



TENDER DOCUMENT

FOR

SELECTION OF

**SUITABLE BUSINESS PARTNER FOR SURVEY, DESIGN, SUPPLY, INSTALLATION,
TESTING, COMMISSIONING & AMC OF GRID CONNECTED SOLAR PHOTOVOLTAIC
SYSTEMS (SPV MODULES & SOLAR INVERTERS ARE PROVIDED BY ITI LIMITED, NAINI
AT SITES) AT DELHI PUBLIC SCHOOL, NTPC VINDHYACHAL, MADHYA PRADESH
(CUMULATIVE CAPACITY: 150 KW AT 05 BUILDINGS) & AT NTPC BONGAIGAON, ASSAM
(CUMULATIVE CAPACITY: 265 KW AT 05 BUILDINGS)**

Tender Enquiry No.: ITI/NNI/TS/SOLAR/SPP/02

Date - 03.06.2023

**Chief Manager- TS, MKT & SB
ITI Limited, Naini
Mirzapur Road, Naini,
Prayagraj- 211010 (UP) INDIA,
M. No.: 9450605406/6394793179
Email: atul_nni@itiltld.co.in
Website: <http://www.itiltld.in>**



ITI LIMITED
(A Government of India Undertaking)

Scope of Work	Survey, Design, Supply, Installation, Testing, Commissioning & AMC of Grid Connected Solar Photovoltaic Systems (SPV Modules & Solar Inverters are provided by ITI LIMITED, NAINI at sites) at following sites: - 1. Delhi Public School, NTPC Vindhyachal, Madhya Pradesh (Cumulative Capacity: 150 KW At 05 Buildings) 2. NTPC Bongaigaon, Assam (Cumulative Capacity: 265 KW At 05 Buildings)
Tender Fee (Non-Refundable)	NIL
EMD	2% of total estimated project cost (In the form of DD/through RTGS/NEFT/BG) BG/DD should be in Favor of "ITI Limited" and payable at SBI ITI Complex Naini.
Estimated Project Cost (Total = 1 + 2)	Rs. 45.00 Lakhs (Approx.)
PBG Amount	1. For Cumulative 150 KW SPP at NTPC Vindhyachal, Madhya Pradesh: 10 % of quoted Value (S No. 1 in Financial Bid) 2. For Cumulative 265 KW SPP at NTPC Bongaigaon, Assam: 3 % of Quoted value (S. No. 2 in Financial Bid) The PBG shall be valid up to with an initial validity up to ninety (90) days beyond the end of scheduled Defect Liability Period of the last equipment covered under the Contract. The PBG amount submitted for empanelment against EoI vide reference No.: TS/Solar/SPP/01; Dated 16.09.2022 shall be adjusted in cumulative PBG amount for this tender.

The details of ITI's bank account for EMD & Processing Fee amount are as below:

- Beneficiary Name : ITI Limited, Naini
- Account Number/IBAN : 10554066331
- IFSC Code : SBIN0003486
- Beneficiary Bank Name : State Bank of India
- Beneficiary Bank Address : ITI Complex, Naini,
Mirzapur Road, Naini, Prayagraj – 211010
(UP) INDIA

Exemption from submission of EMD: Micro & Small Enterprise registered with DIC or KVIC or KVIB or Coir Board or NSIC or DHH or any other body specified by Ministry of Micro, Small and Medium Enterprises, Govt. of India are exempted from submission of EMD subject to submission of valid registration certificate with the technical bid. The exemption is valid only for the participation of bidder in ITI tender. However, if the EMD exempted bidder stands L1 then the respective bidder has to submit the Security Deposit to ITI within 01 week from the date of opening of the financial bid.

For ITI LIMITED
Chief Manager- TS, MKT & SB

Important dates

Date of Issue/Publishing	03/06/2023
Last Date and Time for Submission of Bid	17/06/2023
Date and Time of Opening of Technical Bid	19/06/2023
Date and Time of Opening of Financial Bid	Will be intimated after Technical Bid Evaluation

In case of any clarifications on this notification and technical requirement, please contact -

Chief Manager- TS, MKT & SB
ITI Limited, Naini
Mirzapur Road, Naini, Prayagraj– 211010 (UP) INDIA,
M. No.: 9450605406/6394793179
Email: atul_nni@itilttd.co.in
Website: <http://www.itilttd.in>

INTRODUCTION

ITI Limited, a Public Sector Undertaking under the Department of Telecommunication, Ministry of Communication and IT, is a leading telecom equipment manufacturer and total solution provider in India. ITI has diversified in to solar project business and has established state of the art solar module manufacturing line of capacity 30 MWp per annum. ITI Limited is an ISO 9001, ISO 14001 and ISO 18001 certified manufacturing unit. Presently major customers of ITI are BBNL, BSNL, MTNL, defense, paramilitary forces and railways. The company has executed various turnkey orders such as Bharat-Net, Telecom Towers, UP Police headquarters. ITI make SPV module are BIS certified for wattage range from 40Wp to 325Wp.

QUALIFYING REQUIREMENTS

	Particulars	Valid Documents Requirement
A.	TECHNICAL CRITERIA:	
1	The bidder shall be System Integrator or Original Equipment Manufacturer of one of the components used in the Solar Photovoltaic Systems and registered in India to manufacture the same.	System Integrator or Original Equipment Manufacturer shall upload Registration certificate of the company /firm issued by any State/Central Government/ Public sector.
2	The Bidder should be a body corporate, incorporated in India under the Companies Act, 1956 or 2013 and should be into solar business for not less than 3 years prior to the date of bid submission.	A copy of certificate of incorporation should be furnished along with the bid in support of above.
3	Should have Cumulative work experience of at least 200 KW of Grid Interactive / Off grid SPV Systems, during preceding Three Financial Years FY 2019-20, 2020-21 & 2021-22. The work shall be carried out in any DISCOMS/state Govt./Central Govt./ Private sector in India. This shall be in satisfactory service for at least a period of one-year prior to the date of submission of bid.	The copies of Work Awards/PO's/ Agreement shall be uploaded. Work completion certificates / Performance certificate duly mentioning above details issued by any Competent Authority to be uploaded.
4	The bidder shall upload documents of (a) PAN Card & (b) GST Registration certificate	Documents shall be uploaded.
5	The Bidder shall not have been black listed by any State / Central Government / Public sector under takings from last 05 Years as on the date of submission of bid.	The self-declaration of bidder shall be uploaded
B	FINANCIAL CRITERIA:	

1	Should have Minimum Average Annual Turnover (MAAT) of 1.0 Cr, during preceding Three Financial Years FY 2019-20, 2020-21 & 2021-22.	Bidder should upload mandatorily all Audited Balance sheet, CA certified profit & loss account statements for the last three years (i.e., FY 2019-20, 2020-21 & 2021-22) scanned and uploaded in original.
2	Bidder(s) should have Positive (+ve) Net worth at the close of the preceding financial year.	Auditor's certificate shall be submitted for the same.

1. Detailed Scope of Work for cumulative 150KW on grid Solar Power Plant at DPS, NTPC Vindhyachal, Madhya Pradesh: -

- A. Complete survey, design, engineering, inspection, supply, transportation, receipt and storage, insurance, civil work, erection, testing, commissioning along with integration with 415 Volt Distribution board at DELHI PUBLIC SCHOOL BUILDING and O&M of this grid connected rooftop Solar PV plants for one year, including all auxiliaries (SPV Modules & Solar Inverters are provided by ITI LIMITED, NAINI at sites).
- B. Area of five buildings of DELHI PUBLIC SCHOOL is approximately 1700m².
- C. Providing a suitable Solar PV module cleaning & water washing system.
- D. Required Safety approvals from Chief Electrical Inspector to Govt. (CEIG).
- E. Regular cleaning of the SPV modules (Each module at least twice a week).

Estimated Project Cost: Rs. 16.00 Lakhs

Price basis: -

FOR DPS, NTPC Vindhyachal, Madhya Pradesh

Contract Period: -

- 1. Supply, Installation & Commissioning to be completed by May 15th, 2023.
- 2. Provide Operation and Maintenance (O&M) of the plants for a period of one year from the date of successful commissioning of the solar power plant.

Payment Terms: - Supply Part (Except SPV Module & Solar Inverter):

- 1. 60% of supply portion will be done upon receipt of equipment at site & physical verification and certification by the Engineer in Charge of NTPC & ITI.
- 2. 30% of supply portion payment will be done after completion of erection, commissioning & testing activities after issuance of commissioning/completion certificate from NTPC.
- 3. Balance 10% of supply portion payment will be done after one year of successful completion of O&M period.

Erection & Commissioning (Service Part including one year AMC):

- 1. Ninety Percent (90%) of the price component of Service portion on completion of erection and commissioning of Solar Power plant after certification from Engineer-in-charge of NTPC & ITI.
- 2. Balance Ten Percent (10%) of total price component of service portion shall be released after one year of O&M (12 months from successful completion of commissioning work) of solar PV plant.

Liquidate Damage: -

LD rate: 0.50 % per week or part thereof for the portion executed / supplied beyond agreed delivery schedule.

LD Ceiling: 5.00 % of PO Value.

WARRANTY of Cumulative 150KW Solar Power Plant at DPS, NTPC Vindhyachal, Madhya Pradesh: -

All the mechanical mounting system and structures of the solar PV plant must be warranted against any manufacturing defects, design and installation defects for a minimum period of 5 years from the date of successful commissioning of the rooftop solar plant.

BOQ

S. No.	Items descriptions	Qty.
1	Module Mounting Structure	As per site requirement
2	Load Break Switch (LBS) or MCCB with CT, PT and Multi-functional meter at transformer end.	As per site requirement
3	Early streamer emission (ESE) or Franklin Rod based system for protection from direct lightning strokes	As per site requirement
4	The cables used in the system should be ISI marked XLPE insulated FRNC armored copper/ aluminum conductor	As per site requirement
5	13.3 DC Cable Routine and acceptance test as per the TUV standard 2 PfG 1190/5.18 or EN-50618 or another equivalent standard.	As per site requirement
6	BOS	As per site requirement
7	Data monitoring/ Suitable metering arrangement for 0.2 class metering along with 0.5 class MFM. - Bidder has to aggregate data from each inverter to a single PC in control room	As per site requirement

Mandatory Spare		
S. No.	Items Description	Qty.
1	Solar DC cable	1000 Meter

Technical Specification: -

Attached as per Annexure – I.

2. Detailed Scope of Work for cumulative 265 KW On grid Solar Power Plant at NTPC Bongaigaon, Assam: -

1. Survey, Design, Supply, Erection, Testing and Commissioning of 265 KWp Roof top solar with integrated grid at various buildings (Hospital, Administrative Building, SBI Building Store, Community Centre, Ladies Club & Bal Bhawan etc.) at NTPC Bongaigaon followed by O&M for five (05) years. (SPV Modules & Solar Inverters are provided by ITI LIMITED, NAINI at sites).

2. Capacity to be installed at different building are as followings;

- a) Hospital - 60KW
- b) Administrative building - 60KW
- c) SBI building store - 50KW
- d) Community center - 50KW
- e) Ladies club - 45KW

3. Regular cleaning of the SPV modules (Each module at least twice a week).

4. Required Safety approvals from Chief Electrical Inspector to Govt. (CEIG).

Project estimated cost: - Rs. 29.00 Lakhs

Price basis: -

FOR NTPC Bongaigaon, Assam.

