



**Tender Ref. No.: NSIC/Che/Elec/2019/02**

**TENDER DOCUMENT**

**for**

**for Supply, Installation, Testing & Commissioning**

**of**

**Green Energy Management with IOT for Smart City**

**NSIC TECHNICAL SERVICES CENTRE,  
THE NATIONAL SMALL INDUSTRIES CORPORATION LTD.  
(A GOVT OF INDIA ENTERPRISE)  
SECTOR B – 24 GUINDY INDUSTRIAL ESTATE,  
EKKADUTHANGAL, CHENNAI - 600 032.  
Tel: 044-22252335/6 Email-ntscche@nsic.co.in  
Website: www.nsic.co.in**

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**NOTICE INVITING TENDER**

The NSIC Technical Services Centre, Sector B -24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032 invites sealed tender in two bid system (Technical & Commercial bid in two separate envelopes) from eligible & qualified Original Equipment Manufacturers (OEMs)/ Authorised Distributors of OEMs/ Authorised Dealers of OEMs, for the Supply, Installation, Commissioning on site & Training on Operation(s) & Maintenance of machines for **Green Energy Management with IOT for Smart City**.

The details are summarized below: -

a)	Tender number	Reference number for inviting bids through this tender is <b>NSIC/Che/Elec/2019/02</b>
b)	Eligible Bidder	Original Equipment Manufacturers (OEM) / Authorized Distributors of OEM / Authorized Dealers of OEM (as per the eligibility details placed in the tender at Para 2 of <b>"Instructions to the Bidders"</b> ).
c)	Purchaser	The NSIC-Technical Service Centre, Chennai (A Government of India Enterprise) which is one of the Technical Centre of National Small Industries Corporation.
d)	Usage of Machine	The purchaser would place the equipment/machine in their training centre and shall be utilized for imparting skill/ entrepreneurship development training and rendering services to the industries.
e)	Scope of Tender	Supply, Installation, Commissioning & Training to trainers, Comprehensive Warranty of 2 years.
f)	Specification/ Details of equipment /machine	The detailed specifications of machine are specified in tender document placed at <b>Annexure-A</b> .
g)	Web page for details of tender	Web page: <a href="http://www.nsic.co.in/tenders.asp">http://www.nsic.co.in/tenders.asp</a> The prospective bidders are advised to visit the website periodically for any update in respect of this tender. No separate advertisement/communication will be sent to the individual and/or parties.
h)	Address of supplies	The equipments/items is/ are proposed to be supplied at NSIC Technical Services Centres , Sector B -24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032.
j)	Earnest Money Deposit (EMD) along with Tender	Interest free, EMD of Rs.1,00,000/- (Rupees one Lakh only) to be submitted for NSIC Technical Services Centre Sector B-24 Guindy Indl Estate Ekkaduthangal Chennai-600032 shall be submitted in the form of D.D. in favour of <b>'NSIC Ltd.'</b> payable at Chennai and to be placed in the Technical Bid envelope while submitting the tender. Alternatively, EMD can be submitted through Online Banking Mode for which the details are given below in "Instructions to Bidders" section. UTR No. and date of the online banking transaction on letter head of the bidder is to be submitted in the Technical Bid envelope while submitting the tender.

k)	Exemption from the payment of EMD and Tender fee	The exemption for the payment of EMD as well as tender fee will be applicable under Rule 170 & 173 of General Financial Rules (GFR), 2017 for Micro & Small Enterprises (MSEs) as per the "Public Procurement Policy for Micro & Small Enterprises Order 2012". To claim the exemption, self-certified copy of valid certificate/proof of registration for the goods for which this tender floated, must be enclosed with Technical Bid.
l)	Security Deposit	The successful bidder has to submit interest free security deposit amount to the value equalling to 10% (Ten percent) of the total value of order within five working days from the date of issue of purchase order by Purchaser.
m)	Cost of Tender Documents	The tender document can be collected from the office of the Chief General Manager NSIC Technical Services Centres at Sector B - 24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032 in between the period from <b>4.9.2019 to 23.9.2019</b> (Except Saturday & Sunday) between 10:30 hours to 15:45 hours against payment Rs. 1180/- (Rupees One thousand one hundred eighty only) including GST @ 18% (Non-refundable, by way of demand draft, in favour of NSIC Ltd payable at Chennai). Alternatively, tender document form can be downloaded from our website <a href="http://www.nsic.co.in">www.nsic.co.in</a> from <b>4.9.2019 to 23.9.2019</b> . In case the tender document downloaded for submission of offer, the non-refundable tender document fee of Rs. 1180/- in form of demand draft in favour of "NSIC Ltd" payable at Chennai shall be enclosed with Technical Bid of the tender while submitting the tender or through Online Banking for which details are given below in "Instructions to Bidders" section.
n)	Last date of submission of bid	Tender must be delivered to the address below on or before <b>23.9.2019 upto 15.45 hours</b> . The bids received after the due date and time shall be rejected. The Chief General Manager, NSIC Technical Services Centres at Sector B -24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032
o)	Date of opening of Technical Bid (Envelope-1)	<b>The technical bid for the tender shall be opened on 23.9.2019 at 16.30 hours at the address as under:</b> The Chief General Manager, NSIC Technical Services Centres at Sector B -24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032
p)	Date of opening of Commercial Bid (Envelope-2)	The date for opening second envelope containing Commercial Bid will be intimated to the technically qualified bidders separately.

**Note:** In case of any further details required, the same can be collected from the office of The Chief General Manager, NSIC Technical Services Centres at Sector B -24 Guindy Industrial Estate, Ekkaduthangal Chennai-600032 from **4.9.2019 to 23.9.2019** (except Saturday & Sunday) between 10:30 hours to 15:45 hours.

**Chief General Manager**  
**NSIC Technical Services Centre,**  
**Sector B-24, Guindy Indl. Estate,**  
**Ekkaduthangal, Chennai-32**

## INSTRUCTIONS TO THE BIDDERS

The Tender shall be submitted in accordance with these instructions, as under.

### 1. Abbreviations:

Throughout this tender document, the word/ term:

- a) "NTSC" means NSIC-Technical Services Centre
- b) "NSIC" means The National Small Industries Corporation Ltd.
- c) "day" means Calendar day
- d) "working day" means Monday to Friday in week
- e) "tender" means tender number **NSIC/Che/Elec/2019/02** "machine" means the machines/ equipment/software/accessories as detailed at Annexure-A.
- f) If context so requires, "singular" means "plural" and vice versa.
- g) "EMD" means Earnest Money Deposit, without interest.
- h) "Purchaser" means NSIC Technical Services Centre
- i) "Bid" means the document and financial details submitted by bidder in response to this tender.
- j) "Bidder" means the eligible and qualified bidder i.e. Original Equipment Manufacturers / Authorized Distributors/ Authorized Dealers.
- k) "OEM" means Original Equipment Manufacturer.

### 2. Eligible Bidder:

- a) The intending Bidder, in case of Original Equipment manufacturers shall submit a self-declaration on their letter-head, along with the Technical Bid, confirming that they are regular in manufacturing & supplying the similar machines, as asked in this tender, for the last Ten (10) years.
- b) The original equipment manufacturers shall possess ISO Certificate for their establishment. The copy of the valid ISO Certificate shall be placed with the Technical Bid.
- c) The intending Bidder, in case of Authorized Distributor of OEM / Authorized Dealer of OEM shall possess valid authorized Distributorship / Dealership license from Original Equipment Manufacturer and to be engaged in regular supply of similar machines for the last ten (10) years. The OEM shall have ISO certificate. Also the authorised Distributor/Dealer shall be associated with OEM on the basis of which the said tender is participating, for the last three years. The Bidder shall enclose the copies to substantiate their engagement in supplies for the machines/ equipment for which the above said tender is being issued, for the last ten years and associated with OEM for the last three years. The copy of the same should be enclosed in Technical bid while submitting the bid.
- d) The intending bidder has never made any default in supplying the machine/ equipment to Government / Semi Government/ Central or State Public sector enterprise(s) for any reasons in the last five years.
- e) The tenders of the bidders who have quoted for all the items mentioned in Annexure –A shall only be considered.

