Earnest Money (Rs.)	Period of completion
Supply, installation, testing and commissioning including 5 years of post-warranty maintenance of 12 (twelve) fast electric vehicle chargers including appropriate online application for payment and remote monitoring	To be quoted	Rs.5,00,000/- (Rupees five lakh only) token amount	6 months (180 days) in supply, installation, testing and commissioning. 5 years of post warranty maintenance. Warranty period is for 1 year from date of Commissioning

1. In the event of e-filing, intending bidder should download the tender documents from the website <http://wbtenders.gov.in> directly with the help of Digital Signature Certificate. All the bidder shall have to submit earnest money & necessary earnest money will be deposited by the bidder through the following payment mode as finance dept. order no-3975-F (Y) dated 28th July 2016
 - i) Net banking (any of the banks listed in the ICICI Bank payment gateway in case of payment through ICICI payment gateway).
 - ii) RTGS/NEFT through bank account in any bank. The EMD shall be deposited in favour of "New Town Kolkata Development Authority" payable at Kolkata.

2. Both Technical bid and financial bid are to be submitted concurrently duly digitally signed in the website <https://wbtenders.gov.in>. The acceptance of lowest bid is not obligatory.
3. Corrigendum, further notices and responses to queries if any will be published in the website <https://wbtenders.gov.in> at the appropriate section.
4. Tender documents may be downloaded from website and submission of Technical Bid and Financial Bid will be done as per Time Schedule stated in Sl. No. 17 of this NIT.
5. The selection will be through a **Combined Quality and Cost Based System (CQCBS)** with weightage to technical and financial score in the ratio of 70:30 The decision of the competent authority of New Town Kolkata Development Authority will be final and absolute in this respect. The list of Qualified Bidders will be displayed in the e tender site.
6. In term of Finance Department, Audit Branch, Govt. of West Bengal's Notification no.4374-F(Y) dated 13th July, 2017, the bidder has to uploaded valid 15-digit Goods and service Taxpayer Identification Number (GSTN) under GST Act, 2017, along with his bid. The bidder should note that bid submitted without GSTIN will be summarily rejected
7. In term of finance dept. Govt. of West Bengal G.O. no-4608-F (Y) dated 18th July 2018 when bid rate is 80% or less of Estimated Amount put to tender, the Bidder shall submit Additional Performance Security @ 10 % of the Tendered Amount from any Schedule commercial Bank, before issuance of work order.
8. In case the quoted amount is such that 2% of the quoted amount is more than the Earnest Money Deposit, then additional performance security shall be submitted in the form of Bank Guarantee from any scheduled Bank before issuance of the work order. If the bidder fails to submit the additional performance security within seven working days from the date of issuance of Letter of Acceptance, his earnest money will be forfeited and other necessary action as per NIT like blacklisting of the contractor, etc. may be taken. The bank Guarantee shall have to be valid up to end of the contract period and shall be renewed accordingly, if required.
9. **Eligibility criteria for participation in the tender.**
 - a) The bidder should be a registered Indian Company under "The Company Act, 1956"/ Partnership firm/ Proprietorship firm/LLP.
 - b) Should be Original Equipment Manufacturer or authorized (By OEM) Installer of ultrafast electric vehicle chargers.
 - c) Self-certification and suppliers' certification to be submitted to prove that at least 50% of the components are manufactured in India.
 - d) Should have experience of supply, installation, commissioning and testing at least 5 (five) electric vehicle chargers in a single work order during last 5(five) years prior to the date of issue of the tender notice.

Government, state/ central Government undertaking statutory/ Autonomous bodies constituted under the central/ state statute, on the completed work will be taken as credential.