Contract Period: -

- Supply, Installation & Commissioning (SIC) to be completed by June 30th, 2023.
- Contract Period for O&M (After SIC): - 05 Years

Payment terms:

1- Supply component (Except SPV Module & Solar Inverter): -

i) The payment of 60% of supply portion will be done upon receipt of equipment at site & physical verification and certification by the Engineer in Charge (EIC) from NTPC & ITI.

ii) 30% of supply portion payment will be done after completion of erection, commissioning & testing activities. The completion of the same is to be certified by the EIC of NTPC & ITI.

iii) Balance 10% of supply portion payment will be done after one year of completion of O&M period.

Erection & Commissioning (E&C Components): -

- i) Ninety percent (90%) of the price component of Service portion on completion of erection and commissioning of Solar plant & certification from Engineer-in-charge of NTPC & ITI.
- ii) Balance Ten percent (10%) of total price component of service portion shall be released after one year of successful O&M (12 months from completion of commissioning work) of solar PV plant.

O&M Component: -

The O&M/AMC charges shall be paid on pro-rata basis on certification from EIC of NTPC & ITI.

Payment of Amount linked to Safety Aspects/ compliance to Safety Rules: -

The amount linked to Safety Aspects/ compliance to Safety Rules shall be paid in two parts:

- 10% amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and
- 90% amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in Safety Rules of NTPC

$$Y = \frac{\text{Amount linked to Safety Aspects/ Compliance to Safety Rules specified in Price Schedule}}{\text{Total amount for Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works}} \times 100$$

Insurance:

By vendor

Bank Charges:

By vendor

LD rate:

0.50 % per week or part thereof for the portion executed / supplied beyond agreed delivery schedule.

LD Ceiling:

5.00 % of PO Value

Warranty of Solar PV:

All the mechanical mounting system and structures of the Solar PV plant must be warranted against any manufacturing, design and installation defects for a minimum period of one year from the date of successful Commissioning of Solar Power plant.

Module Mounting Structures (MMS) and Civil Structures: -

As per site requirement

Transformers

It is required only if there is substantial and frequent difference in voltage between output of inverter and the bus voltage of the feeder to which the solar PV system shall be connected.

Cables

The cables used in the system should be ISI marked PVC or XLPE insulated FRLS Copper/aluminium conductor. Cables of various sizes as per load requirement for connecting all the modules / arrays to Junction Boxes and from Junction Boxes.

Cables for use at the DC-side of PV system shall meet the requirements of TUV standard 2 PfG 1190/5.18 or EN-50618 or other equivalent standard

Suitable metering arrangement 0.5 class MFM/meter or meter as per specification: -

Measurement of Solar PV parameters at PCU / String Inverter level: PCU / String Inverter shall have provision of measuring and displaying actual value of AC & DC Voltage, AC & DC Current, and AC Power & Energy Generated by the Solar PV system. These PCU /String Inverter parameters shall have provision of data logging through Mod Bus (RS-485) protocol.

Solar Irradiance: An integrating Pyranometer (Class II or better) shall be provided, with the sensor mounted on a Horizontal plane at a shadow free suitable location near solar arrays.

String Monitoring Units

As per site requirement

Earthing and lightning protections

As per site requirement

Standard Conduits, pipes and accessories

As per site requirement

Suitable ACB's/MCCB or LBS and ACDB's

As per site requirement

Technical Specification: -

Attached as per Annexure – II

GENERAL CONDITIONS:

1. The bidder should submit only financial bid in the form of hard copy in a sealed envelope at the above said address.
2. **Late offer:** Any offer received after the prescribed timeline shall be summarily rejected and shall be returned unopened to the vender/sender.
3. **Language of offers:** The offers prepared by the vendor and all the correspondences and documents relating to the offers exchanged by the vendor, shall be written in English language.
4. **Award of Contract:** The bidder who offer highest margin on the estimated price will be award the above referred work.
5. For transparency in the award of work bidders may attend the financial bid opening.
6. ITI will release the payment to vendor on back-to-back basis only after realization from end customer i.e. NTPC.
7. Bidder shall provide all reference documents duly signed and stamped proving qualifying requirements along with signed copy of tender documents.

Checklist of documents/information to be submitted:		Attached (Y/N)
1	Certificate of Incorporation of bidder.	
2	Certified CA Copy of Audited financial statements for the last 3 years.	
3	GST Registration Certificate.	
4	Copy of PAN Card.	
5	Corporate Identity Number (If Applicable)	
6	Document proof for experience of last three years (PO / Satisfactory performance report by customer)	
7	Declaration on letter head about existing set up of service centers in India	
8	Declaration on letter head for No Consortium and sub-contracting	
9	Acceptance on letter head for payment terms and other conditions	
10	Bidders Profile /Details	
11	Clause by clause compliance of Tender terms	
12	Declaration of no Debarment / Blacklisting etc.	
13	Tender Fess and EMD (if applicable)	



ITI LIMITED
(A Government of India Undertaking)
MIRZAPUR ROAD, NAINI, PRAYAGRAJ - 211010 (U.P.)

EOI No.: ITI/NNI/TS/SOLAR/SPP/02; dated 03.06.2023

Scope of Work: SELECTION OF SUITABLE BUSINESS PARTNER FOR SURVEY, DESIGN, SUPPLY, INSTALLATION, TESTING, COMMISSIONING & AMC OF GRID CONNECTED SOLAR PHOTOVOLTAIC SYSTEMS (SPV MODULES & SOLAR INVERTERS ARE PROVIDED BY ITI LIMITED, NAINI AT SITES) AT DELHI PUBLIC SCHOOL, NTPC VINDHYACHAL, MADHYA PRADESH (CUMULATIVE CAPACITY: 150 KW AT 05 BUILDINGS) & AT NTPC BONGAIGAON, ASSAM (CUMULATIVE CAPACITY: 265 KW AT 05 BUILDINGS)

Name of the Firm				
Price/Financial Bid format				
S. No.	Description	Basic Price (Rs)	GST @18% (Rs)	Total offered Price by vendor (Inclusive Taxes) (Rs)
1	Detailed Scope of Work for 150 KW on grid Solar Power Plant at NTPC Vindhyachal, Madhya Pradesh (Except SPV Module & Solar Inverter)		0	0
2	Detailed Scope of Work for cumulative 265 KW on grid Solar Power Plant at NTPC Bongaigaon, Assam (Except SPV Module & Solar Inverter)		0	0
Total		0	0	0

Terms & Conditions:-

1. Currency of Purchase Order: ITI will place purchase order on bidder in INR only
2. Taxes: As applicable.
3. Financial Bid of the bidders shall be opened online.
4. The evaluation of Financial Bid shall be carried out based on the information furnished in the submitted Financial Bid.
5. The bidder with lowest offered price (in Total (Inclusive Taxes) (Rs)) on above financial bid format shall be declared as L1 bidder.
6. Other bidders may be given option to match L1 bidder margin in case L1 bidder refuses to do the above said work.

Note: Any deviation from above format shall be liable for rejection of the bid

Note: Price Bid will be submitted only in online Format (Excel Format). Only online price bids shall be considered for evaluation, any offline submission shall be treated as non-responsive and shall be summarily rejected.

ITI LIMITED
MIRZAPUR ROAD, NAINI, ALLAHABAD- 211010 (U.P.), INDIA

E-MAIL: engcellx_nni@itiltd.co.inWEB-SITE: <http://www.itiltd.in>

ENQUIRY NO. ITI/NNI/TS/SOLAR/SPP/02

DATE: 03.06.2023

DUE DATE: 17.06.2023 up to 17:00 PM

OPENING DATE: 19.06.2023 at 11:00 AM

DEAR SIR,

PLEASE QUOTE YOUR LOWEST RATES AND BEST DELIVERY TERMS IN THE PRESCRIBED EXEL FORMAT AVAILABLE ON <https://itilimited.euniwizarde.com> FOR THE FOLLOWING ITEMS ON THE TERMS AND CONDITIONS (ANNEXURE I) ENCLOSED HERE WITH. No hard copies will be entertained in any manner.

ITEM NO.	DESCRIPTION OF MATERIAL AND ITI CODE	QUANTITY REQUIRED	DRAWING OR TECHNICAL SPECIFICATION	DELIVERY REQUIRED
1.	Selection Of Suitable Business Partner For Survey, Design, Supply, Installation, Testing, Commissioning & AMC of Grid Connected Solar Photovoltaic Systems (SPV Modules & Solar Inverters Are Provided By ITI Limited, Naini At Sites) At Delhi Public School, NTPC Vindhyachal, Madhya Pradesh (Cumulative Capacity: 150 KW At 05 Buildings) & At NTPC Bongaigaon, Assam (Cumulative Capacity: 265 KW At 05 Buildings)		As per tender document	

OFFER MUST BE SUBMITTED ONLINE ONLY.

- NOTE:** Bidder must ensure that offered item is as per Technical specification.
- Bid must be submitted in two Covers (Two Bid System) with Our Enquiry No. and due date.
 - Technical Bid with Compliance sheet of Technical specification, acceptance of Tender General term and condition & consent for Pre –contract Integrity pact.
 - Commercial bid to be submitted along with HSN code (in 8 digits) of offered part No, GST rate, Basic price etc.
 - Bid should be submitted ONLINE on the above mentioned portal.
- Vendor's compliance must be provided for offered product against parameters of Technical Specification & same to be submitted along with the technical bid.
- No conditional offer is acceptable.
- PBG shall be liable to be forfeited, if Vendor fails to execute the PO.**
- As GST is implemented, Following information are mandatory to mention along with quotation
 - Vendor Name
 - Address
 - PAN No. along with Photocopy of PAN
 - Copy of GSTIN Registration
- For any clarification, e-mail to engcellx_nni@itiltd.co.in, Phone No: 0532-2687379/ Mob. 6392704089/7007462166.
- You may be present at the time of tender opening.
- Vendors should give consent to sign the enclosed pre- contract Integrity pact. Integrity pact has to be signed with the qualified bidder immediately after placement of PO. Those bidders who are not willing to sign Integrity pact will not be considered for bid processing.

SPECIAL NOTE:-

- A. PLEASE SUBMIT YOUR OFFER ONLINE WITHIN DUE DATE.
- B. The party may indicate whether they fall under purview of MSME Act 2006 and if so the certified copy of relevant valid registration certificate as a proof may be submitted along with the tender bid. In case such certificate is not produced at the time of bid party will not be considered to be falling under this category.
- C. Our Organization is ISO 14001 Certified Company. Offers should be in compliance with ISO 14001 requirement.
Please visit our web-site: <http://www.itiltd.in>, <https://itilimited.euniwizarde.com> for detail. For any clarification please feel free to contact us.

