# NORTH EAST ELECTRIC POWER CORPORATION LTD.
# (A Govt. of India Enterprise)
# NEEPCO Bhawan, R.G. Baruah Road, Guwahati-781005

# DETAIL TENDER NOTICE

**Tender Notice No:NEEPCO/Coord/GHY/F-60/2012-13 Dated 29.11.2012**

## 1. Title of the Project

**2 KWp Solar PV Power Pack in the office building of North East Electric Power Corporation Ltd, NEEPCO Bhawan, Guwahati 781005.**

**Details**

Design, Supply, Installation, Testing & Commissioning of 2 KWp Solar Power pack along with charge controller, inverter, controls and protection for providing power supply to outdoor lighting and security booth of NEEPCO Bhawan , Guwahati, along with the following works-

**(a)** Supply and Installation of 12 nos. 35W(A.C.) LED Street Light fittings, 10 nos 5W (A.C.) LED garden lights and replacement of existing lights of security booth with efficient luminaries as per details provided in the Tender document.

**(b)** Connecting the luminaries specified under item (a) above with electrical cables, switches and controls to the solar power pack specified above and testing and commissioning of the whole system.

## 2. ELIGIBILITY: PRE-QUALIFICATION REQUIREMENTS OF TENDERER

2.1 The tenderer shall be a reputed Channel Partner (under Jawaharlal Nehru National Solar Mission--JNNSM) and/or turnkey executor of Solar Photovoltaic Power plants being accredited/ recognized/approved by the Ministry of New and Renewable Energy(MNRE), Govt. of India, having experience in similar type of work. The Bidder shall submit copies of valid documents supporting accreditation/recognition/approval of MNRE.

2.2 The Bidder must have their registered office/ sales & Service Centre operating since last 6(six) months in Assam. Further, the bidder must be in possession/ have fulfilled all statutory clearances/ requirements to operate all activities related to this tender.

2.3 Local dealers/agents of an eligible tenderer will be issued Tender Documents but they will have to submit authorization document from their Principal Organization in Format A provided under item 2.8.1 below. The Tender document shall be issued in the name of the Principal Organization only.

2.4 The following are the major components of the project:-

(a) Solar PV modules

Copy of Test Reports for each of the above product of type/size/rating similar to product to be supplied, from MNRE approved Test Laboratory for respective item, issued during last 12 months shall be attached. The Solar PV Module must have Valid Test Certificate of IES 61215(revised or equivalent). Such Test Certificate of the module to be supplied should be submitted with the Tender.

2.5 The tenderer must have executed at least three projects similar to those of this tender during last 3 years. Details may be submitted in Format B under Item 2.9.2 below with supporting work orders and certificates.

2.6 The tenderer should have adequate financial stability and status to meet the financial obligations pursuant to the scope of work. Copy of balance sheet for last three years shall have to be submitted to examine this aspect.

2.7 The tenderer should have adequate local service setup to provide dependable and quick after sale services including necessary repair and maintenance of the system to be installed and submit necessary documents regarding such setup.

2.8 While the above stated requirements need be fulfilled by the tenderer as pre qualification requirement, NEEPCO may also ask for any additional information as may be deemed necessary.

2.9 Formats mentioned under Item 2.3 and Item 2.4 are given below:

2.9.1 FORMAT OF AUTHORISATION BY A PRINCIPAL ORGANISATION
(Reference item No 2.3)

**FORMAT A**

Sub. : Authorization by a Principal Organisation

DECLARATION
(To be submitted on Rs. 100/- stamp paper)

We are a Channel Partner (under JNNSM) and/or turnkey executor of Solar Photovoltaic Power plants, being accredited/ recognized/approved by the Ministry of New and Renewable Energy(MNRE), Govt. of India…… Document (certified copy) in respect of our recognition/authorization of Ministry of New and Renewable Energy (with validity upto ……) is enclosed herewith. We are also a system integrator empanelled by MNRE under the JNNSM.

Hereby authorize M/s._____ (*name* & address of distributor / agent) to bid, negotiate and conclude the order with you as our authorized agent.

We shall remain responsible for the tender/ Agreement negotiated by M/s _____, jointly and severely. No company or firm or individual other than M/s _____ are authorized to bid, negotiate and conclude the order in regard to this business against this specific tender as for all business in the entire territory of India.
In case duties of the agent/distributor are changed or agent/ distributor is changed it shall be obligatory on us to automatically transfer all the duties and obligations to the new Indian Agent failing which we will ipso-facto become liable for all acts of commission or omission on the part of new Indian Agent/ distributor.

[Name & Signature]
for and on behalf of M/s. _____ [N*ame of Principal Organisation*]

Date: Place

2.9.2 FORMAT FOR WORK EXPERIENCE( Reference item no-2.5)

**FORMAT B**

| Name of the Organisation | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Works (similar to the work for which this tender is submitted)executed during last three years | | | | | | | | |
| Sl. No | Name of the Project | Name & Address of the Client | Contact telephone Number of the client | Major items of works with size/rating | Value of works in Rs lacs | Start date | Date of completion | Present functional status |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Note : Attach relevant Work Order and completion certificates from the implementing Agency/ Owner for works in previous 3 years.

Authorized Signatory
Company Seal

Date: Place:

## 3. RESPONSIBILITY OF TENDERER TO STUDY SITE AND OBTAIN INFORMATION:

3.1 The tenderer must obtain for himself on his own responsibility and at his own expense all the information which may be necessary for the purpose of filling this tender and for entering into contract for the execution of the same .He must inspects the site of the work. The visit to the site may be undertaken with prior intimation to Sr. Manager(C)NEEPCO. The tenderer shall be deemed to have carefully examined the works and site conditions, the general and the special conditions, specifications and schedules and shall be deemed to have visited the sites of the work and to have fully informed himself regarding local conditions and carried out his own investigations to arrive at rates quoted in the tenderer.

3.2 If tenderer shall have any doubt regarding this project in any matter regarding the general conditions or the special conditions, or the scope of the work or the specifications, or any other matter concerning the contract, he shall attend the Pre-Bid meeting. Once the Tender is submitted, the matter will be decided according to the Tender conditions in the absence of such authentic pre-clarification.