### 3. Scope of Supplies:

- a) The material shall be supplied in compliance to the specifications mentioned in Annexure- A of the tender document.
- b) The specifications of the machine as mentioned in the Annexure-A are the minimum requirements of tender, however higher specifications of machine may be considered subject to their cost economics i.e. competitiveness in financial terms for the address of supply.
- c) After the supply of machine by the successful bidder as mentioned in the Annexure A, the successful bidder has to execute its installation & commissioning in the designated site(s) at the address. No extra cost shall be paid for this purpose.
- d) After the installation & commissioning of machine i.e. "Green Energy Management with IOT for Smart City", the training to the local trainers shall be given for ten (10) working days wherein the training about the machine's operations, maintenance, information about Do's & Don'ts as well as trouble shooting & all other areas which are necessary for smooth functioning of machine shall be provided to the persons designated by purchaser, at site, by the successful bidder. No extra cost shall be paid to the successful bidder for imparting this training.
- e) The successful bidder shall give on-site comprehensive warranty of machine for minimum two years from the date of successful commissioning of machine at the designated address. The purchaser is not liable to pay any extra charges on any account during warranty period.
- f) The purchaser shall inform the colour code of the machine to be supplied against the above order while issuing the purchase order and bidder has to comply.

### 4. Address of supplies:

- a) The details of addresses where the machine(s) supplied through this tender are as under:

#	Location	Address for supplies (designated site)
1	NTSC Chennai	Office of The Chief General Manager NSIC- Technical Services Centre, Sector B-24 Guindy Industrial Estate Ekkaduthangal, Chennai-600032

- b) The bidder is free to inspect the address(s) in the above premises before submitting the bid under this tender.

### 5. Special Provision for Micro & Small Enterprises:-

Micro and Small Enterprises (MSEs) participating in the tender will be given benefit as per Public Procurement Policy, 2012. Further, the MSEs owned by SC/ST/Women

entrepreneurs will also be given benefits as per Public Procurement Policy, 2012. The definition of MSEs owned by SC/ST/Women is given as under:

- (a) In case of proprietary MSE. Proprietor shall be SC/ST/Women
- (b) In case of partnership MSE, the SC/ST/Women partners shall be holding at least 51% shares in the unit
- (c) In case of Private Limited Companies, at least 51% share shall be held by SC/ST promoters.

Document to claim benefits shall be enclosed in Technical Bid.

## **6. Delivery**

- a) The purchaser expects to complete delivery of machine by the successful bidder within sixty (90) calendar days from the date of issue of supply order at the designated address. However, the bidders have an option to submit the best delivery time while submitting the Technical Bid, but in any case, the delivery should be before 90 days from the date of issue of supply order by purchaser.
- b) The machine/ equipment shall be inspected by the purchaser, on receipt at site and successful bidder shall be responsible for any damage during the transit of machine/ equipment. The Purchaser shall not be responsible for any damage due to any reason during the transportation of machines/equipment to the designated site of the purchaser.
- c) The successful bidder shall not be allowed for part shipments and/or trans-shipments without the permission of purchaser. The insurance cover including insuring the machine/ equipment against the loss or damage incidental to manufacture or acquisition, transportation, storage and delivery/ Installation & Commissioning, shall be obtained by the bidder in his own name and not in the name of purchaser. The purchaser will as soon as possible but within 30 days from the date of arrival of machine/ equipment at destination notify the bidder of any loss or damage to the machine/ equipment.

## **7. Comprehensive Warranty**

- a) The successful bidder shall offer on-site comprehensive warranty of machine for two years from the date of successful commissioning of machine at the designated address & shall cover each and every part of the machine including parts having limited life etc. The purchaser is not liable to pay any extra charges on any account during warranty period.
- b) Any part or parts fail or proved defective within the on-site warranty period specified above, owing to defect in design, material or workmanship, the bidder shall have to replace them with original spares only without asking for any charges.
- c) The successful bidder shall have to visit the address at which the machine supplied to check the working of hardware & software of machine, associated systems, efficiency of operational areas etc., during warranty period.
- d) During the warranty period, expert(s) shall be deputed at site by the successful bidder within two working days from the date of request from purchaser, to rectify and fix the defects/ malfunctioning of machine, within next three working days, at the location where machine(s) are supplied. The cost of deputation of expert(s) and any other associated expenditure to attend the rectification/ fixing of fault, shall be borne by the bidder.

e) In case the successful bidder is not able to rectify the fault and / or fails to rectify the fault within the period of three days, the Purchaser has right to demand for demurrages because of loss to purchaser due to "under repair" situation for the machine.

### 8. After Sales Services

- a) The successful bidder shall ensure to render after sales services during the comprehensive warranty period (2 years) with any charges.
- b) The successful bidder will depute their engineer within two working days to attend the service call received in writing from purchaser during the comprehensive warranty period.

### 9. Manuals:

The successful bidder to supply three (03) sets of the following manuals in hard format and one (01) soft format along with machine:

- i. Installation Manual
- ii. Operation Manual
- iii. Maintenance Manual- Shall include details of schematic diagrams.
- iv. Training Manual

### 10. Tender documents:

- a) The tender document can be collected from the office of the Chief General Manager, NSIC-Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai -600032 in between the period from 4/9/2019 to 23/09/2019 (Except Saturday & Sunday) between 10:30 hours to 15:45 hours against payment of Rs.1180 /- (Rupees one thousand one hundred and eighty only) Non-refundable, by way of demand draft, in favour of "NSIC Ltd" payable at Chennai.

Alternatively tender form can be downloaded from our website [www.nsic.co.in](http://www.nsic.co.in) from 4/9/2019 to 23/09/2019 . In case the tender downloaded for submission of offer, the tender fee of Rs.1180 /- in form of demand draft in favour of "NSIC Ltd" payable at Chennai. shall be enclosed with Technical Bid of the tender while submitting the tender.

The other option is to pay Rs.1180 /- by RTGS/NEFT to the bank of purchaser as detailed under:

ACCOUNT NAME	BANK NAME	BANK A/C NO.	BANK IFSC CODE
NSIC LTD.	PUNJAB NATIONAL BANK	ACCOUNT NO-6570 0021 0000 4827	IFSC Code-PUNB0657000, MICR Code-600024058

The bidder is requested to attach the UTR No. / Bank Statement / RTGS Slip in the Technical Bid, to prove the transfer of payment to the purchaser's Account.

- b) At any time prior to the deadline for submission of bids, the Purchaser may amend the Tender Documents by issuing addendum/ corrigendum which will be placed on website only. The prospective bidders are advised to visit the Website ([www.nsic.co.in](http://www.nsic.co.in)) for any update in respect of this tender.



**11. Authorization for Submission of Tender:**

- a) The original and all copies of the bid shall be signed and stamped, on every page, by a person duly authorized to sign on behalf of the Bidder. The written confirmation of authorization (in form of letter on the bidder's letter head) to sign on behalf of the bidder confirming the signature as a person duly authorized to sign should be attached with the technical bid of the tender.
- b) The person signing the tender document or any other documents on behalf of the Bidder shall be deemed to warrant that he has authority to bind the Bidder. If it subsequently comes to light that the person so signed had no authority to do so, the purchaser may without prejudice to any, consider civil & criminal remedies cancel the tender and hold the Bidder liable for all costs, charges and damages.

**12. Earnest Money & Tender Fees:**

- a) The EMD shall be submitted in the first envelope super-scribed as "Technical Bid", of prescribed amount by way of Demand Draft drawn in favour of "NSIC Ltd", or online banking mode, only for the Machine(s) quoted by the Bidder. No cash towards EMD shall be accepted. The bids without EMD from the Bidders shall be rejected.
- b) In case tender documents downloaded from website, Tender Fee of Rs. 1180/- shall be submitted by way of D.D. drawn in favour of "NSIC Ltd" along with the Technical Bid of the tender documents. Tender fee is non-refundable. The option for payment of EMD/Tender fees by RTGS/NEFT is also available and bank details of purchaser, are as under:

ACCOUNT NAME	BANK NAME	BANK A/C NO.	BANK IFSC CODE
NSIC LTD.	PUNJAB NATIONAL BANK	ACCOUNT NO- 6570 0021 0000 4827	IFSC Code-PUNB0657000, MICR Code-600024058

The bidder is requested to attach the UTR No. /Bank Statement / RTGS Slip in the Technical Bid, to prove the transfer of payment to the purchaser's Account.