- e) Intending Tenderer must be financially sound with a minimum average turnover of Rs.1 crore, (Rupees one crore only) during the last three financial years (FY 2018-19, 2019-20, 2020-21) and having a trade license, G.S.T Registration certificate and Profession Tax certificate.
 - f) PAN Card, Income Tax Return Acknowledgement Receipt for the last 03 (Three) Assessment years, P.T. Deposit Challan for the year 2021-22.
 - g) Registered Partnership Deed for Partnership Firms only along with Power of Attorney since executed under any Judicial Magistrate/First Class Magistrate is to be submitted. The company shall furnish the Article of Association and Memorandum as on-statutory documents.
 - h) Joint Ventures/MOU will not be allowed.
 - i) Sub vendors may be engaged on getting their credentials vetted by NKDA in the post tender phase.
 - j) Three consecutive years' (2018-19, 2019-20, 2020-21) Audited Accounts to be submitted along with Tender documents.
10. On-going payments or part payment for work may be allowed to the executing agency as per existing rules. Subject to deduction of security deposit, progressive payment may be made against the completed or partly completed item of works. Such interim payments, shall be made as running account bill (s), however, shall not construed to mean that the respective items / components have finally been approved and accepted by NKDA and the contractor shall not be absolved of his responsibility to set right any deficiency of such paid items / components at his/ their own cost, for rectifying all defects which are subsequently being noted or found.
11. No claim for interest or compensation will be entertained in respect to any money or balance of payment which may be due or alleged to be due to the contractor owing to any dispute between the contractor and NKDA or in respect to any delay in making payment of progressive or final bill of the work, to the contractor.
12. Payment for the works done by the contractor will be based on recorded and accepted measurement at various stages of work. Acceptance of measurements put for payment to be invariably made by putting signature (with seal) of the contractor (or his/ their authorized representative). The contractor or his / their authorized representatives are advised to take measurements jointly with the officials of NKDA. In case of failure on his/their part either to take measurement jointly and /or acceptance of the recorded measurement, within a reasonable time, measurement taken by the department shall be considered as final for

making payment. Similar acceptance is also essential for level records and survey data, field books etc.

13. No advance and secured advance will be considered.

14. Idle labour, idle rent and hire charges etc.:

No claim of any category and type, on this ground shall be entertained. The contractor and NKDA shall make every effort that such situation does not arise.

- 15. Testing and Testing Equipment:** Testing of equipment and material, to be used in work and the quality of finished work on quality control aspect, is to be undertaken by the contractor at their own cost, with facilities provided at site and / or through approved (by NKDA) Test Houses / Laboratories. All materials and workmanship shall be in accordance with the specifications laid down in the contract and also as per IS Codes as well as guidelines of the Ministry of Power Government of India for Electric Vehicle chargers. The Engineer-in-Charge reserves the right to test, examine and measure the material / workmanship direct at the place of manufacture, fabrication or at the site of works or any suitable place. The contractor shall provide such assistance, instrument machine, labour and materials as the Engineer-in- Charge may require for examining, measuring and testing the works and quality, weight or quantity of materials used and shall supply samples for testing as may be selected and required by the Engineer-in-Charge without any extra cost. Beside this, he/they will carry out tests from outside Laboratory as per instruction of Engineer-in-Charge. The cost of all such tests would be borne by the agency.

Should the Chief Engineer or his representative consider it necessary to satisfy himself/themselves as to quality of work, the contractor shall offer sample of work done as necessary, pull down reasonable part of the work required for inspection and testing. The contractor shall bear the cost of pulling down and shall make good the same at their own cost and to the full satisfaction of E-I-C without any claim for payment.

16. Security Deposit:

Retention money towards performance Security amounting to 8% (eight percent) of the value of the work shall be deducted from the running account bill of the tenderer as per prevailing order. No interest will be paid on the money retained for Security Deposit.

17. Date and Time Schedule:

Sl. No.	Particulars	Date & Time
1	Date of uploading of NieT and other documents (online)	7 th June 2022 at 6 PM
2	Date, time and venue of pre bid meeting	13 th June 2022 at 11 AM at the Conference room of Chief Engineer at 3 rd floor of NKDA administrative Building
3	Documents download start date (Online)	7 th June 2022
4	Documents download end date (Online)	27 th June 2022
5	Bid submission start date (On line)	7 th June 2022 6:55 PM
6	Bid Submission closing (On line)	27 th June 2022 at 6 PM
7	Bid opening date for Technical Proposals (Online)	30 th June 2022 at 3 PM
8	Date time and venue for demonstration of online application	4 th July 2022 10:30 AM at the Conference room of Chief Engineer at 3 rd floor of NKDA administrative Building
9	Last date of uploading list for Technically qualified Bidder(online)	7 th July 2022 at 5 PM
10	Date of opening of Financial Proposal(online)	To be notified
11	Last date of intimation to the successful bidder	To be notified

18. Earnest Money for the successful tenderer will be retained and converted as Initial Security deposit. The Balance security deposit @ 8% will be deducted from on-going bills to cover the total value of work done.

a) The security deposit of the successful tenderer will be refunded after defect liability period as stipulated in relevant clause of the agreement to be made in WBF 2911(ii).