**Yours faithfully,
For ITI LIMITED**

Purchase Officer

SCOPE OF WORK FOR LINE ITEM 10.10

THE ESTIMATED CAPACITY AVAILABLE ON DELHI PUBLIC SCHOOL BUILDING ROOFTOP IS APPROXIMATELY 150 KWP. SCOPE OF WORK INCLUDES-

1. Determination of optimal grid connected rooftop Solar PV Power plant capacity on the said building. (DELHI PUBLIC SCHOOL BUILDING NTPC VSTPS Rooftop area of 5 building is approximately: 1700 m2.)
2. Complete design, engineering, manufacture, inspection, supply, transportation, receipt and storage, insurance, civil work, erection, testing, commissioning along with integration with 415 Volt Distribution board at DELHI PUBLIC SCHOOL BUILDING and O&M of this grid connected rooftop Solar PV plants for one year , including all auxiliaries.
3. All materials, manpower, scaffolding materials, machinery tools and tackles, transportation & loading/unloading etc. shall be provided by contractor. Scope shall cover all type of transportation of materials inside the working site and manpower etc. required to execute and complete the work.
4. 1) Suitable arrangement for metering of output from each solar PV feeder.
2) Termination of the solar PV feeder at owners LT switchgear panels. All cabling, earthing, protection system required is also under the scope of the contractor.
3) Submission of all relevant drawing, data sheets, technical catalogues, O&M Manual on each piece of equipments and training to engineers of NTPC regarding the operation and maintenance procedure.
- 4) Local content means Make in India product. All the materials supplied are to be of make in India product and it includes solar cells also, i.e. both Module and cells are to be of Indian make only.
5. As per connectivity regulation for renewable energy plants notified by CEA, measurement of Total Harmonics Distortion, DC injection and Flicker at point of connection is to be done annually. Contractor shall arrange, on its own, one set of necessary measuring instruments on returnable basis and carry out these tests at least once during the O&M period.
6. Providing a suitable Solar PV module cleaning & water washing system. Bidder shall also provide for water connection from the nearest service water line with necessary pumping arrangement and provide adequate number of water tapings depending on the roof area.
7. Bidder to provide Operation and Maintenance (O&M) of the plants for a period of one year from the date of successful completion of the commissioning of the solar plant. During this period, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled

and preventive maintenance, major overhauling of the plant, replacement of all equipment in the plant including defective PV Modules, Inverters, Transformers etc. and maintaining log sheets for operation detail, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, complaint logging & its attending. All PV modules shall be cleaned regularly and water washed at least once in a week.

8. For all the rooftop installations above 100 KWp, the applicant shall approach the Chief Electrical Inspector to Govt. (CEIG) for obtaining safety approval. Agency has to Facilitate statutory approvals related to the installation including CEIG clearance and associated incidental/logistic expenses.

9. Facilitating in approval and subsidy and/or Assistance from Govt. of India/State Go./any other agency for the project, wherever applicable. The bidder shall ensure procurement of components like PV module, Inverter etc. which qualify for Subsidy and/or Central Assistance from Govt. of India/ State Govt.

TECHNICAL SPECIFICATIONS FOR LINE ITEM 10.10

Solar PV system shall consist of following equipment components-

- I) Solar PV crystalline modules
- II) Module Mounting Structure (MMS) and Civil Structures
- III) String Monitoring Units, Cables & Connections
- IV) PCU/ String Inverter
- V) Transformers
- VI) Integration of Solar PV system with Grid/ LT Switchgear of NTPC.
- VII) Earthing and lighting protections
- VIII) Data monitoring/ Suitable metering arrangement for 0.2 class metering along with 0.5 class MFM. The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy. Software with OPC protocol compliance is to be provided for interfacing these data on NTPC's server.
- IX) Cleaning & water washing arrangement for solar panels
- X) Balance of System (BOS) items/components, Suitable ACB, MCCB or Load break switch (LBS), and DCDB, ACDB.
- XI) Warranty of rooftop solar PV

Any item(s) not included in the schedule but required for completion of work shall have to be carried out /supplied by the bidder without any extra cost.

1. SOLAR PHOTO- VOLTAIC (PV) MODULES

1.1. The Solar PV modules must conform to the latest edition of IEC 61215/IS14286 for Crystalline Silicon Terrestrial PV modules design qualification and type approval.

- 1.2. The capacity of each of the solar module shall not be less than 335 Wp and no negative tolerance from quoted power rating on solar module shall be allowed.
- 1.3. Module should have visual distinct identification mark based on the measured output in a band of maximum 3 Wp. (but not less than quoted module capacity). The glass used for making module shall be 3.2 mm for 60 cells and 4.0 mm for 72 cells. Each string shall have identical Wp rating solar PV modules.
- 1.4. In addition, the modules must confirm to IEC 61730 Part-1- requirements for constructions & Part-2 - requirements for testing for safety qualification or equivalent IS. Module should also comply with IEC 61701 for salt mist testing.
- 1.5. Each PV module used must have a Radio Frequency Identification Tag (RFID) capable of withstanding harsh environment conditions carrying technical details of the module.
- 1.6. The offered solar PV module design series as per type certificate must have been in successful operation for at least six months as on date of submission of techno-commercial bid.

2. MODULE MOUNTING STRUCTURE (MMS)

- 2.1 Solar PV module shall be suitably inclined to receive maximum insolation at the site. However to accommodate more capacity and maximizing generation output, the angle inclination may be optimized to achieve the best performance requirements but not less than 12 deg. However, the overall layout of solar PV modules shall provide for minimum 1200 mm wide clear pathway along the roof parapet for facilitating easy access and movement of maintenance personnel with equipments. Gap between string rows should be at least 1000 mm.
- 2.2 Module Mounting Structures must be suitable to mount the Solar PV modules on the roof top, at an angle of tilt with the horizontal in accordance with the latitude of the place of installation preferably with a fixed Tilt angle. The design calculations shall be supplemented with neat sketch and reference to various clauses of technical specifications and Indian standards. For MMS design analysis and determination of forces, where computer program (preferably STAAD) is used, the bidder shall submit a write up on computer program used and its input and output data for review and approval of Engineer in charge (EIC).
- 2.3 The Module Mounting Structure support and fixation arrangement on the existing roof shall be designed in such a way that it does not damage or deteriorate the strength, durability and performance of the roof including water proofing carried out on the roof.
- 2.4 Type of mounting arrangement shall be selected depending on the bearing capacity of roof and applicable wind load at the roof level. For wind data refer Wind data as given in Annexure A.
- 2.5 In case offered support structure is of MS type then, the frames and the complete leg assemblies of the array structure shall be Hot Dip Galvanized. Thickness of galvanization will be IS-4759 or relevant standard. In case offered structure is of Aluminium Alloy necessary protection shall be provided anodization. The grade of anodic coating shall be AC2S as per IS:1868.
- 2.6 Module Mounting Structures shall be designed to withstand the extreme weather conditions in the area. The risk coefficient factor (K1) shall be taken as 1.0. The terrain factor (K2) and topography factor (K3) shall be as per IS 875 part 3.

- 2.7 Other hardware will have to be adequately protected against all climatic condition. All fasteners including nut & bolts shall be of Stainless steel (min grade SS 304) for connection between MMS members. Other hardware will have to be adequately protected against all climatic condition by hot dip galvanization. All fasteners shall be provided according to the connection design requirement. All bolts shall be tightened with designed torque mechanically.
- 2.8 The complete MMS, suitable supporting base/foundation and connections shall be designed & submitted for NTPC approval before start of manufacture/fabrication of MMS.
- 2.9 The construction methodology shall also be submitted for NTPC approval before start of works.
- 2.10 Bidder shall also use principles governing design that shall prevent or reduce the risks of corrosion as per IS 9172 and relevant IS codes.

3. CABLES AND CONNECTIONS

- 3.1 The cables used in the system should be ISI marked XLPE insulated FRNC armoured copper/ aluminium conductor. Cables of various sizes as per load requirement for connecting all the modules/arrays to junction boxes and from junction boxes to DC distribution box and from DC distribution box to inverter.
- 3.2 Cables for use at the DC side of PV system shall meet the requirement of TUV standard 2 PfG 1190/5.18 or EN-50618 or other equivalent standard.
- 3.3 Suitable rigid conduits shall be provided for cables connecting Solar PV array with Inverter. All cable entry to and from Inverter must be able to prevent access of rodents, termites and other insects into the inverter.
- 3.4 The permissible voltage drop from the Solar PV module to the Inverter shall not be more than 2% of peak power voltage of source.
- 3.5 All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed.
- 3.6 Extensive wiring and terminations (connection points) for all Solar PV components is needed along with electrical connection to grid injection point.

4. PCU/STRING INVERTOR

PCU/String inverter of minimum 90% of solar field name plate capacity should be provided to convert DC power produced by solar PV module to AC power. The PCU/String inverter should be grid interactive and the output should be compatible with the grid frequency. Typical technical features of the PCU/ String inverter shall be as follows:

- 4.1 PCU/String inverter shall be transformer less design with minimum euro efficiency of 97%.
- 4.2 PCU/String inverter may be selected in a way to keep string voltage within MPPT range under all temperature conditions from 10 deg to 50 deg ambient.
- 4.3 The String inverter shall be suitable for parallel operation with Total Harmonics Distortion of current less than 4% at 50% load.
- 4.4 Design ambient temperature of at least 50 deg C.
- 4.5 PCU/String inverter shall be capable of complete automatic operation including wake up, synchronization & shutdown.

- 4.6 Built in meter at PCU/ String inverter and data logger to monitor plant performance through external computer shall be provided. Customized solar monitoring solutions available with inverter manufacturer shall be preferred.
- 4.7 The PCU/ String inverter should comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental test as per standard codes IEC 61683 and IEC 60068.
- 4.8 The PCU/String inverter should comply with IEC 61727 or IEC 62116 or equivalent standard for grid connectivity.
- 4.9 The protection class of electronics components of string inverter should be IP 65 (outdoor) and balance of system of string inverter shall be IP 54 (indoor). For other components i.e. ACDB, DCDB etc. the specification in the relevant clauses of the document shall prevail. The PCU/String inverter should be tested from NABL/BIS accredited testing calibration laboratories or MNRE approved test centre or international testing laboratories such as TUV, Intertek, UL etc. During detailed engineering / execution while maintaining cable voltage drop criteria as specified above in 3.4; the bidder shall try to accommodate the inverters in indoor areas. However, if that is not possible due to site constraints, the inverters shall be guarded with strong and aesthetic canopy to allow minimal set of operations by access to LCD panel of the inverter during rainfalls.
- 4.10 All String inverter should be 3 phase inverters.
- 4.11 In case combiner box is used, the enclosure shall be Flammability Fire Retardant, Halogen free and UV resistant with IP 55 class or better.
- 4.12 PCU/ String Inverter Shall have provision of taking auxiliary power supply from its own output terminals.
- 4.13 All the PCU shall be of same make and type. AC voltage drop from inverter to LT panel (evacuation point) should not be more than 3%.

5. TRANSFORMER

Isolation/Step up Transformer shall be converter duty, dry type of suitable voltage rating, 50 Hz shall be provided by agency along with all protections, switchgears, circuit breakers, cables etc. and required civil work. The rating and vector group shall designed by contractor and would be approved by NTPC.

6. INTEGRATION OF SOLAR POWER WITH GRID

- 6.1.a In case of grid failure or low/high voltage, Solar PV system be disconnected from the grid. Once the grid is energized / normalized, the Solar PV system shall again be automatically re-synchronized and load requirement would be met to the extent of availability of power. The Power evacuation voltage shall be at 415 V, 3 phase 4 wire system at all locations (Please refer the proposed Single Line Diagram for power evacuation at Appendix-I and thoroughly study the component requirements for power evacuation before bidding).
- 6.1.b The solar system should be grid tied. The 415 V distribution board should have 2 source of power viz solar power & Grid power. The solar array must be capable of auto synchronizing, supply of max solar generated power & remaining board of distribution board to be supplied by the grid. When the solar generated AC power reduces due to any reason, the grid has to supply the remaining load in the distribution board.