- c) **The exemption for the payment of EMD as well as tender fee will be applicable under Rule 170 & 173 of General Financial Rules (GFR), 2017 for Micro & Small Enterprises (MSEs) as per the "Public Procurement Policy for Micro & Small Enterprises Order 2012". To claim the exemption, self-certified copy of valid certificate/proof of registration for the goods for which this tender floated, must be enclosed with Technical Bid.**
- d) The Purchaser shall not be liable for payment of any interest on EMD/Tender fees.
- e) Any request by the bidders to consider their EMD already furnished by them to any of the other office of the purchaser, for any other contract/ tender will not be considered as EMD for this tender.
- f) The EMD will be returned to the unsuccessful bidders within 30 days after the orders are placed on the successful bidder. In case of successful bidder, the EMD will be released along with 20% payment schedule, as per payment terms mentioned at Para 28 of "Instructions to the Bidders".

### 13. Security Deposit:

- a) The successful bidder shall submit interest free security deposit amount to the value equalling to 10% (ten percent) of the total value of order which includes basic price + GST, within five working days from the date of issue of purchase order by the purchaser for supply by successful bidder.
- b) The security deposit will be returned to the successful bidder along with 20% payment schedule, as per payment terms mentioned at Para 28 of "Instructions to the Bidders".

### 14. Submission of Bid:

- a) The prospective bidders should examine all instructions, forms, terms and specifications in the tender documents and to furnish with its bid all documents or information as required by bidding/ tender document.
- b) The language for all the correspondence and documents related to this tender shall be in English only. Moreover, the printed literature/technical details for the machine shall also be in English.
- c) The bid must be placed in a properly sealed bigger envelope addressed to the Chief General Manager, NSIC-Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai -600032 and the said bigger envelope shall contain two sealed envelopes, each containing, Technical & Commercial bids, respectively. The bigger envelope must be super-scribed "Tender for Supply, Installation and Commissioning of " Green Energy Management with IOT for Smart City"" with **TENDER NO.: NSIC/Che/Elec/2019/02** and its due date 23/9/2019. The two sealed envelopes inside the bigger envelope must be super-scribed as:

**Envelope No-1: The said envelope is for technical bid & shall be super scribed as "Tender for the Supply, Installation, Commissioning of Green Energy Management with IOT for Smart City" -Technical Bid".**

**Envelope No-2: The said envelope is for commercial bid & shall be supe scribed as "Tender for the Supply, Installation, Commissioning of Green Energy Management with IOT for Smart City" -Commercial Bid".**

- d) If both or either of the envelopes are not sealed and marked as required, the Purchaser shall not be responsible for the misplacement or premature opening of the bid.
- e) All the columns of the tender document/form shall be duly, properly and exhaustively filled in. Any cutting/over writing etc. in the tender document/form must be signed by the person who is signing the tender/bid.
- f) Tenders received in open covers/ letters/ fax/ email will not be considered.

### 15. Commercial Bid Submission:

- a) Bidder shall take into account all costs including Packing, Freight, Transportation, Insurance Cost including unloading of machine at the address of the purchaser for giving delivery of machine/ equipment at site as detailed at Para 4 of "Instructions

- b) to the Bidder" before quoting the "Price of Machines before GST" in the Commercial Bid.
- c) The "Price of Machine before GST" shall remain firm & inclusive of all costs involved for the delivery to the destination(s) including the cost mentioned in Para 15(a) as above, also include the cost of Installation & Commissioning at destination, Training to the local trainers (as detailed at Para 3(c,d & e) of "Scope of Supplies" of this tender).
- d) **No extra payment or revision of "Price of Machine before GST" shall be accepted on account of any discrepancy in nomenclature of items. The prospective bidders are advised to seek clarification, if any, desired before submitting the bid.**
- e) No representation for the revision of the quoted "Price of Machine before GST" shall be considered till the supplies are completed to the designated location(s).

#### **16. Last date of submission of Bid:**

- a) The bid should reach the office of the Chief General Manager, NSIC- Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai – 600032 **by 23.9.2019 upto 15.45 hours.**
- b) The purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Tender Documents, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended. The prospective bidders are advised to remain in touch with website for any update in respect of this tender.
- c) The purchaser shall not consider any bid that submitted/received after the deadline i.e. date and time for submission of bids. Any bid received by the Purchaser after the deadline for submission of bids shall not be considered and shall be rejected.

#### **17. Rights of Purchaser:**

- a) It may be noted that the Chief General Manager, NSIC-Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai – 600032, without assigning any reason whatsoever, reserves the right to cancel the procurement even after calling the offers from bidders but before the issue of supply order to execute the supply by the successful bidder. The reason for cancellation of supply would not be disclosed and the bidder has no right to ask for so.
- b) The Purchaser reserves the right to accept or reject any bid, without assigning any reason, thereof, and to annul the bidding process and reject all bids at any time prior to supply order, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically Bid document, EMD deposits shall be returned to the Bidders.

#### **18. Opening of Technical Bid:**

- a) The technical bid of tenders will be opened at the Chief General Manager, NSIC- Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai – 600032, on **23.9.2019 at 16.30 hours.** The Bidder or their authorized representative (One person only) may be present at the time of opening of the Bid.

**19. Opening of Commercial Bid:**

- a) The Commercial Bid of only technically qualified bidders will be opened on the stipulated date. The date & time for opening of Commercial Bid shall be intimated to the technically qualified bidders through email, after the evaluation of Technical Bid.

**20. Validity of Tender:**

- a) The tender shall be valid for a period of 90 days from the date of opening of the Technical Bid of this tender. Terms and financial details submitted in the bid shall be treated as firm during the said period of 90 days.
- b) In exceptional circumstances, prior to the expiry of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing.

**21. Evaluation of Bids:**

- a) If there is discrepancy between the amount quoted in Commercial Bid in the column "Unit Price of Machine before GST" and the amount reflected in column "Total price of Machine(s) before GST" which is the multiplication of quantity offered for supplies with "Unit Price of Machine before GST", the "Unit Price of Machine before GST" shall prevail. Accordingly, the Total price of Machines before GST shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected.
- b) If there is an error in a total corresponding to the addition or subtraction of sub totals, the subtotals shall prevail and the total shall be corrected; and
- c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
- d) To assist in the examination, evaluation, comparison of the bids and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing only.
- e) If the Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid shall be rejected.
- f) The Purchaser shall compare the "Unit Price of Machine before GST" of all the responsive bids to determine the lowest bid for a particular address.
- g) The bidder shall note that they are not supposed to put any GST amount in the Commercial Bid. However, after the supplies, they have to issue the GST invoice indicating the Price of machine as quoted in the Commercial Offer and thereafter specify the GST as applicable at the time of delivery. The Purchaser shall pay total amount which includes the unit price of machine as well as the GST as applicable at the time of delivery.

- h) The Purchaser is authorized to ask the evidence from bidder to counter-check that the GST as claimed by the bidder at the time of issue of invoice after the supply of machines.

## **22. Earnest Money Forfeit:**

- a) If any Bidder withdraws his bid/tender before the period of 90 days from the date opening of technical bid or makes any modifications in the terms and the conditions of the tender which are not acceptable to the purchaser, then the purchaser shall, without prejudice to any other rights or remedy, be at liberty to forfeit the EMD.
- b) The EMD will also be forfeited in following cases:
- i. If the successful bidder fails to accept, the supply order issued, based on his/her offer (bid) within the prescribed time.
  - ii. If the successful bidder fails to supply the Machines with specifications as mentioned in Annexure –A
  - iii. If the successful bidder delays supplies/ machines/ equipment beyond a reasonable time resulting in disruption of project.
  - iv. Successful Bidder for any reason whatsoever withdraws the tender after it is accepted or become unable or fails to execute the supply orders within stipulated delivery period.
  - v. Submission of misleading/contradictory/false statement or information and fabricated/invalid documents is detected before or after the issue of order to execute the supplies.
  - vi. The successful bidder does not submit Indemnity Bond within the prescribed time.
  - vii. The successful bidder does not submit the security deposit within the time.