## 4. INFORMATION REQUIRED WITH THE TECHNICAL BID OF THE TENDER

The Bidder shall submit all the documents as mentioned above in "**ELIGIBILITY: PRE-QUALIFICATION REQUIREMENTS OF TENDERER" [Ref: Para 2.1 to 2.9].**

4.1 The tender shall clearly indicate the name of the manufacturer, type and model of each principal item or equipment proposed to be supplied. The tender may also contain details of specifications and other comprehensive descriptive materials in support of technical specifications.

4.2 The above information may be provided by the tenderer in separate sheets, specifications, catalogues etc.

4.3 Any tender not containing sufficient descriptive material to describe the proposed equipment may be treated as incomplete and hence may be rejected. Such descriptive materials and specifications submitted by the tenderer will be retained by NEEPCO. Any deviations from these will not be permitted during the execution of contract, without specific written permission of NEEPCO.

The Technical Bid evaluation shall be done on the above submissions. The bid without the above documents shall be disqualified and no further communications in this regards shall be entertained.

## 5. CLARIFICATION ON TENDER DOCUMENT

5.1 Any prospective tenderer requiring any clarification on the tender document regarding various provisions / requirements/ preparation/ submission of the tender, may contact NEEPCO in writing by letter or fax/ email within one week (7 days) from the date of publication/up-loading of tender at Website. Queries received later shall not be entertained.

5.2 Verbal clarifications and information's shall not be entertained in any way.

## 6. AMENDMENTS IN TENDER DOCUMENT

6.1 At any time prior to the due date for submission of the tender or even prior to the opening of the financial bid, NEEPCO may for any reason, whether at its own initiative or as a result of a request for clarification/ suggestion by a prospective tenderer, amend the tender document by issuing a notice.

6.2 The amendments will be notified on the website at least 3 days before the proposed date of submission of the tender. NEEPCO will bear no responsibility or liability arising out of non receipt of the information in time or otherwise. If any amendment is required to be notified within 3 days of the proposed date of submission of the tender, the last date of submission shall be extended for a suitable period of time.

6.3 In case amendments is notified by NEEPCO after received of the tender (prior to the opening of financial bids), all the tenders received by NEEPCO shall be returned in sealed condition to the concerned tenderer through registered post or courier, for getting their offer revised according to the amended terms and conditions.

## 7. QUALITY AND SATISFACTORY PERFORMANCE

7.1 The contractor shall warrant that all the systems, components and material are as per applicable standards and quality. Each item shall be in accordance with the specified technical parameters and should be new as well of the highest grade and consistent with established and generally be as per accepted standards as mentioned in the item 10 below. It shall be in full conformity with the drawing or samples supplied by the tenderer, if any and all equipment after commissioning, shall operate properly within the limits of stipulated standards of performance.

7.2 If within the stipulated warranty period the systems or any parts thereof are found defective because of design, workmanship or materials, the tenderer at his own expense, repair or install/ replace parts of proper design, workmanship and material approved by the Purchaser.

7.3 The contractor shall rectify defects developed in the Systems within Warrantee/ CMC period promptly. In case the contractor does not rectify the defects within 3 days of the receipt of complaint, NEEPCO may restore the System to working condition at contractor's expenses.

7.4 Repeated and unjustified delays in rectifying defects may lead to cancellation of the contract, recovery of losses and imposing of additional penalty. In such circumstance NEEPCO shall have the full liberty to recover the losses/penalty from the contractor pending claims, security deposit or in other law full manner. The amount of losses/penalty shall be decided by NEEPCO and will be binding on the contractor.

## 8. WARRANTY

The mechanical structures, electrical works including power conditioners/inverters/charge controllers/ maximum power point tracker units/ distribution boards/digital meters/ switchgear/ batteries, etc. and overall workmanship of the SPV power plants must be warranted against any manufacturing/ design/ installation defects for a minimum period of 5 years. However, the PV modules used in solar power plant must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.

## 9. COMPREHENSIVE MAINTENANCE CONTRACT (CMC)

It will be mandatory on the part of the tenderer to enter into a Comprehensive Maintenance contract with NEEPCO for 05 years. The period of C.M.C shall start from the date of commissioning. The scope under Comprehensive maintenance shall be as below:

1) The CMC will include the total system including the Battery bank.

2) Monthly checking up and replacement of the any defective component or subcomponents of the system as per requirement, for proper operation of the system.

3) The scope of work includes repairing/replacement to make the system functional within CMC period whenever a complaint is lodged by the user. The contractor shall attend the same within a reasonable period of time and in any case a breakdown shall be rectified within a period not exceeding 3 days.

4) In case of any damage or breakage of the component due to negligence or fault of beneficiary or theft etc, the same shall be replaced at users cost.

5) If the system or any component of it, is found damaged/defective due to non maintenance and repaired by the contractor, the cost for correcting the breakdown system (including component/material cost) will be deducted from contractor's payment/security deposit.

6) The safety and security of the system shall be sole responsibility of the user and any loss or damage of any component /material should be brought to the notice of NEEPCO by the contractor by a written intimation, immediately on such event coming to his knowledge.

7) The contractor shall submit a quarterly performance/ maintenance report for each system to the concerned project officer NEEPCO.

8) The CMC shall be executed by the firm himself or the authorized dealer/ service center of the firm in the concerned district. The CMC will include the total system including the Battery bank .

## 10. SAFETY, STANDARDS AND REGULATORY REQUIREMENTS

i) The electrical power supply from the solar system shall be completely separate from the existing electrical system and wires /cable of the solar PV system shall not run the same conduit as those for the existing system.

ii) The PV system may be treated as energized all the time, as power is generated whenever solar energy falls on the panel. All necessary precautions need to be taken in this respect and only trained persons having competency to work in such system only shall be engaged in operation and maintenance of the system. Such persons shall be authorized for specific works.

iii) The goods supplied and works executed under this contract shall conform to the standards mentioned in the technical specification and where no applicable standard is mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be applicable.

iv) While in the installation the provisions of National Electric Code 2011 in general need be complied with, in particular the provision under Part 8( Solar PV power supply system) of the above mentioned Code should be strictly adhered to.

v) Safety provisions of the Central Electricity Authority's 'Measure Relating to Safety and Electric Supply Regulation 2010' need be duly complied with.

vi) Electrical installation works including addition, alteration and adjustment to existing installation at voltage above 250 shall be carried out by the contractor only through a 'licensed electrical contractor', as required under Regulation 29(1) of the above mentioned Regulations and in consultation with the Engineer-in-charge 0f NEEPCO .