- 6.2 Contractor has to install load break switch (LBS) or MCCB with Ct, PT and Multi-functional meter at transformer end. The accuracy class shall be 0.2 for CT and PT & 0.5 for MFM. MFM must be suitable to withstand 2.0 kV (RMS) test voltage. IP class of the switchgear enclosure shall be IP-55 or better.

All switchboard frames and load bearing members shall be fabricated using suitable mild steel structural sections or pressed and shaped cold rolled sheet steel of thickness 2.0 mm. Frames shall be enclosed in cold rolled sheet steel thickness of 1.6 mm. Doors and covers shall also be of cold rolled sheet of thickness of 1.6 mm. Stiffeners shall be provided wherever necessary. The gland plate thickness shall be 3.0 mm for hot/cold rolled sheet steel and 4.0 mm for non-magnetic material.

- 6.3 Bidder shall terminate the outgoing feeder from PV to the nearest available 415 V MCC/LTDB/Lighting Board. Bidder may have to fix an MCCB near the existing board for termination purpose. The location of the solar feeder termination point shall be decided during the detailed engineering.
- 6.4 Bidder has to ensure that the module arrays are protected from direct lightning strokes. If required they have to install at least one number of early streamer emission (ESE) or Franklin Rod based system for area more than 200 sq m.

7. PROTECTIONS

- 7.1 The system should be provided with all necessary protections like earthing, lightning & Surge and Grid Islanding in accordance with the latest codes & standards and best industry practices.
- 7.2 Protection shall comply as per CEA's "Technical standard for connectivity of the distributed generation resources", Regulation 2013.
- 7.3 Metallic frames of all electrical equipment shall be earthed by two separate and distinct connections to earthing system each of 100% capacity.

8. DATA MONITORING:

Bidder has to aggregate data from each inverter to a single PC in control room (or in office of concerned officer). The plant monitoring shall have following:

- 8.1 Measurement of solar PV array at PCU/ String inverter level: PCU/String inverter shall have provision of measuring and displaying actual value of AC&DC Voltage, AC & DC current, and AC power & Energy Generated by the solar PV system. These PCU/String inverter parameters shall have provision of data logging through Mod Bus (RS-485) protocol.
- 8.2 Solar Irradiance: An integrating Pyranometer (Class II or better) shall be provided, with the sensor mounted on a Horizontal plane at a shadow free suitable near solar arrays.
- 8.3 Temperature: Temperature probes for recording the PV cell temperature shall be provided.
- 8.4 The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy for power connection source received by NTPC sub station. Software with OPC protocol compliance is to be provided for interfacing these data on NTPC's server.

The above data has to be made available at separate terminal by integrating in the plant network. Bidder can utilize the available mode of data transmission. Any hardware required shall be included in the scope of work by the bidder

9. CLEANING & WATER WASHING ARRANGEMENT FOR SOLAR PV PANELS

An appropriate solar PV Module cleaning & water washing system complete GI pipes, valves, hose pipes, wipers, mops etc. shall be provided for regular cleaning and water washing of the rooftop Solar PV modules. Minimum two sets of Micro fiber based cleaning tools to be provided for each roof top location. The system shall be specifically designed to take care of the harsh & dusty environment of thermal power plants. Drainage for this system shall be arranged by the bidder. Portable water shall be made available at the nearest point from where bidder to make necessary pumping & treatment if required and piping arrangements for water washing of PV modules.

10. BALANCE OF SYSTEM (BOS) ITEMS/COMPONENTS

The BOS items/ components of the solar PV plants /systems deployed must conform to the latest edition of IEC/equivalent BIS Standards.

11. MANDATORY SPARES

Bidder shall maintain following mandatory spares, consumables & various components of solar PV plant for smooth running during the O&M period. Bidder shall also replenish the consumed mandatory spares during the O&M period and handover original quantities of spares on completion of O&M. The bidder shall also mention the source of supply of these spares.

- a. Solar PV modules 1% of the total population (rounded off to next higher whole number, if in decimals)
- b. Inverter: 1 number of string inverter of the highest size supplied
- c. Solar DC cable: 1 km length
- d. DC side surge arrestor, if applicable: 1 No

And any other spares felt necessary during drawing approval / detailed engineering stage by discussion between bidder and NTPC. However, no extra cost shall be payable by NTPC for that.

12. WARRANTY

Solar PV modules used in plants/systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. All the mechanical mounting system and structures along with PCU/ String inverters of the solar PV plant must be warranted against any manufacturing defects, design and installation defects for a minimum period of 5 years from the date of successful commissioning of the rooftop solar plant.

Bidder shall support NTPC VSTPS with spares and services after commissioning of the plant for at least 15 years against obsolescence and for maintenance.

13. QUALITY REQUIREMENTS

This is indicative list of tests/checks. The bidder has to draw a detailed quality plan indicating the practice and procedure along with the relevant supporting documents.

13.1 PCU/Inverter

- a. Checks on bought out items as per internal standards of the manufacturer
- b. In process checks as per internal standards of the manufacturer
- c. Routine tests as per following on completed/ assembled PCU
 - Test to demonstrate automatic/manual synchronization and connections utility service
 - Functional checks on all protections
 - Check on accuracy of all parameters measured by PCU
 - Test to demonstrate operation of start-up, stable operation of the PCU, disconnection and shutdown controls and response to other control signals
- d. Following sample tests on one sample of PCU: Heat run test including measurement of phase currents, efficiencies, harmonic content and power factor at four points preferably at 25, 50, 75 and 100 percentages of the rated nominal power.

13.2 SPV Module

- a. Checks on bought out items as per TUV certificate of the manufacturer
 - b. In process checks as per internal standards of the manufacturer
 - c. Sample tests as per the following
 - SPV modules to be checked visually for following defects (sampling as per general inspection level II and AQL 1.5% as per IS 2500 part 1)
 - Scratches of the frame or glass
 - Excessive or uneven glue marks on glass or frame
 - Inconsistent cell colours
 - Completeness of modules in all respects
- Performance of SPV module at STC (sampling as per general inspection level II and AQL 1.5% as per IS 2500 part 1)
- IR-HV-IR test (sampling as per special inspection level S2 and AQL 1.5% as per IS 2500 part 1)
- Robustness of terminations on 1 sampler per offered lot
- Mechanical load test on 1 sample offered per lot

13.3 DC Cable

Routine and acceptance test as per the TUV standard 2 PfG 1190/5.18 or EN-50618 or other equivalent standard.

13.4 Array junction box / String monitoring box if applicable

- a. Checks on bought out items as per internal standards of the manufacturer
- b. In process checks as per internal standards of the manufacturer
- c. Sample tests as per following:
 - IR-HV-IR test (sampling as per general inspection level II and AQL 1.5% as per IS 2500 part 1)
 - String monitoring card/ Power supply card/ DC-DC converter function check on one sample of SMB (In case of smb only)
 - Communication function test on one sample (In case of smb only)

Degree of protection visual checks like gasket profile, sealing arrangement, paper pull check

13.5 LT Power cable

Routine and acceptance test as per IS 1554 part 1 / IS 7098 part-I

13.6 HT Power cable

Routine and acceptance test as per IS 7098 part-II

13.7 LT Switchgear

Routine test as per IS 8623

13.8 Roof top module mounting structure

Galvanizing checks as per relevant IS4759 in case of hot dip galvanized MS structure. Anodic coating checks as per IS 1868 for aluminium structure

13.9 Module cleaning system

Pipes, valves, pumps etc shall be tested as per requirements of relevant standard.

14. Type test certificates as specified for factory built Solar PV Modules, inverters, and the BOS shall be submitted by the contractor along with the bid.

15. The contractor shall carry out the routine tests as specified in the relevant standards and as per NTPC approved quality plan.

16. The testing and commissioning of the Solar PV System shall be carried out in the presence of NTPC representative. The major parameters like DC Voltages of strings, DC Power, AC Voltages , current and Power etc shall be recorded in a format/commissioning documents. The commissioning documents shall be submitted to the NTPC as reference documents

COMMISSIONING & PERFORMANCE GUARANTEE TEST

Commissioning:

i. The solar PV project is deemed to be commissioned after the completion of all the facilities pertaining to scope of work of the plant, synchronization of the plant & trouble free operation of the plant for a period of three days in continuation.

ii. 'Fully commissioned' means acceptance to qualify for release of 30 % payment of supply portion and 90% portion of service portion (commissioning). (Please refer payment terms).

Performance-Guarantee test:

A - Performance-Guarantee test:

iii. The test is carried out to compare the guaranteed Performance Ratio (PR) and measured PR. The mathematical formula for calculating PR is given below:

$$PR(\%) = AC \text{ Yield (KWh)} \times 100 / \text{Installed Capacity(kWp)} \times \text{Solar Insolation(kWh/m}^2\text{)}$$

iv. The installer shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location for first year.

v. PR at inverter end should be shown minimum of 80% at the time of inspection for initial commissioning acceptance to qualify for release of 30 % payment of supply portion and 90% portion of service portion (commissioning). (Please refer payment terms).

vi. The performance Guarantee Test (PG Test) shall be carried out after successful 'full commissioning' of the solar PV project. PG Test shall be carried out by measuring Performance Ratio (PR) and comparing to the Guaranteed PR. Same mathematical formula as given above shall be used for calculating PR.

B- Capacity Utilization factor during defect liability period:

vii. Minimum CUF of 17% should be maintained for a period of 1 years (from date of commissioning of the plant) for release of balance 10% of supply portion and balance 10% portion of service portion (commissioning). The PR will be measured at Inverter output level during peak radiation conditions.

viii. EPC contractor will be responsible to conduct the PR test only after achieving the physical completion and synchronization of the plant and complying with the relevant requirements from utility, if required.

ix. . PBG shall only be released after 5 year (from the date of commissioning of the whole project) after certification from NTPC regarding attainment of minimum CUF of 17% for one year and having no manufacturing defects, design and installation defects after 5 years of commissioning. If it is lesser than 17% or any manufacturing defects, design and installation defects found (considered from the date of commissioning) then PBG will be encashed.

$$CUF (\%) = [AC \text{ Yield (KWh) in year} \times 100] / [\text{Installed Capacity (kWp)} \times \text{Total reference hours in the year (hr)}]$$

x. Method for calculating PR & applicable LD:

- EPC contractor (party) shall be responsible for conducting the PR test. Before conducting the test, the party shall intimate NTPC (EIC) minimum three days in advance.
- The party shall be responsible for arranging measuring instruments to record on site data. This will include a calibrated pyranometer, temperature sensor, signal converter.
- The Performance test will be conducted for duration until a total irradiation of 5 kWh/m² has been received at irradiance levels greater than 800 W/m². The operation will be recorded at fixed intervals- say 15 minute for validating the PR values guaranteed by the EPC contractor.
- If EPC contractor fails to achieve the guaranteed performance levels, the EPC contractor shall its own cost rectify all the defects identified during the test and take necessary steps/ efforts to pass the PR test within one month period. Subsequent to rectification & intimation to NTPC, the PR test will have to be performed again.
- If the values are again below the guaranteed performance levels, EPC contractor will be liable to pay LD to NTPC.