## **23. Security Deposit Forfeit:**

The security deposit will also be forfeited in following cases:

- i. If the bidder fails to accept, the supply order issued, based on his/her offer (bid) within the prescribed time.
- ii. If the bidder fails to supply the Machines with specifications as mentioned in Annexure –A
- iii. If the bidder delays supplies/ machines/ equipment beyond a reasonable time resulting in disruption of project.
- iv. Successful Bidder for any reason whatsoever withdraws the tender after it is accepted or become unable or fails to execute the supply orders within stipulated delivery period.
- v. Submission of misleading/contradictory/false statement or information and fabricated/invalid documents is detected before or after the issue of order to execute the supplies.

## **24. Notification of Award:**

Prior to the expiry of the period of bid validity, the purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter shall specify the sum that the Purchaser will pay to the bidder in consideration of the supply of Machines with the details of selected location(s)/ address(es).

**25. Pre-dispatch Inspection:**

- a) A pre-dispatch inspection by 3<sup>rd</sup> party/ technical team of purchaser may be carried out at bidder's site of manufacturing machines. This pre-dispatch inspection will not absolve bidder's responsibility to execute supply in accordance with the tender terms.
- b) In case during inspection by the inspection team of purchaser find some areas needs to be attended by bidder and/or test reports asked, the successful bidder has to complete the findings of inspection team within 10 days & confirm in writing to purchaser. If need be the re-inspection would be carried out at the cost & expenses of the successful bidder.

**26. Packing:**

- a) The successful bidder shall provide packing of the machine/ equipment, as is required to prevent their damages or deterioration during the transit to their final destination. The packing shall be sufficient to withstand, without limitation, rough handling during transit. In case the consignment of machines/ equipment received with damaged packaging, the purchaser shall not accept the delivery of the same.
- b) The machine & equipment shall be securely boxed, crated and protected from mechanical damage, moisture etc. suitable for both storage and transit according to the nature of the material and mode of transport. The bidder shall be responsible for any loss/ damage to material during transportation to the designated address.

**27. Delivery Time:**

- a) The bidder shall indicate the period within which the ordered quantity will be supplied. The bidder shall note that in case bidder fails to supply within the period of delivery indicated by the bidder in technical bid of this tender, penalty @2% of value of the order per week of delay would be levied subject to maximum 4 weeks. It means, the bidder shall have the liability of delayed supply to the maximum of 4 weeks after expiry of scheduled delivery date. After that the supply order shall be cancelled and EMD and Security Deposit will be forfeited and bidder will be debarred from participation in any future tenders. Also purchaser reserves the right to ask for demurrages even after adjustment of EMD & security deposit from the bidder because of delay in supplies, as agreed.
- b) The successful Bidder shall, within a week from the date of receipt of communication of acceptance of quotes from purchaser shall intimate his acceptance of the order. The successful bidder shall complete supplies strictly as per the accepted delivery period.
- c) The post-delivery activities i.e. Installation, Commissioning, Training to Trainers etc. shall be started within 7 days from the date of receipt of machines at site by the purchaser.

**28. Payment:**

- a) The 70% payment of total bill will be made by the purchaser by crossed account payee cheque/ RTGS/ NEFT for which the bidder shall send bills in duplicate (original + copy) after Supply, Installation & Commissioning of machine, giving the reference

- b) number of the supply /purchase order along with copies of delivery note & satisfactory report on the Installation of machine(s), from designated purchaser department. The details about the designated purchaser department who is authorized to take the delivery of machine(s) shall be informed to the successful bidder through the supply order placed for the supply of machine(s).
- c) The 20% payment of total bill along with interest free EMD and Security Deposit will be released to successful bidder after one month from the date of completion of training to trainers at site and on submission of Indemnity Bond by the successful bidder for rendering services during warranty period.
- d) The remaining 10% payment will be retained and shall be released against submission of Performance Bank Guarantee, issued by Nationalised Bank, by the successful bidder of equal value of 10% with validity of two years from the date of commissioning and completion of training of trainers, whichever is later.

### **29. Causes of Rejection of Bid:**

- a) While submitting the Bid, if any of the prescribed conditions are not fulfilled or are incomplete in any form, the Bid shall be rejected.
- b) If any Bidder stipulates any condition of his own, such conditional Bid shall be liable to be rejected.

### **30. Claims:**

- a) If the machines/ equipment supplied are found to be of size and shape different than those in the accepted offer and are of specifications lower than those stipulated in the accepted offer, the purchaser shall have right to totally reject the machine/ equipment and/or to claim for compensation from successful bidder. The successful bidder shall pay to purchaser, the claim demanded in writing within 15 (fifteen) days of its demand. The bidder shall also compensate for losses, if any, sustained by purchaser due to lower specification/defective packing and/or wrong marking of the machine/ equipment, etc.
- b) The successful bidder shall be responsible for arranging the rejected machine/ equipment to be removed at his cost from purchaser premises.

### **31. Address for communication:**

All the communication with respect to the tender shall be addressed to:

The Chief General Manager, NSIC-Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai – 600032 Phone – 044 22252336/7  
[Email-ntscche@nsic.co.in](mailto:Email-ntscche@nsic.co.in)

### **32. Force Majeure:**

In the event of any unforeseen circumstances directly interfering with the supply of machines/equipments/work/service arising during the execution of order such as war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, floods, earthquakes, explosions, epidemics, quarantine restrictions, strikes, lockouts, or acts of God, the successful Bidder shall, within 7 working days, from the commencement thereof, notify the same in writing to the Purchaser with reasonable evidence thereof.

Either party shall have the option to terminate the contract on expiry of 90 days of commencement of such force majeure by giving 14 days "notice to the other party in writing. In case of such termination, no damages shall be claimed by either party against the other.

**33. Code of Ethics:**

The Purchaser as well as the Bidder shall observe the highest standard of ethics including laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988", during the procurement or execution of such contracts. If the bidders are found in Bid pooling, cartelisation or against law on fraud and corruption then their firms may be blacklisted.

**34. Jurisdiction:**

In the event of any dispute the legal matter shall be subjected to the jurisdiction of the court at, Chennai. (place where the tender issue authority/ its office is situated).

*We confirm with our acceptance to the instructions (S. No. 1 to 34 above) as given above.*

**BIDDER'S NAME & SIGNATURE WITH SEAL**

*The duly signed pages of "Instructions to the Bidders" as above shall be attached with technical bid of the tender as a mark of acceptance of bidder and any bid/ tender not confirming the instructions as above, is liable to be rejected.*



## Details of requirements and Technical Specifications

### **1. Smart power Generation - Solar Based Green Energy Generation, Tracking & Monitoring Facility**

#### **List of major modules**

- a. Module mounting structure with accessories,
- b. Fully Automatic Solar Tracking System with Solar panels
- c. Solar Tubular Battery Set 2x12V/150Ah
- d. Solar Data Logger & Power Analyzer for Maximum power tracking
- e. IoT Based Data logging and Remote Monitoring system for Solar Power Generation
- Supply, Wiring, Installation and Commissioning & Training to the Faculties

#### **Detailed Specifications:**

##### **a. Module mounting structure with accessories:**

- Construction Material Mild Steel (angle/flat )
- Suitable for panel size 1650 × 992 mm (250W/300W/325W panel)
- Protection from corrosion Aluminium / Zinc Spray
- Bolt and Nut for fixing: 6 nos

##### **b. Fully Automatic Solar Tracking System with solar panels**

- Solar panels 1Kw( 4 panels of 250w)
- Inverter –solar sinewave 1.8kw and charge controller
- Linear Actuator 12V DC
- Stroke: : 1-40 inches
- Current (full load): 5A
- Fully Retracted 4.13" + stroke
- Fully Extended: 4.13" + stroke + stroke
- Limit Switch : Built In, Non-Adjustable
- Mounting Holes: 0.25"
- Motor Type: Brushed DC Motor
- Housing Type: 6062 Aluminium Alloy
- Solar tracking controller: micro-controller Based
- 12 VDC Control Box - 2 Channel - Parallel Control
- Current: : 30 Amps (15A per channel)
- Control Ability: Will control Two actuators at the same time