**11. INSPECTION AND TESTS**

11.1 NEEPCO or its duly authorized representatives shall have the right to inspect and /or to test the equipments/goods to confirm their quality according to the contract and shall have access to the contractor's works premises and the power to inspect and examine the materials and workmanship of the different components of the project at all reasonable times during their manufacture.

11.2 The contractor shall inform NEEPCO through a written notice regarding any material being ready for testing at least 7 days in advance. The conditions of contract and/or the technical specifications shall specify what inspections and tests shall be conducted by NEEPCO. All the arrangements of necessary equipments and expenses for such tests shall be on the contractor's account excluding the expenses of the inspector.

11.3 NEEPCO's Inspector, unless the witnessing of the tests is virtually waived off, will inspect and attend such test within 7 days from the date on which the equipments are notified as being ready for test /inspection. MNRE officer may also be present at the time of such testing.

11.4 NEEPCO shall within 7 days, give written notice to the contractor, about any objection regarding the quality of the system. The contractor shall either make the necessary modifications to remove the cause of such objection or shall clarify the objections in writing if modifications are not necessary to comply with the contract.

11.5 After satisfactory testing of the systems during inspection, NEEPCO's Inspector shall issue dispatch clearance for the supply of material at site.

## 12. TECHNICAL PARAMETERS AND SCOPE OF THE CONTRACT

The tenderer shall carry out following woks under the contract-

**PART A – 2 KWp Solar PV Power Pack in the Office Building**

**Details of works**

Design, Supply, Installation, Testing & Commissioning of 2 KWp Solar Power pack along with charge controller, inverter, controls & protection and providing power supply to outdoor lighting and security booth of NEEPCO Bhawan , Guwahati, along with the following works-

**(a**) Supply and Installation of 12 nos 35W (A.C.) LED street light fittings, 10 nos 5W (A.C.) LED garden lights and replacement of existing lights of security booth with efficient luminaries . The existing system shall have to modified as below-

The existing outdoor power supply consist of six 80 watt MV luminary in posts, four 4x11 watt garden lights and the security booth power supply with two 40 watt tubes and 2 fans (60 watt). There are also 2 nos. 400 watt Metal Halide lamps in the front of the office. It is proposed to provide Solar Power to the outdoor lights, the security booth and in the garden, except the metal Halide lamps.

The following outdoor loads shall be connected to and supplied from the proposed solar PV system.

| Sl. No. | Item | Modification of existing system | | New | Total (proposed) |
|---|---|---|---|---|---|
| | | Existing | Proposed | | |
| 1. | Outdoor lights | 6x80 watt MV | 6x35 watt LED (in existing pole structure) | 6x35 LED (new Pole) | 12x35 = 420 watt |
| 2. | Security booth | 2x40 watt T.L<br>2X60 watt fan | 2x11 watt CFL<br>2x5 watt LED<br>2X60 watt fan | -- | 2x11= 22 watt<br>2X5 = 10 watt<br>2X60= 120 watt |
| 3. | Garden lights | 4x11 watt = 44 watt | 10x 5watt=50 | -- | 50 watt |
| | Total | | | | 622 watt |

**(b)** Connecting the luminaries specified under item (a) above with electrical cables, switches and controls to the solar power pack specified above and testing and commissioning of the whole system.

## 13.2 Specific Information

The following specific information need be provided. Any deviation proposed in any specification specified in Annexure-I shall be clearly indicated and described in the format provided under item 13.3 below

## PART-A – 2 KWp Solar PV Power Pack in the Office Building

### i) SPV Modules

| Particulars | Information on product proposed |
|---|---|
| 1Type of Module (Mono/Poly crystalline) | |
| 2 Name of Manufacture | |
| 3 If RFID tag provided | |
| 4 Max power at STC Pmax (W) | |
| 5 Max power voltage Vmp(V) | |
| 6 Max power current Imp(A) | |
| 7 Open circuit voltage Voc (V) | |
| 8 Short circuit current Isc (A) | |
| 9 Load voltage V ld (V) | |
| 10 Conversion Efficiency | |
| 11 No of cells per module | |
| 12 Solar module frame material | |
| 13 Module Dimension | |

| | |
|---|---|
| 14 Module Weight | |
| 15 No of Modules | |
| 16 Series/ parallel combination | |
| 17Any other special feature | |

### ii) Battery

| Particulars | Information on product proposed |
|---|---|
| 1 Name of the manufacturer | |
| 2 Type | |
| 3 Brand name | |
| 4 Cell voltage | |
| 5 Cell Amp Hr | |
| 6 Dimensions of Cell (size) | |
| 7 Battery Bank Voltage | |
| 8 Battery Bank Amp Hr | |
| 9 Any other special feature | |

### iii) Charge Controller

| Particulars | Information on product proposed |
|---|---|
| Name of the manufacturer | |
| Brand name, if any | |
| Type | |
| Stage of Charging | |
| Efficiency | |
| Idle current | |
| Temperature compensation | |
| DC voltage | |
| Charging Current Capacity | |
| Protections | |
| Indications | |
| Optional Features ,if any | |

### iv) Inverter

| Particulars | Information on product proposed |
|---|---|
| Name of the manufacturer | |
| Brand name, if any | |
| Type | |
| Capacity | |
| Input Volt | |
| Output Volt 230 VAC / 50 Hz | |
| Type of output wave | |
| Maximum Harmonic Distortion | |
| Output Voltage Regulation | |
| Efficiency more than 90% | |
| Overload Capability at switching | |
| Acoustic Noise level | |
| Protections | |
| Optional Features ,if any | |

### v) Luminary for street light:

| Particulars | Information on product proposed |
|---|---|
| Lamp rated wattage | |
| Input voltage | |
| Expected Input Frequency | |
| Power Factor | |
| Power Efficiency | |
| LED efficiency | |
| Total Harmonic Distortion | |
| Working Temperature | |
| Working Humidity | |
| Index of Protection Level | |
| Lamp Casing | |
| Expected Life | |
| Output Luminous Lux | |
| LED Type and make | |
| Luminary type | |
| Colour Temperature | |
| Colour Rendering | |
| Junction Temperature | |
| Energy Consumption Watt/ Lamp | |
| Expected Life of components | |
| Moisture , water , dust protection in case of casing damage | |

| | |
|---|---|
| Control Circuit | |
| Dimensions | |
| Weight | |
| Photometric Curve ( should be enclosed ) | |
| Optional Features ,if any | |