- Applicable LD shall be 110 % of the shortfall capacity. Formula shall be as follows:

Applicable L.D = 1.1 x Shortfall in PR % x Total Contract value.

A Sample Calculation

¢ Guaranteed PR = Say 90 %.

¢ Measured PR = 89.64 %

¢ % Shortfall in PR = (90 - 89.64) / 90 x 100
= 0.4 %

¢ Contract value = say Rs. 30 Lacs

¢ Applicable LD = 1.1 x 0.4 x (Rs 30,00,000) / 100
= Rs 13200/-

ANNEXURE-A

WIND DATA

CRITERIA FOR WIND RESISTANT DESIGN OF STRUCTURE AND EQUIPMENT

All structure shall be designed for wind forces in accordance with IS: 875 (Part-3) and as specified in this document. Site specific information is given below:

Along wind forces shall generally be computed by the peak (i.e. 3) Second gust Wind speed method as defined in the standard.

Along wind forces on slender wing sensitive structure and structural elements shall also be computed, for dynamic effects, using the Gust factor or Gust Effectiveness Factor Method as defined in the standard. The structure shall be designed for the higher of the forces obtained from Gust factor method and the peak Wind speed method.

Analysis for dynamic effects of wind must be undertaken for any structure which has a height to minimum lateral dimension ratio greater than "5" and /or if the fundamental frequency of the structure is less than 1 Hz.

Susceptibility of structures to across wind forces. Galloping, flutter, ovalling etc. should be examined and designed/detailed accordingly following the recommendations of IS: 875 (Part-3) and other relevant IS.

It should be estimated if size and relative position of other structure are likely to enhance the wind loading on the structure under consideration. Enhancement factor, if necessary, shall suitably be estimated and applied to the wind loading to account for the interference effects.

No reduction in wind forces shall be considered due to parapet walls.

An increase in allowance stresses of structural material should not be considered during design analysis.

Damping in Structures

The damping factor (as a percentage of critical damping) to be adopted shall not be more than as indicated below for:

- a) Welded steel structures : 1.0%
- b) Bolted steel structures : 2.0%
- c) Reinforced concrete structures : 1.6%
- d) Steel Stacks : As per IS: 6533 & CICIND Model Code Whichever is more critical.

SITE SPECIFIC DESIGN PARAMETERS

The various design parameters, as defined in IS: 875 (Part-3) to be adopted for the project site shall be as follows:

- a) The basic wind speed "Vb" at ten meters above the mean ground level: 47 meter/Sec
- b) The risk coefficient "Ki" : 1.0
- c) Category of terrain : Category-2

Note: Notwithstanding the values of the above mentioned parameters, the design wind pressure so computed at any point not be taken less than 1500 N/Sq. meter for all classes of structures, i.e A,B,C, as defined in IS:875 (Part-3)

TERMS & CONDITIONS (SUPPLY OF SOLAR PLANT) FOR LINE ITEM 10.10

1. Inspection of materials shall be carried out by our regional Inspection office as per NTPC approved quality plan.
2. All materials must be in packed condition and free from any defect, transportation to NTPC Site and unloading, custody, insurance and local transportation etc are in the scope of contractor.
3. Supply, erection & commissioning period is 08 months from the start of contract. O&M period is 12 months after commissioning of the plant. Validity of the contract shall be 20 months from the date of start of contract. Defect liability / warranty period shall be considered 5 years from the date of successful commissioning plant.
4. The payment of 60% of supply portion will be done upon receipt of equipment at site & physical verification and certification by the Engineer in Charge. 30% of supply portion payment will be done after completion of erection, commissioning & testing activities. The completion of the same is to be certified by the EIC. Balance 10% of supply portion payment will be done after one year of completion of O&M period.
5. Successful bidder is required to submit a PBG of value of 10% of the contract value before start of the contract. The PBG shall be valid up to the end of warranty period (i.e. 5 years from the date of successful trial run of the rooftop solar plant) + 90 days. Party shall extend

the PBG validity to compensate any time extensions in the PO as agreed by NTPC and the party during execution. CUF of 17% to be maintained for one year, i.e. up to O&M period, but Defect liability or warranty period will remain 5 years from the date of successful commissioning and PBG of 10% to be released after completion of Defect Liability period only.

6. Party shall give assurance for 15 years service/spare support.
7. Vendors for brought out items should be approved by NTPC.
8. All instruction manuals/O&M manuals/erection manuals/design details/commissioning manuals & commissioning drawings etc are required to be submitted in hard copies and also in soft form to NTPC by agency.
9. Erection & commissioning drawings would be submitted to NTPC for review and approval by agency before start of erection & commissioning job.
10. The bidder/ contractor is advised to visit and examine the site of the project and its surroundings and obtain for himself, on his responsibility, all information that may be necessary for preparing the bid.

TERMS & CONDITION (ERECTION AND COMMISSIONING OF SOLAR PLANT) FOR LINE ITEM 10.20

1. All manpower, general T&P, consumables etc required for erection, testing & commissioning would be in the scope of agency.
2. If any special tool is required for erection & commissioning work, party shall arrange the same free of cost.
3. Supply, erection & commissioning period is 08 months from the start of contract. Defect liability/warranty period shall be 05 years from date of commissioning.
4. Local conveyance shall be arranged by the party.
5. Payment of service charges shall be released after completion of erection & commissioning work in phased manner. Running bill payments would be done as per the volume of the job execution.
6. Custody of all supplied materials of Grid TIED Solar PV system for erection purpose would be in the scope of agency till the complete system is handed over to NTPC after final commissioning.
7. Ninety (90%) of the price component of Service portion on completion of erection and commissioning of Solar plant & certification of Engineer-in-charge.
8. Balance Ten (10%) of total price component of service portion shall be released after one year of O&M (12 months from completion of commissioning work) of solar PV plant.

SAFETY DURING ERECTION /COMMISSIONING AND O&M FOR LINE ITEM 10.20

- (A) Safety is the first priority. Supervisor must ensure all safety precautions before starting of any work/activity.
- (B) Contractor, supervisor and all gang involved in erection /commissioning or O&M activity must follow all safety instruction and safety rule.
- (C) If any unsafe condition observed, Contractor representative immediately inform to NTPC engineer. No work will be carried out in unsafe condition.

(D) The contractor shall be fully responsible for the safety of his workers and will take all the necessary safety precautions to avoid any accident while working at all site/elevations.

(E) Contractor has to strictly adhere to the permit to work system as applicable at NTPC-Vindhyachal and confirm isolation before starting of any work. Contractor must use temporary earthing rod for earthing of electrical system under maintenance before starting work.

(F) Contractor shall arrange proper & sufficient number of safety equipment such as electrical and gloves, Chemical hand gloves, helmets, safety shoes, Earplug, nose mask and safety belts etc require during work execution at his own cost as per the rules in force from time to time during contract period. Hand gloves & other safety accessories required for working in hot areas like asbestos gloves and apron shall be issued to individual workers working under the contract at high temperature area. The contractor has to ensure that all the workers shall use safety equipment during the execution of work.

(G) All erection /commissioning and O&M work shall be carried out in strict supervision of the contractor or their authorized supervisor for the safety of the personnel and plant equipment. Contractor is advised not to carry out any work without supervision.

(H) At any work spot/place for execution of electrical work minimum two persons must work (No work to be done by a single person alone).

Scope of Work for O&M of the plant for 12 months for BOQ Item No. 10.20

During this period, since the defect liability/warranty period and O&M period overlap for one year, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled and preventive maintenance, major overhauling of the plant, replacement of all equipment in the plant including defective PV Modules, Inverters, Transformers etc. and maintaining log sheets for operation detail, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, complaint logging & its attending. All PV modules shall be cleaned and water washed regularly.

1) Provision of sufficient manpower for day to day upkeep of solar panels, AJB, DCDB, ACDB, LT breakers, Data concentrator etc. according to mutually agreeable quality control SOPs and checklists till the completion of 1 year O&M phase of the plant by the bidder.

2) Regular cleaning of the SPV modules (Each module at least twice a week), voltage/current measurements at specified sample points according to mutually agreeable quality control SOPs and checklists, collection of operation/performance data from data monitoring system and submission of report to EIC for analysis / decision on weekly basis.

Terms and conditions

Provision of sufficient manpower for day to day upkeep of solar panels, till the completion of 1 year O&M phase of the plant by the bidder. There is no separate BOQ item as the cost on this account will be inclusive in existing BOQ Item. Bidder "MUST" quote the rate after careful study of the BOQ, scope of work, general condition etc. tender documents.

Technical Specification
Section -V

Technical Specification of the Contract Proposal comprises of followings;

Sub-Section	Content
Part –A	Scope of Work
Part –B	Technical Terms & Conditions (STC)
Part –C	Quality Plan (If applicable) (QP mandatorily be vetted by FQA)
Part –D	Drawings (If applicable)
Part –E	Standard Safety Clauses

Technical Specification
Section -V

Part-A: Scope of Work

1	Scope of Work	As per attached Scope of Work.
2	Scope of Supply by NTPC	“Not Applicable”
3	Local Transportation of any Material	... as per GCC

Technical Specification
Section -V

Part-B: SPECIAL TERMS AND CONDITIONS (STC)

S1 No	Item	Description of Special Terms and Conditions
01	Job Location	In Township
02	Contract Category	Other than overhauling
03	Contract Period	20 Months (8 months commissioning period + 01 years O&M period)
	Job Completion Period of any Specific Job	“Not Applicable”
04	Condition For Extension Period	As per GCC
05	Defect Liability Period	Warranty of 5 year from the date of successful trial run.
06	Payment Term	<p>1) Supply Portion:</p> <ul style="list-style-type: none"> i) The payment of 60% of supply portion will be done upon receipt of equipment at site & physical verification and certification by the Engineer in Charge. ii) 30% of supply portion payment will be done after completion of erection, commissioning & testing activities. The completion of the same is to be certified by the EIC. iii) Balance 10% of supply portion payment will be done after one year of completion of O&M period. <p style="text-align: center;">2) ERECTION AND COMMISSIONING</p> <ul style="list-style-type: none"> i) Ninety (90%) of the price component of Service portion on completion of erection and commissioning of Solar plant & certification of Engineer-in-charge. ii) Balance Ten (10%) of total price component of service portion shall be released after one year of O&M (12 months from completion of commissioning work) of solar PV plant. <p>Successful bidder is required to submit a PBG of value of 10% of the contract value. The PBG shall be valid up to the end of warranty period (i.e. 5 years from the date of successful trial run of the rooftop solar plant) + 90 days. Party shall extend the PBG validity to</p>