19. The tenderers are bound by the terms & conditions of WBF 2911(ii) along with specification, notice for calling Tenders, Special terms & condition, Information to Bidders, Schedule of works etc, which forms a part and parcel of this contract.

20. Income Tax & G.S.T will be deducted as per Govt. orders issued from time to time and would be applicable on the date of making payment of the bills. Building & other construction workers cess @ 1.0% will be deducted from progressive bills in pursuance with G.O. no. 599A/ 4M – 28 / 06 dated 27/09/2006.

21. The Bidder, at his own responsibility and risk is encouraged to visit and examine the site of works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the work as mentioned in the Notice Inviting Tender, before submitting offer with full satisfaction. The cost of visiting the site, shall be at his own expenses.
22. The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the Department. New Town Kolkata Development Authority reserves the right to accept or reject any offer without assigning any reason whatsoever and is not liable for any reimbursement of any cost that might have been incurred by any Tenderer at any stage of Bidding.
23. Prospective applicants are advised to note carefully the minimum qualification criteria before tendering the bids.
24. **Conditional / Incomplete tender will not be accepted under any circumstances.**
25. **The intending tenderers are required to quote the rate online. The rate should be inclusive of all components and taxes.**
26. Contractor shall have to comply with the provisions of (a) the contract labour (Regulation Abolition) Act. 1970 (b) Apprentice Act. 1961 and (c) minimum wages Act. 1948 and the notification (s) thereof or any other laws relating thereto and the rules made and order issued there under from time to time.
27. During scrutiny, if it comes to the notice of the tender inviting authority that the credential or any other paper found incorrect / manufactured / fabricated, that bidder would not be allowed to participate in the tender and that application will be rejected without any prejudice.
28. If there be any objection regarding prequalification of any Agency the same should be lodged on line to Executive Engineer I, New Town Kolkata Development Authority within 2 (two) days from the date of publication of list of qualified agencies and beyond the said time schedule no objection will be entertained
29. Before issuance of WORK ORDER, the Tender Inviting Authority may verify the credential and other documents of the lowest tenderer if found necessary. After verification if it is found that the documents submitted by the lowest tenderer is either manufactured or false in that case work order will not be issued in favour of the said Tenderer under any circumstances and his/their offer will be treated as cancelled.

30. If any discrepancy arises between two similar clauses on different notification, the clause superseding others will be solely as per the discretion of the Tender inviting authority
31. The successful Tendered whose tender is accepted shall make formal agreement in WBF 2911 (ii) along with bid documents in triplicate, within 7 (seven) days from the date of issue of work order by Executive Engineer I, New Town Kolkata Development Authority on payment of usual charges which is non-refundable under any circumstances and submit the same duly signed by him/them to this office. If the contractor fails to perform the formalities within the specified period the Tender is liable to be cancelled and the Earnest Money will be forfeited as per relevant clauses under memorandum of WBF 2911(ii).
32. **Qualification criteria:**
The tender inviting and Accepting Authority will determine the eligibility of each bidder. The bidders shall have to meet all the minimum criteria as stipulated in relevant clauses of this NlET.
33. The eligibility of a bidder will be ascertained on the basis of the document(s) submitted in support of the minimum criteria. If any document submitted by a bidder is either manufactured or false, in such **cases the eligibility of the bidder / tenderer will be rejected at any stage** without any prejudice to take any penal action against him/them as may be deemed fit by the Tender Accepting Authority.

AND

The agency must have the capacity to engage laborers and material as directed by EIC.

34. The eligibility will be determined through a scoring as described in the **Technical Scoring** table below. There may be a minimum qualifying score for being eligible for opening of financial bid.