##### **c. Solar Tubular Battery Set:**

- Voltage configuration 24V(12Vx2)
- It can operate between -60° C and 60° C
- D.O.D allowed tubular battery 80% max
- Battery charge efficiency 85%
- Autonomy consider 2days
- Battery capacity required 12V 150Ah (2x150Ah)
- Type Tubular Lead acid flooded electrolyte

- Positive plate Tubular
- Negative plate pasted plate
- Voltage of each cell 12 volt nominal
- Electrolyte Dilute Sulphuric Acid

**d. Solar Data Logger & Power Analyzer for Maximum power tracking**

- Computerized data acquisition system used to study the operation of ADC and DAC through USB/serial port. Data acquisition system captures solar data generated in real time using ADC channels and to plot current and voltage curve and maximum power generation data with Solar Tracking system and process them, display in digital through PC and if needed produces analog output through DAC to control sensors.
- Voltage Sensor:
  - Max input DC voltage: 600V
  - Output current: 10mA
- Current Sensor:
  - Max input DC current: 25A
  - Output current: 25mA
- Note: All sensors to be housed safely and wiring to be brought for data monitoring for PC
- Number of Channels 8 and all the channels are independent

**ANALOG INPUT:**

Converter type	Successive approximation
Analog inputs	8 single-ended/4 differential
Input resolution	12 bits differential
Max sampling rate	50 kS/s
At FIFO	512 bytes
Timing resolution	41.67 ns (24 MHz time base)
Timing accuracy	100ppm of actual sample rate
Differential	$\pm 20\text{ V}, \pm 10\text{ V}, \pm 5\text{ V}, \pm 4\text{ V},$ $\pm 2.5\text{ V}, \pm 2\text{ V}, \pm 1.25\text{ V}, \pm 1\text{ V}$
Working voltage	$\pm 10\text{V}$
Input impedance	144kW

**ANALOG OUTPUT:**

Converter type	Successive approximation
Analog outputs	2
Output resolution	12 bits
Output range	0 to +5V
Output impedance	50W
Output current range	5mA

Slew rate	1V/1s
Absolute accuracy	7mV typical, 36.4mV max at full scale

**DIGITAL I/O:**

PO.<0..4>	4 lines
PI.<0.2>	2 lines
Direction control	Each channel individually programmable as input or output
Programmable compatibility	TTL, LVTTTL, CMOS
Absolute maximum	-0.5 to 5.8V voltage w.r.t GND
Pull-up resistor	4.7K W
Resolution	11 bit

**COUNTER:**

Number of counters	1
Resolution	32 bits
Counter measurements	Edge counting (falling-edge)
Pull-up resistor	TTL, LVTTTL, CMOS
Absolute maximum	-0.5 to 5.8V voltage w.r.t GND
Pull-up resistor	4.7K W
Maximum input frequency	5Mhz
Maximum high pulse width	100ns
Maximum low pulse width	100ns
Input high voltage	2.0 V
Input low voltage	0.8V

**e. IoT Based Data logging and Remote Monitoring system for Solar Power Generation**

- M2MC8000 IoT Controller Based sensor monitoring of measured solar data
- 1.4 GHz ARM Cortex-A53 Quad-Core-CPU
- WLAN 802.11 b/g/n/ac (2,4 + 5,0 GHz)
- LAN RJ45 10/100/1000 Mbit (Gigabit LAN over USB 2.0 with up to 300 Mbit) etc.
- Controller operating Voltage is 3.3V
- Voltage, Current and Temperature Sensors with signal conditioning unit
- The operating temperature range for the sensor is from -55 to 150 Celsius
- PC Interface for Remote monitoring
- 10-Bit 8-Channel Analog to Digital Converter
- SPI based Data conversion
- Display of collected data of voltage current, temperature in Graphical form with solar I-V curve
- Cloud based Remote monitoring of solar Data

## **2. IoT Smart Remote Control, Monitor and Management of Utilities**

### **Specifications:**

- IoT Controllers, IoT WiFi Gateway
- IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt Linux distribution.
- Designed especially to enable prototyping of Rich Application IoT devices for smart home or offices.
- Compatible well with Arduino, can develop different features from Arduino.
- Help to build rich applications based on various, robust and compiled Arduino Yun sketches.
- The system offers the memory and packet storage to enable robust video processing.
- Platform also offers options to create device applications in Python, Node.js and C programming languages.
- IoT control Software & Firmware, Cloud And Data Analytics Software
- IoT based control system with WiFi smart switch Sensor with relay (6A load) for ON/OFF control operations (light/fan etc.)
- WiFi IR Blaster for remote control operations (TV,A/C,AV,CD player etc.)
- Act as all in one remote for all the IR controlled devices.
- Can be placed anywhere in the building with in the line of sight of the devices to be controlled
- Can be controlled from any remote location over the internet and Wifi and no need of worry about switch off the AC or any device when we leave the building
- The scheduling and timer can be setup to help energy saving in consumption during night or day also.
- Can be connected to any WiFi router available at the buildings
- Can be configured with different networks with multiple devices
- The control can be carried where ever we go
- Allow to control and regulate the electrical points of green buildings through smart phone with PIR Motion Sensor
- Onboard Timers provided to allow to automate the appliances for routine operations

## **3. Smart Energy Monitoring of Power Utilization**

### **Specifications:**

- IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt Linux distribution
- IoT control system with Centralized Energy monitoring and control system to visualize energy utilization for 100 to 265 V ac at the distribution Box, For each phase of 3-phase Supply.
- Tracks all activity of any kind of load connected to the node and uploads data to cloud server also to Android / iOS app.
- Data is analyzed on cloud and recommendations given for energy saving and optimum utilization.
- Data accessible from anywhere in the world.
- Smart energy Monitor with Power consumption of Device : <2 Watts(Under Normal conditions)
- Working Voltage Range : 100 to 265V ac x 3-phase
- Operating Frequency : 48 ~55Hz
- Operating Temperature Range : -20 to 60 Degree Celsius

- Maximum Current Rating : 30A Per Phase
- Plug and Play
- Retrofittable
- Cloud based
- Industry grade security
- Appliance level usage data
- Detailed Dashboard – hourly, daily, monthly usages and comparisons, Time of Day usage, Appliance health, Carbon emissions
- IoT WiFi Gateway, Current and Voltage Sensor Modules
- IoT control Software & Firmware, Cloud And Data Analytics Software
- Able to get the energy audit report for all connected live loads for every phase
- Able to get the data of the connected appliances at the given time
- Able to get the data of Average units consumed.
- Able to get daily statistical report in Daily, Monthly and Yearly
- Can able to track the energy on the cloud with MQTT broker on the cloud

#### **4.Smart Sensor Measurement of Connected Devices and Cloud Monitoring**

##### **Specifications:**

- IoT Controllers, IoT WiFi Gateway, Sensor Modules
- IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt Linux distribution
- IoT control Software & Firmware, Cloud And Data Analytics Software
- Sensor Set 1- Consist of Irradiance , Temperature , Wind and Humidity sensors
- Sensor Set 2 - Consists of Water Leakage detection sensor, Rain Drop sensor
- Sensor Set 3 - Sound, Ligh, Ultrasonic Range, PIR Motion, Smoke, IR sensor, Acceleration, Temperature, Humidity, LPG Gas Sensor, Alcohol Sensor
- Sensor Set 4: ECG sensor, Soil moisture Sensor
- Sensor set 5: Air quality sensor for detecting a wide range of gases, including NH3, NOx, alcohol, benzene, smoke and CO2. Ideal for use in office or factory.
- Data acquisition(for Data logging) with Graphical User Interface
- Power supply for Sensors and Data logger
- Temperature Sensor:
- Calibrated Directly in Celsius (Centigrade)
- Rated for Full –55°C to 150°C Range
- Suitable for Remote Applications
- Low-Cost Due to Wafer-Level Trimming
- Operates from 4 V to 30 V
- Irradiance Sensor:
- Irradiance: 0 to 1500 w/m2
- ABS housing
- 0-10 V or 4-20 mA output
- Housing with simplified mounting system
- DIP switch configuration
- Quick and easy mounting with the 1/4 turn system with wall-mount plate
- Note: All sensors to be housed safely and wiring to be brought for data monitoring for PC

- Data acquisition
- Analog inputs: 16 inputs
- Input voltage : 0 to 5V/3.3V
- Sampling rate: 50Ks/s
- Communication: USB cable
- Power supply for Data logger
- AC voltage input : 230V,50Hz
- DC voltage output : +12V,-12V 500mA
- Necessary DC voltages according to sensors selected

**5. IoT Remote Monitoring and Control** of open space street lightings with WiFi connectivity Extension-20nos.

Note: All accessories and consumables which shall be required to run the machine / equipment smoothly have to be supplied along with the machine/ equipment.