Technical Specification
Section -V

		compensate any time extensions in the PO as agreed by NTPC and the party during execution. CUF of 17% to be maintained for one year, i.e. up to O&M period, but Defect liability or warranty period will remain 5 years from the date of successful commissioning and PBG of 10% to be released after completion of Defect Liability period only.
07	Security Deposit	As per GCC
08	Important Safety Conditions	<p>Agency has to ensure utmost safety at all associated work place/s. In addition to the Updated Safety Clauses in mentioned in Standard Tender Document, agency has also to ensure the followings:</p> <p>Note: The Clauses available in the Standard Safety Document (Part-E) , shall not be repeated here.</p>
09	Deviation	<ul style="list-style-type: none"> Deviation in quantity shall be applicable as per GCC.
10	Price Escalation Formulae DUE TO INCREASE IN MINIMUM WAGES	"Not Applicable"
11	Deduction Clause for any lapse while executing the job or incomplete job	As per SOW if any
12	Accommodation	<ul style="list-style-type: none"> NTPC may provide Accommodation in township on chargeable basis at commercial rates, subject to availability and clearance from HR.
13	Conveyance/Journey Charges	"Not Applicable"
14	Other Special Terms (if any)	

Technical Specification
Section -V

Technical Specification
Section -V

Part –C Quality Plan (If applicable,)(QP mandatorily be vetted by FQA)

Technical Specification
Section -V

Part -D Drawings

Attached

Part-E Standard Safety Clauses

I. GENERAL

1. The contractors shall comply the provisions of Factories Act 1948, any other statutory provisions applicable to them to ensure occupational health and safety, NTPC Electrical & Mechanical Safety Rules and any other rules made by NTPC relating to Operation & Maintenance of Plants. The contractor shall make arrangements at all his work places for ensuring safety and absence of risks to health of the workers.
2. The contractor shall ensure that the equipments/electrical installation system/facilities are provided and maintained by him as required under various statutes. He shall also ensure testing/examination of the equipments wherever required, in accordance with the provisions of the Factories Act or any other prescribed statutes. The record of such inspection/testing and examination shall be kept at the site and shown to NTPC Engineer In-charge/Safety In-charge on demand.
3. The contractor shall ensure that all floors steps, stairs, passages and gangways are to be properly maintained and shall be kept free from obstructions and substances likely to cause persons to slip and fall.
4. The contractor shall not remove any part of equipments (like guards etc.) or gangways (like fencing, base etc.) or other systems without the permission of the Engineer In-charge. Wherever any guards/other parts of the system are removed for repair, it will be provided back to its place, before any operation or use of the equipment. The CONTRACTOR shall not hand-over/allow operating these equipments till the guards are provided at its place.
5. In case, any opening in gangway/access etc. is caused due to removing any part of base for lifting of material or otherwise, either the opening shall be suitably fenced or suitably covered to prevent fall of any person in such openings in consultation with Engineer In-charge. Temporary fencing shall also be provided whenever required along with appropriate caution boards, lighting etc.
6. The employees employed by the CONTRACTOR should be skilled/competent in accordance with the job requirement to the satisfaction of Engineer-in-Charge. Engineer-in-Charge shall have a right to remove any employee of the contractor, whom he feels to be incompetent. The contractor shall employ sufficient number of supervisors to ensure supervision at all places of his work at all the times.
7. No person should be allowed to carry, lift or move any load so heavy which may likely to cause him injury as prescribed under concerned state factories rules.

II. WORKING AT HEIGHTS

1. All working platforms, ways and other places of O&M work area shall be free from accumulations of any material causing obstructions and tripping.

Technical Specification
Section -V

2. Wherever workers are exposed to the hazard of falling into water, the contractor shall provide adequate equipment for saving the employees from drowning and rescuing from such hazards. The contractor shall provide boat or launch equipped with sufficient number of lifebuoys, life jackets etc. manned with trained personnel at the site of such work.
3. Every opening at elevation from ground level through which a worker, material, equipment etc. may fall at O&M work area shall be covered and/or guarded suitably by the contractor to prevent such falls.
4. Wherever the workers are exposed to the hazards of falling from height, the contractor shall provide full harness safety belts fitted with fall arresting systems to all the employees working at higher elevations and life line of 8mm diameter wire rope with turn buckles for anchoring the safety belts while working or moving at higher elevations. Safety nets shall also be provided for saving them from fall from heights and such equipments should be in accordance with BIS Standards.
5. Wherever there is a possibility of falling of any material, equipment or workers while working at heights, a suitable and adequate safety net should be provided . The safety net should be in accordance with BIS Standards.
6. The contractor shall provide proper access like ladders etc., where the workers are required to reach higher elevations and ensure the workers use them as an access for higher elevations where a permanent access is not available. The workers shall be provided with safety belts fitted with suitable fall arresting system (Fall arrestors)for climbing/getting down through ladders to prevent fall from height.

III. OPENINGS:

The contractor shall ensure that vessel, sump, tank, pit or opening in ground or in a floor which by reason of its depth, situation, construction or contains or may be a source of danger at his workplace shall be either securely covered or fenced and necessary measures for protection against falling materials/objects or workers from such platform are taken by providing suitable safety nets, safety belts or other similar means.

IV. FENCING OF MACHINERY:

The contractor shall not allow any worker to examine any part of the machinery or to carry out the lubrication or other adjusting operation while the machinery is in motion. The workers working near the machinery in motion shall be provided with tight fitting clothes as required under State Factories Rules.

V. SCAFFOLDINGS AND WORK PLATFORMS:

The contractor shall take all precautions to prevent any accidental collapse of scaffolding or working platforms or fall of persons from scaffolding or working platforms. The CONTRACTOR shall ensure that scaffolding erection and repairs are done under the expert supervising. The scaffolding shall meet the required strength and other requirement for the purpose for which the scaffolding work platform is erected. The material used for scaffold/work platform should conform to the BIS Standards.

Technical Specification
Section -V

VI. CONFINED SPACE :

1. No person should be allowed to enter any chamber, tank, wet, pit, pipe, flue or other confined space at his work area in which any gas, fume, vapour or dust is likely to be present to such an extent as to involve risk to persons unless it is provided with a manhole of the required size or other effective means of **egress**. The contractor shall take practicable measures to remove any gas, fume, vapour or dust to bring it its limit within the permissible limits and to prevent any risk to the workers.
2. No portable electric light or any other electrical appliances of voltage exceeding 24Volts shall be permitted for use inside any chamber/tank wet, pit, pipe, flue or other confined space unless adequate safety devices are provided where the inflammable gases, fumes or dust is likely to be present.

VII. HANDLING OF HAZARDOUS CHEMICALS & HAZARDOUS WASTE:

1. The contractor shall provide suitable personal protective equipments to the workers who are handling the hazardous and corrosive substances including alkalis and acids.
2. As a precautionary measure the contractor should keep the bottles filled with distilled water in cupboard/boxes near work place for emergency eye wash by worker exposed to such hazardous chemicals.

VIII. RIGHT TO STOP WORK:

1. The Engineer-in-Charge shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipments. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly.
2. The contractor shall not be entitled for any damages/compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the Facilities and will not be the ground for waiver of levy of liquidated damages.

IX. OVERHEAD PROTECTION:

1. The contractor shall ensure that any area exposed to risk of falling materials, articles or objects is roped off or cordoned off or otherwise suitably guarded from inadvertent entry of any person.
2. Wherever there is a possibility of falling of any material equipment or construction workers while working at heights, a suitable and adequate safety net should be provided. The safety net should be in accordance with BIS Standards.

X. EYE PROTECTION:

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The contractor shall provide suitable personal protective equipment to his workmen depending upon the nature of hazards and ensure their usage by the workers engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause injuries to his eyes.

XI. ELECTRICAL HAZARDS:

1. The contractor should ensure that all electrical installations/equipments used in O&M work area comply with the requirements of latest electricity acts/rules.
2. The contractor shall take all adequate measures to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuits which may cause electrical hazards during the construction work. The CONTRACTOR shall provide the sufficient ELCBs/RCCBs for all the portable equipments, electrical switchboards, distributions panels etc. to prevent electrical shocks to the workers.
3. The contractor should ensure use of single/double insulated/plastic body hand tools or low voltage i.e.110 Volts hand tools.
4. Wherever NTPC electrical & Mechanical Safety Rules prescribe, the CONTRACTOR shall not undertake any work till the permit is obtained for the specific work in accordance with NTPC rules.

XII. LIFTING TOOLS & TACKLES:

The contractor shall use the lifting appliances, tools & tackles including cranes etc. lifting gear including fixed or movable and any plant or gear, hoists, pressure plant and equipment etc. are in good condition and examined by competent person and certified as per statutory requirements.

XIII. MEDICAL EXAMINATION:

1. The contractor shall get the medical examination conducted of all his employees including his sub-contractor employees working in hazardous areas once before the employment and thereafter once in every year by a qualified medical practitioner as per the Factories Act,1948 and concerned State Factories Rules. The necessary registers and records relating to the medical examination of all the employees should be maintained and shown to NTPC Engineer in-Charge/Safety-in-Charge on demand.
2. If the contractor fails to get the medical examination conducted as mentioned above, NTPC will have the right to get the same conducted by NTPC Medical Officer with intimation to the CONTRACTOR and deduct the cost and overhead charges.

XIV. SAFETY ORGANISATION:

The major O&M contractors who are deploying number of agencies under his control should appoint at least one qualified safety officer. The other terms with respect to appointment of number of safety officers, qualifications, experience, duties and responsibilities etc. shall be in accordance to the concerned State Factories rules. The other contractors site Incharge who is directly supervising the job should undergo minimum two days safety training at any reputed institute or at NTPC training centre before start of work and obtain the certificate. A copy of the certificate has to submit to Engineer-in-Charge of NTPC.

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XV. REPORTING OF ACCIDENTS:

1. In case of any injury, the contractor shall send the injured person to NTPC Plant Hospital/Dispensary/First Aid Centre, where the injured shall be given the first aid treatment and the quantum of permanent disablement/temporary disablement shall be assessed to ensure payment for compensation to be paid, by the contractor to the victim.
2. In case the subsequent treatment is given in other than NTPC Hospitals, the contractor shall submit full information about the treatment of injured persons including his address etc. till the injured persons is certified fit by any Govt./NTPC Doctor. He shall submit such record to NTPC Safety Deptt. within 15 days of certified fit by Doctor as above.
3. The contractor shall report immediately about the serious injury/ fatality in his work area to the local police station, District Magistrate, Safety Officer-in-Charge and Engineer-in-Charge. Within 2 hours of occurrence he shall submit full details of accident in writing to Safety Officer-in-Charge and Engineer-in-Charge on the prescribed format. In case of near miss accidents/minor injury, he shall report the same to Safety Officer In charge and Engineer Incharge immediately after referring the injured to NTPC Plant Hospital/Dispensary/First Aid Centre.
4. Whenever asked by NTPC, the contractor shall send his employees to depose in any enquiry arising out of any injury/fatality/loss etc. without any reservation.