35. The final selection will be made on the basis of the composite CQCBS score with 70:30 weightage on Technical and Financial Score

36. The Applicant shall be selected under the Combined Quality cum Cost Based System (CQCBS) with weightages of 70:30 (70% for technical proposal and 30% for financial proposal) and procedures described in this RFP. The Technical Evaluation shall be based on following parameters of technical scoring

Technical Scoring:

Sl. No.	Criteria		Score	Supporting document to be submitted	Maximum Score
1	Average Turnover of last three financial years (2018-19, 2019-20, 2020-21)	Rs. 1 Crore = 5 marks "1 marks" for every added 5 crores More than Rs. 1 crores	Max 10	Copies of Audited Accounts for the last three financial years (2018-19, 2019-20, 2020-21) attested by the authorised signatory submitting the bid	10
2	Quality Certification	ISO 9001:2015	15	Copy of ISO 9001:2015 certificate duly attested by the authorised signatory submitting the bid	10
3	Local Presence	Office in West Bengal	5	Copy of trade Licence/Electricity Bill/Post Paid Telephone Bill clearly mentioning the name of the bidder same in name and style as used in the bidding process duly attested by the authorised signatory submitting the bid	5
		No office in West Bengal	0		
4	Similar work	Supply installation commission and testing of at least 4 (100% Complete) fast electric vehicle chargers.	10	Copy of completion certificate from an officer not below the rank of an executive engineer of PWD duly attested by the authorised signatory submitting the bid	10
		Supply installation commission and testing of at least 4 (100% Complete) electric vehicle chargers of any configuration.	5		
5	Age of the qualifying credential	Completed within an year from the date of bidding	15	Copy of completion certificate from an officer not below the rank of an executive engineer of PWD	15
		Completion within 2 years from the date of submission of the bid	10		

Sl. No.	Criteria	Score	Supporting document to be submitted	Maximum Score
	Completion within a time period of more than 2 years from the date of submission of the bid	5	(This certificate should show the date of completion clearly)	
6	Execution team	10	Project Team chart with detail CV showing employment and expertise. Please note that this particular team has to be deployed for implementation. Substitution may be allowed with experts of equivalent or higher qualification and experience subject to acceptance by the EIC	10
7	Bidder is OEM	20	Copy of BIS registration certificate / OEM authorization certificate duly attested by the authorised signatory submitting the bid	20
	Bidder is authorised installer of OEM	10		
8	Security Features with appropriate certification	5	Demonstration of the application before a committee formed by NKDA for this purpose	10
	Capability of remote monitoring	5		
	Ease of use	5		
	Adequacy of the MIS	5		
TOTAL MAXIMUM SCORE				100

- i. The Financial offer of only the bidders who qualify with 50 points in technical score will be opened for evaluation.
- ii. The highest financial score of 100 will be awarded to the technically qualified bidder who quotes the least amount and the other qualified bidders will get proportionately lower score as follows:
 - a. If the financial offer of least cost bidder is L and that of another higher cost bidder is N then the financial score of the higher cost bidder FS will be $FS=100x(L/N)$
- iii. The technical score will be given a weightage of 70% and there will be a 30% weightage on the financial score and final selection will be made on the basis of the composite score as follows:
 - a. If the Technical score of a bidder out of 100 is T where $T>50$, and their Financial Score calculated as at ii.a above is FS out

of 100, then the final CQCBS score of this bidder will be
 $S=70\% \text{ of } T+30\% \text{ of } FS$