### vi) Poles for street light

| Particulars | Information on product proposed |
|---|---|
| Length | |
| Size | |
| Material | |
| Thickness of material | |
| Drawing of the pole showing all components and dimensions ( to be attached) | |

### vii) LED garden lights

| Particulars | Information on product proposed |
|---|---|
| Lamp rated wattage | |
| Input voltage | |
| Input Frequency | |
| Power Factor | |
| Power Efficiency | |
| LED efficiency | |
| Total Harmonic Distortion | |
| Working Temperature | |
| Working Humidity | |
| Index of Protection Level | |
| Lamp Casing and support | |
| Life | |
| Output Luminous Lux | |
| LED Type and make | |
| Luminary type | |
| Colour Temperature | |
| Colour Rendering | |
| Junction Temperature | |
| Energy Consumption Watt/ Lamp | |
| Expected Life of components | |
| Moisture , water , dust protection in case of casing damage | |
| Control Circuit | |
| Uniformity (Min / Avg) | |
| Uniformity (Min / Max ) | |

**viii) Other components**

Details of other components/works of the project ( i.e. panel mounting structures, array junction box and main junction boxes, distribution boards and panels, power and control cables, power plant metering/data logging and lightning protection & earthling) shall be provided item wise with the tender, which should conform to specification specified in Annexure I for respective item. Any deviation from specified specifications shall be incorporated in a deviation statement.

## 13.3 Deviation Statement

Deviation from stipulated technical parameters (Item 12 in this Tender Document) and Technical Specifications need be incorporated in the statement below. Separate statements may be provided for each item.

| Reference ( item of this document or Annexure) | Item | Provision | Deviation proposed | Justification for deviation |
|---|---|---|---|---|
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**ANNEXURE I**

# GENERAL TECHNICAL SPECIFICATIONS

## I. 2 KWP SOLAR PV POWER PACK

### 1. PHOTO VOLTAIC PANEL MODULES:

1.1 The minimum array capacity of total Solar Photovoltaic Modules (Mono / Poly Crystalline) should not be less than 2 KWp. Module less than 100 Wp capacity should not be installed.

1.2 The PV modules used in the grid connected solar power project shall be of Crystalline Silicon Solar Cell and must qualify the relevant IES 61215/ IS 14286.In addition, PV modules must qualify to IEC 61730 Part I & II, for safety qualification testing.

1.3 The PV modules must be tested and approved by one of the IEC authorized test centres. Certificates has to be from any of the NABL/ BIS Accredited Testing / Calibration Laboratories. At present Solar Energy centre (SEC) and ETDC, Bangalore is authorized by the MNRE for Testing of PV Modules as per IEC and IS standards. Test report from any test centre as may be authorised by MNRE shall be accepted.

1.4 The PV module shall perform satisfactorily in humidity up to 85 % with temperature between – 40 deg. C to +85 deg C and with stand wind dust upto 200 km/h from back side of the panel. Photo / electrical conversion efficiency of SPV module shall be greater than 13%. Since the modules would be used with an grid, the high voltage insulation test shall be carried out on each module and a test certificate to that effect provided.

1.5 The rated output power of any supplied module shall not vary more than 3(three) percent from the average power rating of all modules.

1.6 Except where specified otherwise, the front module surface shall consist of impact resistant, low-iron and high-transmission toughened glass.

1.7 The module frame, shall be made of a corrosion-resistant material which shall be electrolytic ally compatible with the structural material used for mounting the modules.

1.8 The module shall be provided with a junction box with provision of external screw terminal connection and with arrangement for provision for by-pass diode to minimize power drop from shades. The box shall have hinged, weather proof lid with captive screws and cable

gland entry points. They should be proper, shock proof, corrosion resistant & proper provision for cleaning, repair & maintains/replacement.

1.9 Each PV module to be use must use a RF identification tag. The following information must be mentioned in the RFID used on each modules. This can be inside of outside the laminate, but must be able to withstand harsh environment conditions.

i) Name of the manufacturer of Solar Cells
ii) Name of the manufacturer of PV Module
iii) Month and year of the manufacture ( separately for solar cells and module)
iv) Country of origin ( separately for solar cells and module)
v) I-V curve for the module
vi) Wattage , lm, Vm and FF for the module
vii) Unique Serial No and Model No of the module
viii) Date and year of obtaining ICS PV module qualification certificate
ix) Name of the test lab issuing IEC certificate
x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

**2. PANEL MOUNTING STRUCTURES:**

2.1 The PV penal structure material shall be designed in such a way that it shall withstand the wind speed of 150 Km per hour in case of storms.

2.2 Structural material shall be corrosion resistant and electrolytic ally compatible with the materials used in the module frame, its fasteners, nuts and bolts. . Hot dip galvanized iron mounting structures may be used for mounting the modules/ panels/arrays The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.

2.3 The structures shall be designed to allow easy replacement of any module.

2.4 The structures shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. The civil work for installation of panel structure should be minimum. The civil works required will have to be done by the supplier.

2.5 The module structure shall be fixed and grouted in the PCC foundation columns made with 1:2:4 cement concrete. The minimum clearance of the lowest part of any module structure shall not be less 500 mm from ground level.

2.6 The supplier shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. Such details shall include, but not limited to, the following:

a) Determination of true south at the site
b) Array tilt angle to the horizontal, with permitted tolerance
c) Details with drawings for fixing the modules
d) Details with drawings of fixing the junction/terminal boxes
e) Interconnection details inside the junction/terminal boxes
f) Structure installation details and drawings
g) Electrical grounding (earthing)
h) Inter-panel/Inter-row distances with allowed tolerances

**3. ARRAY JUNCTION BOX AND MAIN JUNCTION BOXES**:

3.1 Junction Boxes as per IP 65 specifications

3.2 The junction boxes are to be provided in the PV yard for termination of connecting cables from array to Main JB & Main JB to Sequential Energy controller. The Junction Boxes shall be made of FRP / aluminium/ABS Plastic with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The J.Bs shall be such that input & output termination can be made through suitable cable gland made of GFRP or cast aluminum/ABS Plastic.

3.3 Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standards for outdoor and IP21 for indoor.