XVI. PERSONNEL PROTECTIVE EQUIPMENTS:

1. The contractor shall provide safety helmets to all his employees including contractor labour of his sub contractor to prevent a danger of falling object. Whenever any worker is engaged on a work at a place from which he is liable to fall more two meters shall be provided with Safety belt equipped with lifelines, which are secured to a fixed structure. A competent person to ensure that no belt or lifeline that is not in good condition is used shall examine all safety belts and lifelines at frequent interval.
2. Where the workers are exposed more than to the noise levels specified in the concerned State Factories Rules be provided with suitable ear plugs/ear muffs so as to reduce the exposure below high noise level.
3. Personal Protective Equipments as prescribed in the Factories Act and /or State Factories Rules, the CONTRACTOR shall provide to the workers. In case the Factories Act/State Factories Rules do not specify the personal protective equipments for the concerned work, the personal protective equipments prescribed by NTPC Engineer-in-Charge shall be provided by the CONTRACTOR. The quality of the personal protective equipments shall be as prescribed in concerning Indian Standards. In case, the Indian standards do not exist for particular personal protective equipment, the approval of quality shall be obtained from Engineer-in-Charge/Head of Safety. It will be the responsibility of CONTRACTOR to ensure that all his employees use these equipments without fail.
4. In case NTPC officials find that the employees of contractors working in NTPC without use of appropriate safety equipments(personal protective equipments) NTPC shall have a right to issue the equipment to the workers with intimation to the contractor and deduct the cost and overhead charges as mentioned in the terms of the contract.
5. NTPC may provide special personnel protective equipments, like fall arrestors, safety nets etc. on chargeable/non chargeable basis, subject to availability to the petty contractors on his request to

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Engineer-in-Charge in advance indicating total no. of items quantity and type of equipments required provided this condition is specifically included in the contract conditions.

XVII. TRAINING:

1. The contractor shall arrange to provide safety training to all his employees. Whenever asked by NTPC also, the contractor shall send his employees for safety training and for such day the contractor shall pay the employee average daily salary.
2. The contractor shall provide training on use of fire extinguishers and first aid to all his employees and records thereof shall be submitted to Engineer-in-Charge and head of Safety of NTPC. The training may be provided independently or may be nominated to the programmes being organized by NTPC from time to time.

XVIII. PENALTIES:

1. If the contractor fails in providing safer working environment as prescribed in General Conditions of Contract relating to safety and health or continue the work even after being instructed to stop the work by Engineer-in-Charge, the contractor shall be penalise @ Rs.5000/-per day or part thereof till the instructions are complied with and so certified by the Engineer-in-Charge. However, in case of accident causing major injury or fatal, the provisions contained below shall also apply in addition to the penalties mentioned in this clause.
2. If the contractor does not take all safety precautions and/or fails to comply with the Safety rules as prescribed by the Employer or under the applicable law for the safety of the plant and equipment and for the safety of personnel and the contractor does not prevent hazardous conditions which cause injury to his own employees or employees of other contractors, or the Employer's employees or any other person who are at the site or adjacent thereto, the contractor shall be responsible for payment of penalty to NTPC as per the following schedule:-

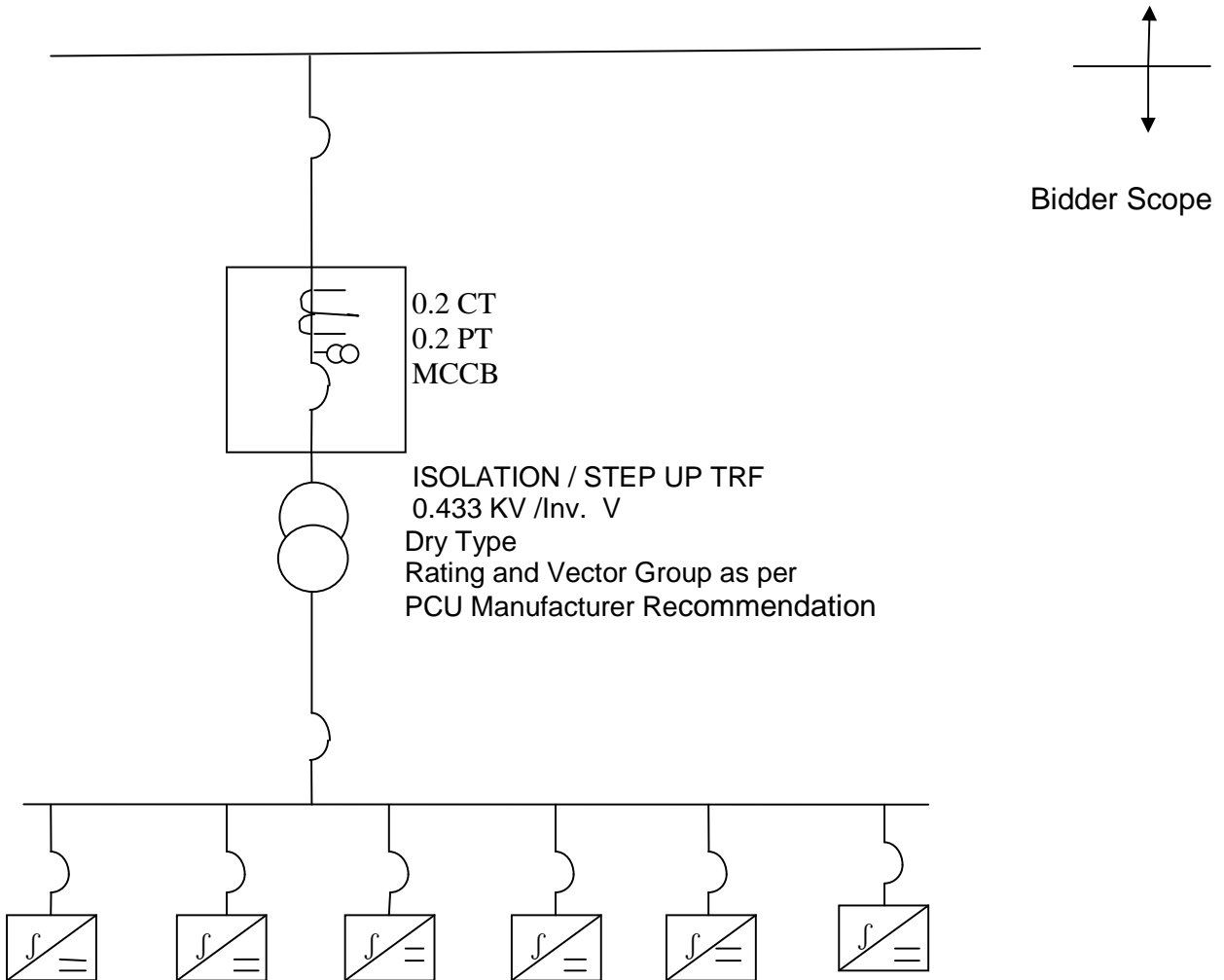
a)	For fatal accident/injury causing death	Penalty @ 10% of the contract value or Rs.5.0 lacs whichever is less for each fatal accident/injury causing death
b)	Major injury or accident causing 25% or more permanent disablement to workmen	Penalty @ 2.5% of contract value or Rs.1.00 lac whichever is less for each disablement injury.

3. Permanent disablement shall have the same meaning is indicated in Workmen's Compensation Act 1923. The penalty mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the workmen's compensation act and rules framed there under or any other applicable laws as applicable from time to time.
4. IF any contractor worker found working without using the safety equipment like safety helmet, safety shoes, safety belts etc. or without anchoring the safety belts, while working at height the Engineer-in-Charge/Safety Officer of NTPC shall have the right to penalise the contractor for Rs.200/-per person per day and such worker shall be sent out of the workplace immediately and shall not be allowed to work on that day. Engineer-in-Charge/Safety officer of NTPC will also issue a notice in this regard to the contractor.

Appendix-I

Owner Scope

415 Volt LT Service SWGR / Distribution Board



Roof Top Solar String Inverter (Typ.)

Clarification No. 01 to Bidding Documents

S.No.	Bid document clause	Bidder's Query	NTPC Reply
1	NIT	Tender is categorized under –WORK CONTRACT. An MSMEs benefit cannot be availed in it. As solar PV installation is a composite supply product, We suggest to kindly go thru the 45th Meeting of the GST Council, Lucknow 17th September, 2021 PRESS RELEASE which clearly states in clause G8. That GST on specified Renewable Energy Projects can be paid in terms of the 70:30 ratio for goods and services, respectively, during the period from 1.7.2017 to 31.12.2018, in the same manner as has been prescribed for the period on or after 1st January 2019. In fact multiple tenders in NTPC and NTPC NVVN from couple of years have been termed as Supply erection commissioning and maintenance. Do review the category of contract or allow MSME EMD waiver ship or NTPC can take BID SECURITY DECLARATION	The provisions of bidding document will prevail
2	Technical spec SPV Module	Local content means Make in India product. All the materials supplied are to be of make in India product and it includes solar cells also, i.e. both Module and cells are to be of Indian make only. Please Clarify that :-100% solar Module should be made IN INDIA i.e (Solar Cell and Solar module both should be made in INDIA) ?	As per provisions of bidding document
3	Technical spec SPV Module	As per clause 1.3 -The glass used for making No. SPV MODULE –Specification module shall be “3.2 mm for 60 cells” and “4.0 mm for 72 cells” and Clause 1.2 The capacity of each of the solar module shall not be less than 335W and no negative tolerance from quoted power rating on solar module shall be allowed.-By reading this spec we understand that NTPC tender designing team is completely aware about the present specs of modules. Taking this in	3.2 mm or more solar glass may be allowed.

Projects: NTPC VSTPS Package: GRID TIED (INTERACTIVE) ROOFTOP SOLAR PV SYSTEM AT DELHI PUBLIC SCHOOL BUILDING, NTPC VINDHYACHAL Bid Document No.: USSC-CPG1-265	Clarification No. 01 to Bidding Documents Doc. No.: USSC-CPG1-265-CLA-01	Page Page 1 of 3
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Clarification No. 01 to Bidding Documents

		consideration-As best to our knowledge at present there is no company who has 4mm x 72 cells 335Wp+ panels which comply local content policy. Hence we request to kindly share the approved/reference/model makes. -As NTPC would be aware that in today's present market there are multiple factors which are impacting the domestic as well as global Solar Module market and giving tuff challenge in meeting the supply to demand ratio. Hence we request to kindly share the presumed timelines. 1) Financial Opening of bidding 2) LOA sharing to L13) Clearance of Design and engineering after LOA acceptance. These timelines will help all the bidders to presume/Predict on Hypothetical or analyzed basis while considering SPV Module and other BOQ cost. Secondly If the timelines cannot be predicted/assumed then do clearly mention.	The timelines cannot be predicted at this stage
4	Revised Special Condition - --Technical Scope --PR and CUF	PR at inverter end is asked to 80 % we request to kindly follow the MNRE NORMS of 75% and CUF 15 % instead of 17%	PR at inverter end of 75%(MWp) may be accepted. CUF of 15% may be allowed
5	Technical Scope – Evacuation	1)Kindly share the exact geo coordinates for Plant evacuation 2)As per tender norms we understand evacuation will be at 415v / 3P ? 3)At time of engineering evacuation can be changed as per best practice of engineering?	1) 24.094, 82.64 2) Yes 3) As per direction of EIC
6	Payment term	Kindly relax the payment terms Multiple holding of value in O&M and Supply are being done for one year, Inspite of PBG and SD submission	As per provisions of bidding document
7		Employing of STAFF for O&M and CAMC and other periods is a too high cost for such a small project, these points are viable in MW scale project. Kindly obsolete this	As per scope of work

Projects: NTPC VSTPS Package: GRID TIED (INTERACTIVE) ROOFTOP SOLAR PV SYSTEM AT DELHI PUBLIC SCHOOL BUILDING, NTPC VINDHYACHAL Bid Document No.: USSC-CPG1-265	Clarification No. 01 to Bidding Documents Doc. No.: USSC-CPG1-265-CLA-01	Page Page 2 of 3
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Clarification No. 01 to Bidding Documents

		<p>-Please clear module cleaning frequency</p> <p>-Will NTPC provide accommodation on paid basis while execution and O&M</p>	<p>Weekly</p> <p>No</p>
8	Technical Specification	<p>The Module should have visual distinct identification mark based on the measured output in a band of maximum 3Wp. (but not less than quoted module capacity). The glass used for making module shall be 3.2 mm for 60cells and 4.0 mm for 72 cells. Each string shall have identical Wp rating solar PV modules.</p> <p>Since our module having 3.2 mm of module glass for the 72 Cell module so please suggest if we can proceed with our module, which has 3.2 mm of module glass for the 72 Cell module.</p>	3.2 mm Module glass for 72 cell Module may be allowed.