- iv. The bidder scoring highest composite score will be the selected bidder subject to compliance with all other relevant terms and conditions.
37. The agency should supply the materials as per confirming to IS mark and specification laid down in schedule and also to be taken approval from EIC / his representatives before utilize in work.
38. **No. price preference and other concession as per order no. 1110F dated: 10/02/2006 will be allowed.**
39. Agencies are required to give a work programme preferably in the form of a bar- chart and to get it approved by the EIC (Engineer-in-Charge) before commencement of work and if progress of work abruptly differs from such work programme, the undersigned may terminate the work order at any point of time and penal action as per Tender Terms and conditions will be imposed.
40. Intending tenderer should note that he may have to work simultaneously with other contractors already entrusted with other work or with contractors to be entrusted with other work in future in the same site. The contractor will have to work in close co-operation and harmony with all the contractors engaged in the project. Any claim for idle labour, for any reason whatsoever, will not be entertained under any circumstances.
41. NKDA will not be held responsible for making payment against any anticipated profit and/or compensation for any losses or price escalation whatsoever for the works as stated in the annexure of this NelT. Rates should be quoted accordingly.
42. The address as furnished by the contractor shall be deemed as the postal address of this office. Any notice or instruction to be given to the contractor under the terms of contract shall be deemed to have been served if it has been delivered to his authorized agent (on the strength of authorization) or representative or sent by registered letter to his official address as furnished.
43. Arbitration clause of WBF 2911(ii) stands deleted.
44. New Town Kolkata Development Authority reserves the right to increase or decrease the quantum of work as stipulated in the schedule of work for which no change of rate will be allowed.
45. Participation in this tender deems that the applicant is fully agreeable to abide all terms and conditions as stated in this Notice Inviting e tender as well as WBF 2911(ii).
46. Mobilization advance, time / cost overrun and consequent cost escalation for any material, labour, etc. will not be allowed.
47. All materials are to be procured and supplied at site of work by the tendered / firm at his / their own cost from approved reputed dealer / manufacturer. Departmental materials will not be issued under any circumstances unless any such provision is made and accepted latter by both the parties. Department unless otherwise stated means New Town Kolkata Development Authority.

48. The offer shall remain valid for 180 days from the date of opening of the tender.

49. **Brief Scope of work:**

Completion of the following work as per design and guidance of the Engineer in Charge (EIC) to the satisfaction of the EIC at 04 (Four) locations 03 (three) nos. EV's at each location on street sides of New Town Kolkata:

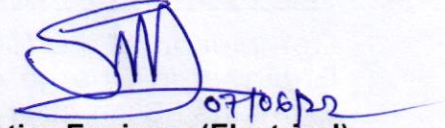
- i) Survey of each and every site to identify the most feasible exact site for positioning the Charging unit.
- ii) Preparation of foundation for installation of EV chargers at each of the sites as per design and to the satisfaction of EIC.
- iii) Connections to underground power supply mains for the electrical fittings.
- iv) Supply of Fast Electric Vehicle Charger units as per specification and as directed by the EIC
- v) Installation of supplied Fast Electric Vehicle charger units as per specification and as directed by the EIC
- vi) Commissioning of supplied Fast Electric Vehicle charger units as per specification and as directed by the EIC
- vii) Fixing of appropriate canopy suitable for protection from rain and sun with supporting structure for each Electric Vehicle Charger unit commissioned.
- viii) Testing of supplied Fast Electric Vehicle charger units as per specification to the satisfaction of EIC
- ix) Supply installation and testing of online software application for online payment and remote monitoring
- x) Software security audit by a Cert IN certified auditor
- xi) Linking the payment gateway to identified bank account of NKDA
- xii) Complete installation and testing of all components to the satisfaction of the EIC.
- xiii) Training to NKDA operators in operation of the system to the satisfaction of the EIC
- xiv) 5 years of maintenance post one year of warranty period for the installed fast Electric Vehicle chargers

50. **Payment**

- i) 50% Payment will be made on successful commissioning of fast electric vehicle chargers in working condition as per specification and complete installation and working of the application software
- ii) 10% Payment will be made on completion of 1 year of warranty period post successful commission and testing of electric vehicle chargers and the application software
- iii) 40% Payment will be released in quarterly installments during the 5 years of post-warranty maintenance subject to satisfactory service which may be monitored against a mutually agreed Service Level Benchmarking

51. Enclosure:

- i) Technical specifications.
- ii) Indicative locations



**Executive Engineer (Electrical)
New Town Kolkata Development Authority**

MEMO NO: 4286/NKDA-20099/20/2022-EM SEC (NKDA)-NKDA/2022-23

DATE: 07.06.2022

Copy forwarded for information to:-

1. The Chief Executive Officer, New Town Kolkata Development Authority.
2. The Chief Engineer, New Town Kolkata Development Authority
3. The Chief Executive Officer, New Town Kolkata Green Smart City Corporation Limited
4. Administrative Officer I & II New Town Kolkata Development Authority
5. Chief Finance officer, NKGSCCL
6. Chief Technical Officer, NKGSCCL
7. Technical Officer, NKGSCCL
8. The Finance Officer, New Town Kolkata Development Authority
9. Executive Engineer I, Executive Engineer-II, Executive Engineer III, Executive Engineer IV New Town Kolkata Development Authority
10. The Estimator/ Sr. Accountant / Cashier, New Town Kolkata Development Authority.
11. Office Notice Board.
12. Official Website of New Town Kolkata Development Authority (www.nkdamar.org)