3.4 Hinged door with EPDM rubber gasket to prevent water entry.

3.5 Single compression cable glands.

3.6 Provision of earthing.

3.7 MOVs provided within the box to protect against lightning

3.8 Suitably rated DC MCB provided to protect against overload, short-circuit.

**4. CHARGE CONTROLLER UNIT :**

4.1 Minimum technical requirements

Must conform to latest addition of IEC 62093 (Efficiency Measurements) and IEC 60068 2 (6,21,27,30,75,78) [Environmental Testing] or equivalent BIS standard

4.2 Technical Specification

- PWM (Pulse Width Modulator ) type Microprocessor based controls
- 3 stage charging – Boost, Float & Equalization
- Efficiency more than 95%
- Idle current less than 10 mA
- Temperature compensation

- DC : 42-52 V
- Charging Current Capacity : 5A to 60A
- Protections : Overcharge, Reverse Polarity, Short Circuit, Over Current, Deep
- Indications : Charging, Full Charge & Low battery
- Optional Features : Inbuilt Load Controller for DC loads, RS 232 compatibility,

## 5. INVERTER

5.1 Minimum technical requirement

Must conform to latest addition of IEC 61683(Efficiency Measurements) and IEC 60068 2 (6,21,27,30,75,78) [Environmental Testing] or equivalent BIS standard

5.2 Technical Specification

- TYPE DSP (Digital Signal Processor ) / Microprocessor based PWM (Pulse Width
- Pure Sine Wave output
- Output Voltage Regulation : ± 2%
- Efficiency more than 90%
- Total Harmonic Distortion less than 3%
- High Overload Capability at switching.
- Better tolerance for Battery DC Volts
- Minimum Acoustic Noise
- Protections: Overload, Low Battery, Short circuit, Surge, Reverse polarity,
- Optional Features - Digital Display, Alarms
- 1 Phase
- Type Off Line / On Line
- Capacity 2 KVA
- Volt 48 V
- Output Volt 230 VAC / 50 Hz

## 6. BATTERY BANK :

6.1 Minimum technical requirement

Must conform to the latest additions of the following standards or equivalent BIS standard

| Standard Description | | Standard Number |
|---|---|---|
| General Requirements and Methods of Test | : | IEC 61427 |
| Tubular Lead Acid | : | IS 1651 / IS 13369 |
| Valve regulated Lead Acid (VRLA) | : | IS 15549 |

## 6.2 Technical Specifications

- VRLA / TUBULAR Lead Acid – 2V cells
- Nominal Capacity : 300 Ah (2 volt) x 24 nos.
- Nominal voltage 48 volt
- Charge Efficiency more than 90%
- Self discharge less than 4% under STC (Standard Test Conditions )
- High Cyclic Time
- Operating : 0°C to 50°C
- No Thermal Runaway
- Lead plated copper terminals for high conductivity

### Other Requirements

a. The batteries supplied as a part of the PV system should qualify the following tests, as specified in the relevant standards ( IEC 61427, IS 1651, IS 13369 or equivalent standards )
   - Capacity as per C/10 rate, as applicable for the specific battery.
   - Watt-Hour and Amp-Hour efficiency, and
   - Charge retention/Shelf Life test

c. For testing batteries Electronic Regional Testing Laboratory (ERTL) [east] Kolkata, Semi Lab Kolkata, CECRI Chennai, CPRI Bangalore, ERTL (NORTH) Delhi, and SEC are authorized.

d. At least 75 % of the rated capacity of the battery should be available between fully charged & load cut off conditions.

## 7. POWER PLANT METERING/DATA LOGGING

7.1 PV array energy production : Digital Meters to log the actual value of AC/DC Voltage, Current & Energy generated by the PV system shall have to be provided.

7.2 Solar Irradiance :An integrating pyranometer (Class II or better) should be provided with the sensor mounted in the plane of the array. Readout should be integrated with data logging system.

7.3 All major parameters should be available on the digital bus and logging facility for energy auditing through the internal microprocessor and can be read on the digital front panel at any time the current values, previous values for up to a month and the average values. The following parameters should be accessible via the operating interface display.

AC Voltage
AC Output current
Output Power
DC Input Voltage

DC Input Current
Time Active
Time disabled
Time Idle
Temperatures (C)
Invertor Status

Protective function limits (Viz – AC overload voltage, AC under voltage, Over frequency. Under frequency, ground fault. PV starting voltage, PV stopping voltage, Over voltage delay, Under voltage delay, over frequency, Ground fault delay, PV starting delay, PV stopping delay).

7.4 All metering shall be as per CEA Regulations on " Installation and Operation of Meters:" 2006 and in conformity with IS 13779 or IS 14679

**8. POWER AND CONTROL CABLES:**

8.1 Power cables

i The cable shall be 1.1 grade, heavy duty, stranded copper conductor, PVC type A insulated, galvanized steel wire/strip armoured, flame retardant low smoke (FRLS) extruded PVC type ST-1 outer sheathed. The cables shall, in general conform to IS-1554 P+I & other relevant standards.

ii. Power cables size shall be chosen taking into account the full load current & voltage drop. The allowable voltage drop at terminal of the connected equipment shall be max. 2.5% at full load. The derating factors viz. group duration of temp. duration shall also be considered while choosing the conductor size.

iii. The permissible voltage drop from the SPV Generator to the Charge controller shall not be more than 2% of peak power voltage of the SPV power source (generating system). In the light of this fact the cross-sectional area of the cable chosen is such that the voltage drop introduced by it shall be within 2% of the system voltage at peak power.

iv. All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed. Extensive wiring and terminations (connection points) for all PV components is needed along with electrical connection to lighting loads.

8.2 Control Cables

The cable shall be 1.1 grades, heavy duty, stranded copper conductor, PVC type A insulated, galvanized steel wire/strip armoured, flame retardant low smoke (FRLS) extruded PVC type ST-1 outer sheathed. The cables shall, in general conform to IS-1554 P+I & other relevant standards.

**9. DISTRIBUTION BOARDS AND PANELS**:

A DC distribution panel should be provided to receive the DC output from the array field with analog measurement panel for voltage, current from different MJBs so as to check any failure in

the array field. It shall have MCCBs of suitable rating for connection and disconnection of array sections. DCDB shall have sheet iron enclosure of dust & vermin proof.