(Undertaking from Bidder on their official stationery)

To,

The Chief General Manager  
NSIC- Technical Services Centre,  
Sector B-24, Guindy Industrial Estate,  
Ekkaduthangal,  
Chennai -600 032

Sir,

Subject: Undertaking for the participation in the tender No: **NSIC/Che /Elec / 2019/02** due for opening of technical bid on 23.9.2019

HAVING EXAMINED AND PERUSED THE FOLLOWING DOCUMENTS

1. Notice Inviting Tender
2. Instructions to The Bidders
3. Technical Specifications of machine (Annexure-A)
4. Annexure – C (Technical Bid)
5. Annexure – D (Commercial Bid)

I/We .....do hereby submit the above Bid in prescribed formats duly completed in all respects in accordance with the conditions applicable. If this tender is accepted, I/We undertake to abide by and fulfil all the terms and conditions in the tender documents

I/We hereby distinctly and expressly declare and acknowledge and undertake that before the submission of this Bid, I/We have carefully read and followed the instructions and I/We have understood the existing system of supply at the address(es) of purchaser including the scope and nature of duties expected from the Bidder.

I/We distinctly undertake that I/We would hereafter make no claim or demand upon the purchaser based upon or arising out of any alleged misunderstanding or misconceptions or mistake on my/our part of the said stipulations, restrictions and conditions.

I/ We undertake & declare that our unit has never made any default in supplying the machine/ equipment to Government / Semi Government/ Central or State Public sector enterprise(s) for any reasons in the last five years.

Any notice required to be served on me/us shall be sufficiently served on me/us through email or post (registered or ordinary) or courier or left at my/our address furnished herein.  
.....

I/We fully understand the terms and conditions in the tender documents.

I/We understood that the purchaser is not bound to accept any proposal that it may receive without assigning any reason.

Dated this.....day of.....2019

Authorized Signatory  
Seal:

**FORMAT & REQUIREMENTS FOR SUBMITTING TECHNICAL BID**

1. Tender Ref. No: NSIC/Che/Elec/2019/02
2. Name of Bidder: .....
3. Complete office address/contact numbers/Email ID/Mobile Number of Bidder:  
 .....
4. **Tender fee payment details** (if tender document downloaded from website)  
 Details of DD/ RTGS/ NEFT by which tender fee paid.....
5. **Confirmation of acceptance of Technical Specifications for the supply of machine:**

Technical Specifications	Acceptance to the Specification as placed at Annexure-A and agreed to supply with required Quantity(Write YES/NO only)	If marked "NO" in the column before, specify the deviation in specification of the items offered for the supply.
<p><b>1. Smart power Generation - Solar Based Green Energy Generation, Tracking &amp; Monitoring Facility</b></p> <p><b><u>Specifications:</u></b></p> <p><b>a.Module mounting structure:</b></p> <ul style="list-style-type: none"> <li>• Construction Material Mild Steel (angle/flat )</li> <li>• Suitable for panel size 1650 × 992 mm (250W/300W/325W panel)</li> <li>• Protection from corrosion Aluminium / Zinc Spray</li> <li>• Bolt and Nut for fixing: 6 nos</li> </ul> <p><b>b.Fully Automatic Solar Tracking System with solar panels</b></p> <ul style="list-style-type: none"> <li>• Solar panels 1Kw( 4 panels of 250w)</li> <li>• Inverter –solar sinewave 1.8kw and charge controller</li> <li>• Linear Actuator 12V DC</li> <li>• Stroke: : 1-40 inches</li> <li>• Current (full load):5A</li> <li>• Fully Retracted4.13" + stroke</li> </ul>		



- Fully Extended: 4.13" + stroke + stroke
- Limit Switch : Built In, Non-Adjustable
- Mounting Holes: 0.25"
- Motor Type: Brushed DC Motor
- Housing Type: 6062 Aluminium Alloy
- Solar tracking controller: micro-controller Based
- 12 VDC Control Box - 2 Channel - Parallel Control
- Current: : 30 Amps (15A per channel)
- Control Ability: Will control Two actuators at the same time

**c. Solar Tubular Battery Set:**

- Voltage configuration 24V(12Vx2)
- It can operate between -60° C and 60° C
- D.O.D allowed tubular battery 80% max
- Battery charge efficiency 85%
- Autonomy consider 2days
- Battery capacity required 12V 150Ah (2x150Ah)
- Type Tubular Lead acid flooded electrolyte
- Positive plate Tubular
- Negative plate pasted plate
- Voltage of each cell 12 volt nominal
- Electrolyte Dilute Sulphuric Acid

**d. Solar Data Logger & Power Analyzer for Maximum power tracking**

- Computerized data acquisition system used to study the operation of ADC and DAC through USB/serial port. Data acquisition system captures solar data generated in real time using ADC channels and to plot current and voltage curve and maximum power generation data with Solar Tracking system and process them , display in digital through PC and if needed produces analog output through DAC to control sensors.
- Voltage Sensor:
  - Max input DC voltage: 600V
  - Output current: 10mA
- Current Sensor:
  - Max input DC current: 25A
  - Output current: 25mA
- Note: All sensors to be housed safely and wiring to be brought for data monitoring for PC
- Number of Channels 8 and all the channels are independent

**ANALOG INPUT:**

Converter type	Successive approximation
Analog inputs	8 single-ended/4 differential
Input resolution	12 bits differential
Max sampling rate	50 kS/s
At FIFO	512 bytes
Timing resolution	41.67 ns (24 MHz time base)
Timing accuracy	100ppm of actual sample rate
Differential	±20 V, ±10 V, ±5 V, ±4 V, ±2.5 V, ±2 V, ±1.25 V, ±1 V
Working voltage	±10V
Input impedance	144kW

**ANALOG OUTPUT:**

Converter type	Successive approximation
Analog outputs	2
Output resolution	12 bits
Output range	0 to +5V
Output impedance	50W
Output current range	5mA
Slew rate	1V/1s
Absolute accuracy	7mV typical, 36.4mV max at full scale

**DIGITAL I/O:**

PO.<0..4>	4 lines
PI.<0.2>	2 lines
Direction control	Each channel individually programmable as input or output
Programmable compatibility	TTL, LVTTTL, CMOS
Absolute maximum	-0.5 to 5.8V voltage w.r.t GND
Pull-up resistor	4.7K W
Resolution	11 bit

**COUNTER:**

Number of counters	1
Resolution	32 bits
Counter measurements	Edge counting (falling-edge)
Pull-up resistor	TTL, LVTTTL, CMOS
Absolute maximum	-0.5 to 5.8V voltage w.r.t GND
Pull-up resistor	4.7K W
Maximum input frequency	5Mhz
Maximum high pulse width	100ns
Maximum low pulse width	100ns
Input high voltage	2.0 V
Input low voltage	0.8V

**e. IoT Based Data logging and Remote Monitoring system for Solar Power Generation**

- M2MC8000 IoT Controller Based sensor monitoring of measured solar data
- 1,4 GHz ARM Cortex-A53 Quad-Core-CPU
- WLAN 802.11 b/g/n/ac (2,4 + 5,0 GHz)
- LAN RJ45 10/100/1000 Mbit (Gigabit LAN over USB 2.0 with up to 300 Mbit) etc.
- Controller operating Voltage is 3.3V
- Voltage, Current and Temperature Sensors with signal conditioning unit
- The operating temperature range for the sensor is from -55 to 150 Celsius
- PC Interface for Remote monitoring
- 10-Bit 16-Channel Analog to Digital Converter
- SPI based Data conversion
- Display of collected data of voltage current, temperature in Graphical form with solar I-V curve
- Could based Remote monitoring of solar Data