**Executive Engineer (Electrical)
New Town Kolkata Development Authority**

Enclosure (i)
Technical Specifications

1. Technical Specifications of the system

TECHNICAL SPECIFICATIONS OF CHARGER (122k W CCS2+CHAdEMO+Type2AC)

Charger	Charger Connectors*	Rated Voltage (V)	No. of Connector guns (CG)
122kW, CCS2+ CHAdEMO + AC Type2	CCS2 2.0 (Min 50 kW). CHAdEMO (Min 50kW) Type 2(22kW)	300-750 or higher	3 CG#

#2 guns per charger

- (1) Energy transfer mode: Conductive
- (2) EVSE type: 122kW
 - a. CCS 2.0 (50kW)
 - b. CHAdEMO (50kW)
 - c. Type2 (22kW)
- (3) No. of outputs: 3
 - a. CCS2 2.0 : 1 Output (CCS2 Connectors)
 - b. CHAdEMO : 1Output
 - c. Type 2 AC: 1 Output
 - d. Operation sequence shall be as follows
 - i. When One EV is connected, the CCS2/CHAdEMO charger connector/gun shall be able to dispense full output EV.
 - ii. When both charger connectors/guns are in parallel operation, the charger shall be able to do auto load sequencing with equal load sharing between the two connectors i.e.. from each gun to charge two connected EVs simultaneously.
 - iii. Parallel operation of both CCS2 connectors is a must.
- (4) Charger CCS 2.0 (122kW) shall be Compact Pillar charger.
- (5) The EV Charger manufacturer should have successfully tested/ obtained conformance or certification of at least one (1) No. Off Board Electric Vehicle (EV) Charger of 50 kW or above capacity with CCS-2 protocol as per the provisions of IEC-61851 or equivalent Bharat Standards.

i. System Structure

- a) Regulation: Regulated DC EV Charging station with combination of the modes: controlled voltage charging (CVC) and controlled current charging (CCC)
- b) Isolation: Isolated DC EV charging station, according to the type of insulation between input and output.
- c) Environmental conditions: Outdoor use. EVSEs classified for outdoor use can be used for indoor use, provided ventilation requirements are satisfied.
- d) Power supply: AC mains to EVSE charging station
- e) DC output voltage rating: 300-750V or higher (CCS2), CHAdEMO (200-500V)
- f) Charge control communication: Communicate by digital or analog signals
- g) Output Current: As per System
- h) Interface Inter-operability: Interoperable with any EV supporting CCS2.

ii. Input Requirements

- a) Rating of the AC supply voltage
 1. The AC supply system would be 3-Phase, 5 Wire AC system (3Ph+N+E) Nominal Input Voltage is 380-440V.
 2. The Rated value of the frequency is 50 Hz \pm 1.5Hz.
- b) Battery back-up: The Input supply system should have a battery backup for minimum 1 hour for control and billing unit. The data logs should be synched with CMS during back-up time, in case battery drains out.

iii. Output Requirements

The CCS 2.0/CHAdeMO charger should allow charging of vehicle with power 50 kW, maximum upto 100kW.

- a) DC Output voltage: 300-750V or higher
- b) Output current: 125A or As per System
- c) Converter Efficiency: > 94% (10-100% load)
- d) Power factor: > 0.98 (Full Load)
- e) Current & Voltage THD < 5%
- f) The standby power of charger shall be <100W.

iv. Cable Requirements

Charging Cable Assembly: The functional characteristics are defined below

- a) Functional characteristics: The maximum usable cord length will be 5000mm, straight cable
- b) Cable Connection Type: supply cable will be with EVSE as per Case C defined in section 6.3.1 of IEC61851-1.
- c) Connector have **temperature sensors** for measurement of **temperature for both the power contacts (DC+ and DC-) and suitable for**
- d) The charging gun must have a feature to control the output based on temperature of GUN/Battery/etc.
- e) Cord Extension Set: No extension cord to be used
- f) Adaptors: No adaptors to be used
- g) Storage means of the cable assembly and vehicle connector: EVSE should have storage for cable and connector when not in use, at a height between 0.4m to 1.5m above ground level.