Common AC Distribution Panel Board (DPB) shall control the AC power from inverter AC Panel .
The DBs shall have sheet iron enclosure of dust & vermin proof & shall have adequate cooling arrangement. The bus-bars are to be made of copper of desired size.
Design & Drawing is to be submitted before manufacturer assembly on installation for obtaining necessary approval from NEEPCO.

**10. LIGHTNING PROTECTION AND EARTHING**:

Required numbers of suitable lightning arrestors should be installed in the array area. Lightning protection shall be provided by the use of suitable earthling conductors and electrodes so that any lightning strike may find an alternate route to earth. Protection shall meet requirements of IS 2309:1969( Protection of Buildings and allied structures from lighting).

Each array structure of the PV system should be grounded properly as per IS:3043-1987. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Rules 1956. Details of lighting protection and earthing arrangement incorporated below-

i) Providing and fixing lightening conductor, made of 25 mm dia. 300mm long copper tube, having single prong at top, with 85 mm dia 3mm thick copper base plate including holes etc. complete as required.
ii) Riveting, sweating and soldering copper (with another copper / GI tape, base of the finial, or any other metallic object) as required.
iii) Providing and fixing copper tape 20mmx3mm thick connecting the highest points of the array structure complete as required for horizontal run.
iv) Providing & fixing copper tape 20mmx3mm thick on parapet or surface of wall for lighting conductor complete as required for vertical run.
v) Providing & fixing testing joints, made of 20mm x 3mm thick copper strip, 125mm long, with 4 nos. of tinned brass bolts, nuts, check nuts and spring washers etc. complete as required.
vi) Providing and laying copper tape 32mm x 6mm from earth electrode directly in ground and required for lightning conductor.
vii) Earthing with copper earth plate 600mm x 600mm x 3mm thick including accessories & providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. including charcoal and salt complete as required.

Earth resistance should be tested in a dry weather in presence of the representative of purchaser, after earthling work is complete, by a calibrated earth tester and should have a value not more than the value specified in the relevant Code/Rules.

# II. OUT DOOR LIGHTING AND LED LUMINARIES

## 1. LED LUMINARY FOR STREET LIGHTING:

| PARAMETER | GUARANTEED SPECIFIED PARTICULARS |
|---|---|
| Lamp rated wattage | 35 Watt. |
| Input voltage | 170-260 V AC |
| Power Factor | 0.95 (Minimum) |
| Power Efficiency | >96% |
| LED efficiency | 100 lumens per watt |
| Dispersion Angle | Minimum 120° |
| Total Harmonic Distortion | < 15 % (EMI / EMC Certification) |
| Working Temperature | -5° to +50° C |
| Working Humidity | 10% - 90% RH (Preferably Hermetically sealed unit.) |
| Index of Protection Level | Minimum IP 65 |
| Lamp Casing | Cast Aluminum with Toughened Glass sealed to IP65 with SS Toggles or made of stainless steel SS304 grade similar high conductive heat sink material acceptable to NEEPCO . The electrical component of the LED and LED driver must be suitably enclosed in a hermetically sealed unit within the lamp casing . |
| Life | > 50000 Hrs. |
| Output Luminous Lux | > 24 lux and > 40% uniformity. |
| LED Type and make | High Power high quality LEDs made by reputed companies like Nichia /Cree / Osram / Samsung / Philips Lumileds / Luxeon or of equivalent quality which generates minimum heat should be used. |
| Colour Temperature | 5500° K - 6500° K (Use of LED which emits ultraviolet light is not permitted) . |
| Colour Rendering | >75 |
| Junction Temperature | < 60° C |
| Expected Life of components | Passive electronics components life greater than >100,000 hours (circuit diagram). |

| | |
|---|---|
| Moisture , water , dust protection in case of casing damage | The casing shall be so designed and constructed that there is no water stagnation anywhere. The entire housing shall be dust and water proof having IP 65 protection as per IEC 60529. |
| Control Circuit | Constant Voltage & Constant Current. |
| Uniformity (Min / Avg) | ➢ 40 % |
| Uniformity (Min / Max ) | ➢ 33% |
| | |

## 2. POLES FOR STREET LIGHTING:

**(a) 7 Meter ISI marked**

Swaged Steel Tubular Pole as per IS-2713/1983 (Part-II) as amended from time to time along with cap welded on top and base plate of designation 410SP- 3 alonng with arm for the Lighting Fixture Fitting.

**(b) Erection**:

Erection of pole including digging of pit to the depth of 1/6 of the pole length, muffing of pole with CC: 1:2:4 from bottom to 450 mm above from ground level as per standard practice ( REC Specification).

## 3. LED GARDEN LIGHTS:

| PARAMETER | GUARANTEED SPECIFIED PARTICULARS |
|---|---|
| Lamp rated wattage | 5 Watt. |
| Input voltage | 170-260 V AC |
| Expected Input Frequency | 50 HZ +/-allowable tolerance |
| Power Factor | 0.95 (Minimum) |
| Power Efficiency | >96% |
| LED efficiency | 100 lumens per watt |
| Total Harmonic Distortion | < 15 % (EMI / EMC Certification) |
| Working Temperature | -5° to +50° C |
| Working Humidity | 10% - 90% RH (Preferably Hermetically sealed unit.) |
| Index of Protection Level | Minimum IP 65 |

| | |
|---|---|
| Lamp Casing | Fitting suitable for outdoor use of a design which may add to the aesthetic of the garden. |
| Life | > 50000 Hrs. |
| Output Luminous Lux | > 24 lux and > 40% uniformity. |
| LED Type and make | High Power high quality LEDs made by reputed companies like Nichia /Cree / Osram / Samsung / Philips Lumileds / Luxeon or of equivalent quality which generates minimum heat should be used. |
| LUMINARY TYPE | Philips, Bajaj, Wipro, Crompton Greaves, or Equivalent . |
| Colour Temperature | 5500° K - 6500° K (Use of LED which emits ultraviolet light is not permitted) . |
| Colour Rendering | >75 |
| Junction Temperature | < 60° C |
| Energy Consumption Watt/ Lamp | < 1.2 W Per LED (Preference shall be given to minimum Watts per LED) . |
| Expected Life of components | Passive electronics components life greater than >100,000 hours (circuit diagram). |
| Moisture , water , dust protection in case of casing damage | The casing shall be so designed and constructed that there is no water.<br>stagnation anywhere. The entire housing shall be dust and water proof having IP 65<br>protection as per IEC 60529. |
| Control Circuit | Constant Voltage & Constant Current. |
| Uniformity (Min / Avg) | ➢ 40 % |
| Uniformity (Min / Max ) | ➢ 33% |