**2. IoT Smart Remote Control, Monitor and Management of Utilities**

**Specifications:**

- IoT Controllers, IoT WiFi Gateway
- IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt

<p>Linux distribution.</p> <ul style="list-style-type: none"> <li>• Designed especially to enable prototyping of Rich Application IoT devices for smart home or offices.</li> <li>• Compatible well with Arduino, can develop different features from Arduino.</li> <li>• Help to build rich applications based on various, robust and compiled Arduino Yun sketches.</li> <li>• The system offers the memory and packet storage to enable robust video processing.</li> <li>• Platform also offers options to create device applications in Python, Node.js and C programming languages.</li> <li>• IoT control Software &amp; Firmware, Cloud And Data Analytics Software</li> <li>• IoT based control system with WiFi smart switch Sensor with relay (6A load) for ON/OFF control operations (light/fan etc.)</li> <li>• WiFi IR Blaster for remote control operations (TV,A/C,AV,CD player etc.)</li> <li>• Act as all in one remote for all the IR controlled devices.</li> <li>• Can be placed anywhere in the building with in the line of sight of the devices to be controlled</li> <li>• Can be controlled from any remote location over the internet and Wifi and no need of worry about switch off the AC or any device when we leave the building</li> <li>• The scheduling and timer can be setup to help energy saving in consumption during night or day also.</li> <li>• Can be connected to any WiFi router available at the buildings</li> <li>• Can be configured with different networks with multiple devices</li> <li>• The control can be carried where ever we go</li> <li>• Allow to control and regulate the electrical points of green buildings through smart phone with PIR Motion Sensor</li> <li>• Onboard Timers provided to allow to automate the appliances for routine operations</li> </ul>		
<p><b><u>3. Smart Energy Monitoring of Power Utilization</u></b></p> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt Linux distribution</li> <li>• IoT control system with Centralized Energy monitoring and control system to visualize energy utilization for 100 to 265 V ac at the distribution Box, For each phase of 3-phase Supply.</li> <li>• Tracks all activity of any kind of load connected to</li> </ul>		

- the node and uploads data to cloud server also to Android / iOS app.
- Data is analyzed on cloud and recommendations given for energy saving and optimum utilization.
  - Data accessible from anywhere in the world.
  - Smart energy Monitor with Power consumption of Device : <2 Watts(Under Normal conditions)
  - Working Voltage Range: 100 to 265V ac x 3-phase
  - Operating Frequency : 48 ~55Hz
  - Operating Temperature Range : -20 to 60 Degree Celsius
  - Maximum Current Rating : 30A Per Phase
  - Plug and Play
  - Retrofittable
  - Cloud based
  - Industry grade security
  - Appliance level usage data
  - Detailed Dashboard – hourly, daily, monthly usages and comparisons, Time of Day usage, Appliance health, Carbon emissions
  - IoT WiFi Gateway, Current and Voltage Sensor Modules
  - IoT control Software & Firmware, Cloud And Data Analytics Software
  - Able to get the energy audit report for all connected live loads for every phase
  - Able to get the data of the connected appliances at the given time
  - Able to get the data of Average units consumed.
  - Able to get daily statistical report in Daily, Monthly and Yearly
  - Can able to track the energy on the cloud with MQTT broker on the cloud

**4.Smart Sensor Measurement of Connected Devices and Cloud Monitoring**

**Specifications:**

- IoT Controllers, IoT WiFi Gateway, Sensor Modules
- IoT Development system based on MIPS24KEc DSP and ATmega32u4 and it is compatible with Arduino Yun sketches and is based on the OpenWrt Linux distribution
- IoT control Software & Firmware, Cloud And Data Analytics Software
- Sensor Set 1- Consist of Irradiance , Temperature , Wind and Humidity sensors
- Sensor Set 2 - Consists of Water Leakage detection sensor, Rain Drop sensor
- Sensor Set 3 - Sound, Ligh, Ultrasonic Range, PIR Motion, Smoke, IR sensor, Acceleration, Temperature, Humidity, LPG Gas Sensor, Alcohol Sensor
- Sensor Set 4: ECG sensor, Soil moisture Sensor

<ul style="list-style-type: none"> <li>• Sensor set 5: Air quality sensor for detecting a wide range of gases, including NH3, NOx, alcohol, benzene, smoke and CO2. Ideal for use in office or factory.</li> <li>• Data acquisition(for Data logging) with Graphical User Interface</li> <li>• Power supply for Sensors and Data logger</li> <li>• Temperature Sensor:</li> <li>• Calibrated Directly in Celsius (Centigrade)</li> <li>• Rated for Full –55°C to 150°C Range</li> <li>• Suitable for Remote Applications</li> <li>• Low-Cost Due to Wafer-Level Trimming</li> <li>• Operates from 4 V to 30 V</li> <li>• Irradiance Sensor:</li> <li>• Irradiance: 0 to 1500 w/m<sup>2</sup></li> <li>• ABS housing</li> <li>• 0-10 V or 4-20 mA output</li> <li>• Housing with simplified mounting system</li> <li>• DIP switch configuration</li> <li>• Quick and easy mounting with the 1/4 turn system with wall-mount plate</li> <li>• Note: All sensors to be housed safely and wiring to be brought for data monitoring for PC</li> <li>• Data acquisition</li> <li>• Analog inputs: 16 inputs</li> <li>• Input voltage : 0 to 5V/3.3V</li> <li>• Sampling rate: 50Ks/s</li> <li>• Communication: USB cable</li> <li>• Power supply for Data logger</li> <li>• AC voltage input : 230V,50Hz</li> <li>• DC voltage output : +12V,-12V 500mA</li> <li>• Necessary DC voltages according to sensors selected</li> </ul>		
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<p><b>5. IoT Remote Monitoring and Control of open space street lightings with WiFi connectivity Extension ( 20nos.)</b></p>		
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The above list of standard accessories are tentative and the bidder shall have authority to supply additional accessories as they deemed fit for the successful operation of the machine/ equipment after the supply at designated site.

**6. Confirmation for supply to the address:**

#	Details	Address
		NSIC- Technical Services Centre, Sector B-24,Guindy Industrial Estate, Ekkaduthangal, Chennai-600 032.
1	<b>Tentative quantity required</b>	1 set
2	<b>Consent to supply: (write YES/ NO only)</b>	

7. **EMD payment details** (Not applicable if the bidder is holding valid registration/ exemption certificate, as per Para 13 (c) of Instruction to Bidders): Details of DD/RTGS/NEFT by which EMD paid  
 .....  
 The EMD of Rs. .... (Rupees ..... Only) for ..... (address) shall be submitted.
8. **PAN of bidder** (self-attested copy to be enclosed) .....
9. **GSTIN registration number of bidder** (self-attested copy to be enclosed)
10. **Delivery period after receipt of supply order from purchaser:** (The purchaser is expected to complete delivery of machine by the bidder within sixty (60) calendar days from the date of issue of supply order. However, the bidder has an option to submit the best delivery time, but in any case, the delivery should be before 90 days from the date of issue of supply order by purchaser. Delivery to be completed in number of days ..... (Calendar Days In figure) ..... (Calendar Days in words) for delivery from the date of issue of supply order by purchaser.
11. **Details of address with contact details from where the bidder planned to offer After Sales Services during the Warranty & after warranty period :**

#	Address.....(location & address on which the machine to be supplied) <b>NSIC- Technical Services Centre, Sector B-24, Guindy Industrial Estate, Ekkaduthangal, Chennai-600 032.</b>
Details of address of bidder for rendering 'After Sales Services'	

12. **Details of address with contact details for at least three (03) purchaser to whom the bidder supplied similar machine in the last five (05) years and machine shall be in operations to the satisfaction of buyer for the last three (03) years:** The format for submission of details for at least three purchaser are as under: (the bidder can furnish details of even more than three purchaser)
- Address of Purchaser with contact details (email and phone no.): .....
  - Details of order for supply placed to bidder: .....
  - Description and quantity of ordered equipment: .....
  - Value of order in rupees: .....
  - Date of completion of delivery: .....