Internal Cables: The functional characteristics are defined below

- a) the cables should be of FR grade
- b) Copper conductor has to be used in power cables & control cables. Conductors shall be stranded.

v. Environmental Requirements

- a) Ambient Temperature Range: **-0°C to 50°C**
- b) Ambient Humidity: 5% to 95%
- c) Storage Temperature: **-20°C to 60°C**

vi. Mechanical Requirements

- a) Ingress Protection: The minimum IP degrees for ingress of objects is IP 54 or higher
- b) Mechanical Impact: Ik10
- c) Mechanical Stability: Floor mounted
- d) Cooling: Air cooled or forced cool for protection and safety of equipment from any fire hazards.
- e) Floor Mount Pillar Type arrangement for stand-alone charger.
- f) Locking Arrangement: key lock/key arrangement or better arrangement **AND** pad lock arrangement with supply of pad-lock .

vii. Protection Requirements

- a) **Surge Protection Device Class C**
The Sub-panel must be protected with Type-2 SPD, MoV and GDT based device in accordance with IEC 61643-11. SPD should be pluggable type (both L-N & N-PE) for ease of maintenance and have optics indication for fault detection along with remote monitoring feature. SPD shall have surge handling capacity of (8/20us) – 20kA nominal and 40kA maximum.
- b) Effective earth continuity between the enclosure and the external protective circuit.

viii. Specific Requirements

EVSE shall have provision of emergency switching, protection against uncontrolled reverse power flow from vehicle, Output current regulation in CCC, Output voltage regulation in

CVC, Controlled delay of charging current in CCC, limited periodic and random deviation (current ripple) and limited periodic and random deviation (voltage ripple in CVC).

- a) Rated outputs and maximum output power: The ambient temperature range to be 0 °C to 50 °C for Indian climatic conditions.
- b) Descending rate of charging current: In case of normal condition, EVSE should be able to reduce the descending current at a rate of 100A per second or more .
- c) Load dump: In any case of load dump, voltage overshoot shall not exceed 110% of the maximum voltage limit of the battery systems.
- d) The charger should have inbuilt functionality to store the charger down time logs for at least 6 months. These logs should clearly specify the nature of down time i.e. due to mains power either failure, SPD failure or emergency condition or etc. The charger should be capable to transmit the same data to the CMS.

ix. Functional Requirements

The functional requirements should be as follows.

- a) Measuring current and voltage: The accuracy of output measurement of system shall be within the following values:
 1. Voltage measurement: $\pm 0.2\% > 50V$, $\pm 0.5\% < 50V$
 2. Current measurement: $\pm 1 A$
- b) The charger should have the power limiting option, settable from display UI and CMS also.

x. Communication Requirements

EV – EVSE Communication

The EV-EVSE communication would be as follows:

- PLC Communication (CCS2)
- CAN Communication (CHAdeMO)

EVSE – CMS Communication

The EVSE should be able to communicate with CMS using Open Charge Point Protocol (OCPP) 1.6 or higher versions compatible to OCCP 1.6 & should be upgradable to OCPP 2.0 or any future protocol.

- Communication interface: Reliable Internet connectivity & communication between charger & CMS should be over secure protocol.
- Should enable handshaking between EVSE and CMS for its discovery, firmware version, vendor Version, vendor etc. It should authorize the operation, before electric vehicle can start or stop charging. EVSE should respond to CMS for the queried parameters. Reservation, cancellation addition and deletion of EVSE should be possible from CMS.
- Metering: Grid responsive metering as per units consumption of the vehicle. The monthly/quarterly total units consumed by charger and DISCOM meter should match. In case of deviation the bidder should coordinate with the Central monitoring station/system (CMS), DISCOM and XYZ and the bidder should resolve the mismatching issue.
- Should be upgradable to next higher version of OCPP by bidder whenever it is released.
- Web Socket implementation should be compatible with OCPP 1.6,
- The charger shall be equipped with a modem (with minimum one(1) SIM slot) to communicate with the CMS
 - Reliable Internet Connectivity
 - The SIM shall be in XYZ's scope and Modem shall be in bidder's scope.
 - 2G, 3G and 4G cellular network support
 - Auto fall back operation 4G to 3G or 2G and vice versa
 - SIM Make Support: Airtel, Vodafone, Idea, Jio, BSNL
 - SIM Support: m2m type
 - SIM Size: Standard
 - Antenna band: As per Indian Standard
 - Auto-Reboot via SMS and Timing
 - In case of poor connectivity, modem should be capable of rebooting itself so as to re-