# FINANCIAL BID
# ( To be submitted in Envelope-II)

**Bidding Schedule**

| Sr. No | Name of work Total Cost (including 5 yrs. CMC) | Cost (Rs.) | 5years CMC (Rs.) | Total Cost(including 5 yrs. CMC) (Rs.) |
|---|---|---|---|---|
| 1 | Design, Supply, Installation, Testing & Commissioning of 2 KWp Solar Power pack along with charge controller, inverter, controls & protection and providing power supply to outdoor lighting and security booth of NEEPCO Bhawan, Guwahati, | | | |

## Information and Instruction to the Bidder

| | | | |
|---|---|---|---|
| Tender Notice No. | NEEPCO/Coord/GHY/F-60/201-13 | | Dated 29.11.2012 |
| Address. | NEEPCO Ltd., NEEPCO Bhawan, R.G. Barua Road, Guwahati-5 | | |
| Brief-Scope of Work | "2 KWp Solar PV Power Pack in the office building of North East Electric Power Corporation Ltd, NEEPCO Bhawan, Guwahati 781005." | | |
| Selling of Tenders Form | Starting Date | 05.12.2012 | |
| | Last Date | 17.12.2012 | |
| Last Date of Submission of bid. | Up to 14.00 Hrs. on 19.12.2012 | | |
| Opening of Tender | At 14.30 Hrs. on 19.12.2012 | | |
| Cost of tender Document | Rs.500/- | Estimated Cost | Rs.5,40,000.00 (Approx) |
| Completion Period | 90 (ninety) days | Earnest Money | Rs.10,800.00 Exemption of EMD will be as per norms of the Govt. |
| Mode of payment for Tender Document | Tender shall be issued on application on payment of Tender Fee in the form of Demand Draft/Bankers Cheque/IPO only in favour of NEEPCO Ltd., payable at Guwahati. Downloaded Bid from the website will not be not accepted | | |

### I. QUALIFYING REQUIREMENTS FOR TENDER:

a. As mentioned in the Detail NIT at Sl. No.2 : **ELIGIBILITY: PRE-QUALIFICATION REQUIREMENTS OF TENDERER ( No. 2.1 to 2.9)** Bidder shall submit all documentary evidence towards eligibility criteria on basis of which Techno-commercial evaluation shall be made.

**II General Conditions:**

**01** The bid document can be obtained on application only. Downloaded bid from website will not be accepted. The application shall be made to Sr. Manager(C)/Coordination, NEEPCO, Guwahati-5 alongwith requisite Tender Fees in the form of **Demand Draft/Bankers Cheque/IPO** only in favour of NEEPCO Ltd., payable at Guwahati.

**02** The Bids documents shall be received up to 14.00 Hrs. on 19.12.2012 in the office of the Sr. Manager(C)/Coordination, NEEPCO, Guwahati-5. Bid shall be opened at 14.30 Hrs on the same date in the presence of those Bidders who wish to be present. If there is any change in Bid opening date due to unavoidable reasons, the same will be intimated to the bidders. In the event of any holiday on 19.12.2012 the bids will be received and opened in the same time on the next working day.

**03** In case the tender documents are obtained by post, NEEPCO is not responsible for any loss or postal/communication delay. Offers received late/incomplete are liable to be rejected. However bidders are advised to send their TENDER PAPERS by REGISTERD-POST/ SPEED POST to the office of the Executive Director (D&E), NEEPCO, Guwahati-5 well in advance for obtaining the tenders as well as for depositing the tenders.

**05** Detailed specification of job includes scope of work and all terms and conditions of NIT's are given in tender document.

**08.** Notwithstanding any thing stated above, the owner reverses the right to assess Bidder's capability and capacity to perform the contract should the circumstances warrant such assessment in the overall interest of NEEPCO Ltd. and decision of NEEPCO in this regard shall be final.

**09.** Issue of tender documents will not automatically mean that bidders are considered qualified. NEEPCO shall evaluate the qualifying requirements of each bidder as per NIT after opening of qualifying requirement Bids and the bids of the bidder who is not meeting the qualifying requirement shall be treated as non responsive & the price bid shall be returned to bidders without being opened.

**08. Submission of Bid:** Bid shall be submitted in 2(two) separate sealed envelopes marked as Envelope-I (Technical Bid) & Envelope-II (Price Bid). The Envelope-I will contain :

i) Bid document (Part-I) duly signed in all pages by the authorized

signatory of the bidder,

ii) EMD in the form of **Demand draft/Call Deposit/Bankers Cheque** from any Indian nationalized /Scheduled Bank in favour of NEEPCO Ltd, Guwahati.

iii) all credentials as per qualifying requirements mentioned at Sl. No.2 of the Detail Tender Notice: **ELIGIBILITY: PRE-QUALIFICATION REQUIREMENTS OF TENDERER ( No. 2.1 to 2.9)**

The Envelope-II will contain : i) Duly Signed Price Bid

Both the envelopes will put in a sealed envelope clearly marked as **"2 KWp Solar PV Power Pack in the office building of North East Electric Power Corporation Ltd, NEEPCO Bhawan, Guwahati 781005."**

The envelope shall be addressed as below:

**To**
**The Sr. Manager(C)**
**Coordination**
**NEEPCO, Guwahati-5**

**09.** NEEPCO reserves the right to reject any or all the tenders without assigning any reasons thereof.

## IV. SPECIAL ATTENTION

i) Corporation shall not bound to provide any space for the contractor's work shop and labour camp, storage of materials etc. inside the existing NEEPCO site except working front and this shall be arranged suitably by the contractor elsewhere at his cost.

ii) Tenderer are advised to contact the Sr. Manager(C), Coordination for execution of this contract smoothly and satisfactorily. Any lack of knowledge to this effect on the part of the Tender shall not entitle the contractor for any claim whatsoever and shall not be considered a cause of delay. The Tenderer are therefore once again advised to inspect all the working front and make proper planning before submission of Tender.