**(The purchaser shall have liberty to contact any or all of purchaser to assess the performance of machine supplied by bidder)**

13. **Documents - Details to be enclosed with the Technical bid by bidder are as under:**
- In case the bidder is Original Equipment Manufacturer, the bidder to submit a self-declaration on their letter-head, confirming that they are regular in manufacturing & supplying the similar machines, as asked in this tender, for the last Ten (10) years.

- b) In case the bidder is Authorized Distributor of OEM / Authorized Dealer of OEM, the bidder to attach self-certified valid authorized Distributorship / Dealership license from Original Equipment Manufacturer and shall be engaged in regular manufacturing and supply of similar machine for the last ten (10) years & engaged with the present OEM for the last three years for which this tender is participating.
- c) The Original Equipment Manufacturer shall attach the self-certified copy of valid ISO Certificate for their establishment.
- d) In case the bidder is Authorized Distributor of OEM / Authorized Dealer of OEM, the bidder to attach the self-certified copy of valid ISO Certificate of their OEM.
- e) To avail benefit of Public Procurement Policy by SC/ST Micro & Small Enterprises, the requirement of documents to substantiate their claim (As per Para 5 of this tender) shall be submitted with Technical Bid.
- f) Undertaking as per annexure-B on official stationery.
- g) Duly signed all pages of "Instructions to Bidders" of the tender document as a mark of acceptance.
- h) The letters substantiating performance from at least three (03) other purchasers, to whom, the similar machine supplied by the bidder in last five (05) years, wherein, the machine shall be in operation to the satisfaction of buyer for the last three (03) years, to access performance of the machine supplied by your organization.
- i) Technical Literature of machine(s) with particular reference to the model of machine proposed to supply against this tender along with reference of website to assess the further features.
- j) Authorization letter in favour of their representative to sign the tender on behalf of bidder.
- k) Self-certified copy of valid certificate for claiming EMD exemption.
- l) Self-certified copy of valid certificate for claiming Tender Fee exemption.
- m) Self-attested copy of valid GSTIN registration.
- n) Self-attested copy of valid PAN.
- o) In case EMD paid through online banking system, the details of UTR Number and date shall be submitted.
- p) In case the tender downloaded from website, then either the Demand Draft towards tender's form fee or UTR number and date for the transfer of tender form fee shall be enclosed with the technical bid.
- q) The Bidders shall furnish complete Technical details of machine/ equipment/ material for the machine offered to supply through the participation of this tender (use separate sheet to elaborate the details of technical specifications such as Measuring Range/Size, Least Count/Resolution, Accuracy, Materials used, Accessories, Tools, Spares, software, etc.).
- r) To submit all supporting information with respect to the technical data, drawings or booklets of product. Any product brief, test certificates available may be enclosed.

I/We as bidder agree and certify that:

- a. The Bid submitted through this tender shall remain valid for acceptance for 90 days from the date of opening the Technical Bid of the tender.



- b. Agree to offer services for onsite comprehensive warranty on the machine(s) for two years supplied through this tender.
- c. Agree to impart onsite training to the designated personnel of purchaser for 10 working days.
- d. No price of any Machine/ Equipment/ Spares/ Accessories shall be given in Technical Bid.
- e. All above machines should be provided with safety features/ curtains/ enclosure/ stands etc. wherever applicable.
- f. The Bidder certified that all consumables, electrical and electronic parts of the product conform to national/ international standard(s).

Name & Signature of the authorized bidder with stamp  
Contact details of authorized person of bidder who have signed the tender.

Name.....  
Designation.....  
Phone (office).....  
Phone (Mobile).....  
E mail.....

**FORMAT FOR SUBMISSION OF COMMERCIAL BID**

1. Tender Ref. No: **NSIC/Che/Elec/2019/02**
2. Name of the Bidder: .....
3. The commercial offer to execute the supply as per the tender:

**a. Supply of Machine –“ Green Energy Management with IOT for Smart City ’**  
to the NSIC Technical Services Center, Sector B-24 , Guindy Industrial Estate,  
Ekkaduthangal Chennai-600032.

#	Details	Unit Price of Machine before GST of single unit (In Rs.)	Quantity to be supplied (In No.)	Total Price of Machine before GST (Multiply column no 2 and 3) (In Rs.)
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
a.	Offered financials for the Supply, Installation, and Commissioning at site & Training to trainers with commitment to offer on site after sales Services in the period of Warranty of the machine offered to supply, as agreed in technical bid of the tender no: <b>NSIC/Che/Elec/2019/02</b>			
b.	Total Price of Machine before GST for the supply of total quantity as detailed at row ‘a’ above to the address at <b>NSIC Technical Services Center, Sector B-24 , Guindy Industrial Estate, Ekkaduthangal Chennai-600032.</b> (Row a) (In Rs.)			
c.	Total Price of Machine before GST for the supply of total quantity as detailed at row ‘a’ above to the address at <b>NSIC Technical Services Centre, Sector B-24 , Guindy Industrial Estate, Ekkaduthangal Chennai-600032.</b> (Row a) (In words) .....			

The following to be noted while submitting financial details for the supply of machine to the individual address:

- a. The competitiveness of bid shall be made on address of supply basis on the evaluation of “Unit Price of Machine before GST”.
- b. The Purchaser shall compare the “Unit Price of Machine before GST” of all the responsive bids to determine the lowest bid for a particular address.
- c. The bidder shall note that they are not supposed to put any GST amount in the Commercial Bid. However, after the supplies, they have to issue the GST invoice

indicating the Price of machine as quoted in the Commercial Offer and thereafter specify the GST as applicable at the time of delivery. The Purchaser shall pay total amount which includes the unit price of machine as well as the GST as applicable at the time of delivery.

- d. The Total Cost quoted above should be inclusive of Basic Price, Transportation, Incidental Services (including Insurance, Loading/ Unloading, Packing & Forwarding charges etc.), Installation & Commissioning, Demonstration & Training, on-site comprehensive warranty for two years period.
- e. The Purchaser reserves the right to ask the evidence from bidder to counter-check that the GST as claimed by the bidder at the time of issue of invoice after the supply of machines.
- f. The bidder will not be entitled to any increase in Unit Price of the machine/ equipment before GST occurring during the period of delivery for any reason.
- g. The "Unit Price of the machine before GST" should be inclusive of all costs involved for the delivery to the destination(s) including the cost of Installation & Commissioning at destination, Training to the trainer (as detailed at Para 3 (c&d) of "Scope of Supplies" of this tender), Cost of services to be provided during Comprehensive Warranty of two years. (Refer Para 3(e) of "Scope of Supplies" of this tender).
- h. No extra payment or revision of "Price of Machine before GST" shall be accepted on account of any discrepancy in nomenclature of items. The Bidder is advised to seek clarification, if any, desired before submitting the tender/ bid.
- i. The competing bids of "Unit Price of the machine before GST" shall be given due consideration as the Commercial Bid would be evaluated on the basis of lowest price.

I/We as bidder agree and certify that:

- i. The tender shall remain valid for acceptance for 90 days from the date of opening the Technical Bid of the tender.
- ii. Agree to offer services for onsite comprehensive warranty for two years on the machine(s)/ equipment supplied through this tender.
- iii. Agree to impart onsite training to the designated personnel of purchase for 10 working days
- iv. Agree to three (03) sets of the Installation, Operation, Maintenance(Shall include details of schematic diagrams), and Training Manuals with machine.
- v. Agree that the offer price is valid for a period of 90 days from the date of opening of technical bid of this tender.

Further confirm that we agree with the terms and conditions specified in "Instructions to Bidders" and if we succeed, the execution of supplies would be made in compliance.

Name & Signature of the authorized bidder with stamp  
Contact details of authorized person of bidder who have signed the tender.

Name.....  
Designation.....  
Phone (office).....  
Phone (Mobile).....  
E mail.....