establish charger-CMS communication.

• Other Requirements:

- PCB/PCA/Card/rectifier replacement notification to be transmitted to CMS through Status Notification packet.
- All charger related events/faults with valid fault code should be transmitted to CMS through Status Notification packet.
- Smart Profile function required
- Length of alpha-numeric charger ID: 25
- Charger should have the capability to transmit all the transactional messages to the server in case of power fail event or modem/controller failure
- Charger should transmit all the error codes with description for all the faults that may occur during operation. In case of failure to start a charging session or a trip session,

error code should tell the reason for the trip/stopped session. The reason should not be generic but self-explanatory so that necessary action can be taken to rectify the issue.

- Charger should support proper diagnostic logging so that any error in the charger can be easily analyzed using diagnostics logs.
- Apart from the complete OCPP profile some additional features might be required for public operations like:
- VIN transfer from charger to vehicle during charging session (where supported in the hardware protocol)
- One-time OTP support for offline operation (remote area support). Charger should support storing of list of OTP's with expiry date (similar packet as supported in OCPP 1.6J for Send local List profile) with the only exception that the charger should allow charging only once for one OTP.
- All three systems under the package need to be synced with each other by any mode of communication. Remote Monitoring system should maintain log of at least last 30 days
- Requirement of solar data monitoring is enclosed under Annexure-B and required of EV charger monitoring shall be as per OCPP 1.6 (All profiles: • Core, Firmware Management, Local Auth List Management, Reservation, Smart Charging, Remote Trigger)

xi. Integration with CMS platform

the charger should be compatible with interfacing with XYZ's CMS and 'User App'

- a) metering for Billing: Based on grid responsive metering
- b) Metering: As per Indian metering standard

xii. User Interface and Display Requirements

1	ON- OFF (Start-Stop) switches	Mandatory, Only touch/switch is preferred. Key type lock is not preferred.
2	Emergency stop switch	Mushroom headed Push button type, latchable type in Red Color, visible and shall be protected by freely floating transparent acrylic sheet
3	Visual Indicators	Error indication, Presence of input supply indication, State of charge process indication and other relevant information
4	Display	Minimum 7" inches with 720 x 480 pixels TFT LCD Screen, user interface with capacitive touch screen or keypad. The display screen shall be clearly visible from a minimum distance of 10 meters in all climatic conditions. The Font shall be visible from a minimum distance of 1 meter from the charger. Toughened unbreakable glass for to be used for display screen. Any damage to display whatsoever shall be replaced by suppliers during the warranty period.
5	Support Language	English (with provision for additional regional languages including Hindi and regional language).
6	Display Messages	EVSE should display appropriate messages for user during the

		<p>various charging states like: Suggestive sequence of charger operation Vehicle plugged in / Vehicle plugged out Duration since start of charge, kWh consumed. User authorization status Idle / Charging in progress: SOC Fault conditions Metering Information: Consumption Units Standby losses: Consumption Units</p>
7	User Authentication	<p>As per OCPP (through mobile application). OCPP gives only a mandate field, media to be used is open. Authentication to be done. Charging starts only after user authentication is successful.</p>
8	End of Charging	<p>Once the charging stops, the connector shall be released only after successful payment receipt/acknowledge event is received.</p>

Enclosure (ii)
Indicative locations

Serial No.	Location
1	Beside Meira Service Station
2	Beside Axis Mall on MAR 1111
3	Adjacent to Professor Shanku Park behind City Centre 2
4	Beside Spencer's Mall of Sukhobrishti