Iiii) The tender should be submitted in the prescribed form and the same should be signed properly as laid down here under :-

a) If the tender is submitted by any individual, it shall be signed by the proprietor above his full name and full name of his firm with its current business address.

b) If the tender is submitted by a firm in partnership, it shall be signed by all the partners of the firm above their full names and current business address, or by a partner holding the Power of Attorney for the firm and signing the tender in which case verified copy of the partnership deed and current business of all the partners of the firm shall also accompany the tenders.

c) If the tender is submitted by a limited company or a limited corporation, it shall be signed by a duly authorised person holding the Power of Attorney for signing the tender in which case a certified copy of the Power of Attorney may be required to furnish with satisfactory evidence of its existence before the contract is awarded.

**V. <u>EVALUATION AND COMPARISON OF BIDS</u>** :

***General:*** The bids will be evaluated by NEEPCO to ascertain the lowest evaluated technically and commercially responsive bid for the complete scope of the proposal as detailed in the bidding documents and same shall be evaluated in two stages (a) Technical Evaluation (b) Price Bid Evaluation in addition to preliminary evaluation of the tender.

i) <u>Preliminary Evaluation</u> :-

(a) The owner will examine the bids to determine whether they are complete, whether computational errors have been made, whether documents have been properly signed, whether all the price break-up schedules have been filled up as per the formats provided in tender documents and whether the bids are generally in order.

(b) Incomplete tender shall run the risk of rejection. Decision of the Corporation in this respect shall be final and binding to the bidder.

ii) Arithmetical errors shall be rectified on the following basis :-

The rates shall be written both in words and figures. A tenderer shall also show the total of each item, the total of each schedule and the grand

total of the whole Contract, corrections, if any, shall be made by crossing out initialing, dating and rewriting. If on checking differences are found between the rates given by the tenderer, in words and figures or in amounts worked out by him, the following procedure shall be followed :-

(a) i) Where there is difference between the rates in figures and in words, the rates which correspond to the amounts worked out by the tenderer shall be taken as correct.

ii) Where the amount of an item is not worked out by the tenderer or it does not correspond with the rate written either in figures or in words, then the rates quoted by the tenderer in words, shall be taken as correct.

iii) Where the rates quoted by the tenderer in figures and in words tally but the amount is not worked out correctly, the rates quoted by the tenedrer shall be taken as correct and not the amount.

b) Prior to detailed evaluation formalities, the owner shall determine the substantial responsiveness of each bid to the bidding documents. A substantially responsive bid is one which conforms to all the terms and conditions of the bidding documents without any material deviation. A material deviation is one which affects in any way the prices, quality, quantity or completion schedule of work or which limits in any way the responsibilities of the bidder or any right of the owner as required in these specifications and documents or whose rectifications would affect unfairly the competitive positions of other bidders presenting substantially responsive bids. The owner may waive any minor infirmity or nonconformity or irregularity in a bid which does not constitute material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder. Owner's determination of bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence. A bid determined as not substantially responsive shall be rejected by the owner and may not subsequently be made

responsive by the bidder by correction of the non-conformity.

**(C) Stage-I** (**Technical Evaluation**)**:** The technical suitability of the bids shall be judged on the basis of the Technical data, information, design etc. furnished with the bids. The technical specifications, drawings, amendments, minutes of discussions and other relevant document etc. shall be considered as the reference documents for the purpose of technical evaluations. Technical Evaluation will be done based on the information furnished by the bidders along with the Tender.. The Technical suitability of the bidder shall be judged considering the financial capability and experience in the similar type of job. The bids which are found to the not suitable in the opinion of NEEPCO shall be rejected and such price bid shall not be evaluated. The decision of the Corporation in this matter shall be final and no correspondence in this respect shall be entertained.

**(d) <u>Stage-II (Price Bid Evaluation</u>) :-**

For the purpose of evaluation and comparison of bids the owner shall generally consider the following :-

i) Bid price quoted by the bidder.

ii) Cost compensation for Deviations/Additional clauses as worked out as per relevant clauses.

iii) Unconditional discount/ rebate if any.

*Note:* For the purpose of evaluation of bids, data/information as available or collected by the owner from the local source or external source or extrapolated / intrapolated from the available data shall be made use of.

*The price preference to an offer in the evaluation shall be governed as per the norms of the Govt. of India.*

**VI Deviation / Additional Clauses**:-

i) **Cost Compensation For Deviation / Additional Clause**:
Deviation / Additional clause to the bidding documents in so far as practicable shall be converted into rupee value. In determining the rupee value of deviations, the owner shall use the parameters consistent with those specified in the specifications and documents and/or other information / data as necessary and available and/or collected by the owner.

ii) **Award Criteria**: The Contract shall be awarded to the responsive bidder offering the lowest evaluated bid in conformity with the requirements of the bidding documents, provided that the bidder is determined to be able to perform this contract satisfactorily. The owner shall be the sole judge in this regard. The notice of award of the contract will be made in writing to the successful bidder by the owner.

iii) The Corporation shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any tender or to give any reasons for their decision.

iv) The Engineer-in-Charge or his duly authorised representative will open the tenders in presence of tenderers who may be present at the time of opening tenders.

v) The tenderers shall not be entitled during the period of validity of their offer without the consent in writing of the Corporation to revoke or withdraw their tenders or vary in any respect the tender given. In case of a tender revoking or withdrawing the tender or varying any terms in regard thereof without the consent of the Corporation in writing, the tenderer shall forfeit his Earnest Money paid alongwith the tender.

VI) Tenderer are advised to contact the Sr. Manager(C), for execution of this contract smoothly and satisfactorily. Any lack of knowledge to this effect on the part of the Tender shall not entitle the contractor for any claim whatsoever and shall not be considered a cause of delay. The Tenderer

are therefore once again advised to inspect the entire working front and make proper planning before submission of Tender.

IX The tender should be submitted in the prescribed form and the same should be signed properly as laid down here under :-

a) If the tender is submitted by any individual, it shall be signed by the proprietor above his full name and full name of his firm with its current business address.

b) If the tender is submitted by a firm in partnership, it shall be signed by all the partners of the firm above their full names and current business address, or by a partner holding the Power of Attorney for the firm and signing the tender in which case certified copy of the partnership deed and current business of all the partners of the firm shall also accompany the tenders.

c) If the tender is submitted by a limited company or a limited corporation, it shall be signed by a duly authorised person holding the Power of Attorney for signing the tender in which case a certified copy of the Power of Attorney may be required to furnish with satisfactory evidence of its existence before the contract is awarded.

*End of the chapter*