The details of site are as under:

Site Details	Geo Location	Height of Building	Analysed roof top capacity	Parapet Height of Each Building	Spare Breaker Capacity	Nearest Water Tapping point from Roof distance	Nearest utility tapping point from roof distance	Evacuation point distance from roof
DPS Vindhyanagar Building Roof	24.094(N), 82.648(E)	12 mtr	> 150 kWp	1 mtr	400 Amp, make HPL	50 mtr	50 mtr	50 mtr

Projects: NTPC VSTPS Package: GRID TIED (INTERACTIVE) ROOFTOP SOLAR PV SYSTEM AT DELHI PUBLIC SCHOOL BUILDING, NTPC VINDHYACHAL Bid Document No.: USSC-CPG1-265	Clarification No. 01 to Bidding Documents Doc. No.: USSC-CPG1-265-CLA-01	Page Page 3 of 3
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NTPC LIMITED
(A Government of India Enterprise)



SECTION – V
SPECIAL CONDITIONS OF CONTRACT

SECTION - V

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Wherever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in parentheses.

Name of Package : GRID TIED (INTERACTIVE) ROOFTOP SOLAR PV SYSTEM AT DELHI PUBLIC SCHOOL BUILDING, NTPC VINDHYACHAL.

Sl.No.	GCC Clause Ref., if any	Special Conditions
1	Definitions (GCC Clause 1)	<p>The Employer is:</p> <p>Name of Employer : NTPC Limited Address of Employer: NTPC Limited, Central Procurement Group-I, NTPC WR-II office, Sector-24 , Nava Raipur, Chattisgarh - 492018 (India)</p> <p>Project Manager : Head of Project or his authorized rep.</p> <p>Name of Project Manager : AGM (Elec Maint.)</p> <p>Address of Project Manager : Vindhyachal Super Thermal Power Station, P.O. Vindhyanagar, Distt. Singrauli, M.P., India-486885.</p>
2	Time for Commencement and Completion (GCC Clause 8)	Total contract period shall be of 20 Months (8 months commissioning period + 01 years O&M period) from the date of Notification of Award/ Purchase Order
2.1	Defect Liability (GCC Clause 27) 27.2	Warranty of 5 year from the date of successful trial run.
3	Completion Time Guarantee (GCC Clause 26)	<p>Applicable rate for liquidated damages:</p> <p>a) Liquidated Damages for delay in successful Completion of Facilities shall be as under:</p> <p>One half of one percentage (1/2%) of total contract price per week of delay beyond the contract period subject to maximum of 5 % of contract value.</p> <p>b) The liquidated damages for delay in supply of spares beyond the dates stipulated under the Contract shall be as follows:</p> <p>(c) The total amount of liquidated damages for delay under the contract</p>
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		will be subject to a maximum of Five percent (5%) of the total Contract Price.
4	Suspension (GCC Clause 41)	<p>If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 41, then the Time for Completion shall be extended in accordance with GCC Sub-Clause 40.1, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Employer to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.</p> <p>The Bank Guarantee and Insurance Charges for the extended period on account of delays attributable to the Employer shall be reimbursed at the following rates:</p> <p>Rate applicable for: 0.25% p.a. + GST, or actual, reimbursement of BG whichever is lower, subject to Charges documentary evidence.</p> <p>Rate applicable for Insurance Charges:</p> <p>(I) Basic Rates* (in INR)</p> <ul style="list-style-type: none"> (i) Extension upto 6 months may be granted on "Pro-Rata + 20%" basis of the original premium (ii) Extensions exceeding 6 months but not exceeding 9 months: 0.56 per thousand of Sum Insured (iii) Extensions exceeding 9 months but not exceeding 12 months: 0.64 per thousand of Sum Insured (iv) Extensions exceeding 12 months but not exceeding 15 months: 0.72 per thousand of Sum Insured (v) Extensions exceeding 15 months but not exceeding 18 months: 0.80 per thousand of Sum Insured (vii) Extensions exceeding 18 months but not exceeding 21 months: 0.88 per thousand of Sum Insured Extensions exceeding 21 months but not exceeding 24 months: 0.96 per thousand of Sum Insured (viii) Extensions exceeding 24 months but not exceeding 30 months: 1.04 per thousand of Sum Insured (ix) Extensions exceeding 30 months but not exceeding 36 months: 1.12 per thousand of Sum Insured (x) Extensions exceeding 36 months but not exceeding 42 months: 1.20 per thousand of Sum Insured (xi) Extensions exceeding 42 months but not exceeding 48 months: 1.28 per thousand of Sum Insured (xii) Extensions exceeding 48 months: insurance charges shall be mutually agreed with the contractor. <p>(II) Additional Cover*</p> <p>In addition to above the rate of premium applicable for 'Earthquake' and 'Terrorism' cover shall be as under: (Rates in INR)</p>

		<table><tr><td>Earthquake Zone-I</td><td>:</td><td>1.00 per thousand of Sum Insured / Annum</td></tr><tr><td>Earthquake Zone-II</td><td>:</td><td>0.50 per thousand of Sum Insured / Annum</td></tr><tr><td>Earthquake Zone-III & IV</td><td>:</td><td>NIL</td></tr><tr><td>Terrorism</td><td>:</td><td>0.30 per thousand of Sum Insured / Annum</td></tr></table> <p>*Notes:</p> <p>(i) These rates are applicable for standard deductibles which is package specific.</p> <p>(ii) The extension shall be done on the same terms and conditions as that of the original policy.</p> <p>(iii) The extension referred herein shall be the extension of insurance policy period and insurance charges shall be calculated as under: Say, extension is of 12 months, then insurance charges shall be reimbursed @ Rs. 0.64 per thousand of Sum Insured; if extension is for 24 months then insurance charges shall be reimbursed @ Rs. 0.96 per thousand of Sum Insured; and so on.</p> <p>(iv) The Insurance charges shall be reimbursable on the rates as above or actual, whichever is lower, subject to the documentary evidence.</p> <p>Taxes shall be paid over and above the rates as indicated.</p>	Earthquake Zone-I	:	1.00 per thousand of Sum Insured / Annum	Earthquake Zone-II	:	0.50 per thousand of Sum Insured / Annum	Earthquake Zone-III & IV	:	NIL	Terrorism	:	0.30 per thousand of Sum Insured / Annum
Earthquake Zone-I	:	1.00 per thousand of Sum Insured / Annum												
Earthquake Zone-II	:	0.50 per thousand of Sum Insured / Annum												
Earthquake Zone-III & IV	:	NIL												
Terrorism	:	0.30 per thousand of Sum Insured / Annum												
5	Add New GCC Clause 47	47. Integrity Pact (Not Applicable) If the Employer has terminated the contract pursuant to Section-3 of the Integrity Pact (IP), the Employer shall encash the Contract Performance Bank Guarantee, in accordance with Section 4 of Integrity Pact.												
6	Add New GCC Clause 48	48. Independent External Monitors (Not Applicable)												
7	Add New GCC Clause 49	49. Royalty 1. If the Contractor intends to engage itself in quarrying or mining of soil/earth, sand, stone/aggregates, metals, minerals or minor minerals required for the Civil works, as the case may be, it shall obtain necessary permits under the applicable law for such mining or quarrying from the State/Central Government authorities and pay the fee or charges applicable thereto. 2. The Civil works component of the Contract Price shall be inclusive of any Royalties or Seigniorage Fee or Cess or other charges payable on the quarried or mined metal, minerals, or minor minerals, as the case may be, at the rate(s) prevailing as on seven (7) days prior to the deadline set for Price Bid submission. 2.1 It shall be the responsibility of the Contractor to ensure that the Royalties or Seigniorage Fee or Cess or other charges on the quarried or mined metal, minerals or minor minerals are paid to the												

		<p>statutory authorities.</p> <p>2.2 The component of Royalties or Seigniorage Fee or Cess or other charges, if applicable in a running account bill, shall only be released by the Employer to the Contractor on submission of the following documents in original:</p> <p>A) In case the Contractor is the primary license holder of the quarry / mines:</p> <p>i) Vehicle wise challan / transit permit and proof of payment of royalty, and</p> <p>ii) Any other document required as per the relevant Acts/Rules of the concerned state.</p> <p>B) In case the Contractor is the purchaser of soil/earth, sand, stone/aggregates, metals, minerals or minor minerals:</p> <p>i) Purchase voucher and vehicle wise challan / transit permit and proof of payment of royalty, and</p> <p>ii) Any other document required as per the relevant Acts/Rules of the concerned state.</p> <p>2.3 In case the Contractor fails to provide the required proof of royalty payment with the RA bill then an amount based on the prevailing rates of the royalty shall be deducted from the respective RA bill, which shall be refunded to the Contractor on submission of proof of royalty payment. However, if the Contractor fails to provide the proof of royalty payment within a period of 60 days from the date of RA bill, NTPC shall issue a notice to the Contractor giving 30 days' time for submission of the proof of royalty payment. In case of non-submission of the proof of payment of royalty by the Contractor, the amount so deducted shall be deposited by NTPC to the concerned authority. Engineer in charge shall be responsible to ensure the compliance of the Royalty payment</p> <p>2.4 The Contractor shall pay and indemnify the Employer against any default in payment of Royalties or Seigniorage Fee or Cess or other charges by the Contractor or the agency from which the Contractor purchases soil/earth, sand, stone/aggregates, metals, minerals or minor minerals.</p> <p>2.5 In the event of there being a statutory increase in the rates of royalty charges/fresh levy of royalty on materials, the same shall be reimbursed to the Contractor upon submission of original challan by him of having made the payments at revised rates. In the event of there being a decrease in such rates, the same shall be recovered from the Contractor. The base date for calculating the increase or decrease shall be the rate as on seven (7) days prior to the deadline set for Price Bid submission. The total reimbursement (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually considered while making the royalty payments to the concerned authorities, or the theoretical consumption of these materials (calculated on the basis of the volume of concrete or fill accepted for payment), whichever is</p>
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		less, and on the basis of documentary evidence of Govt. Notification. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities.
8	GCC Clause 14.1 to 14.4	<p>Replace GCC Clauses 14.1 to 14.4 (Taxes and Duties) with the following:</p> <p>14.1 Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Sub-contractor or their employees by all municipal, state or national government authorities in connection with the Facilities in and outside of the country where the Site is located.</p> <p>14.2 Notwithstanding GCC Sub-Clauses 14.1 above, the Employer shall bear and pay/reimburse to the Contractor Goods and Services Tax (GST) applicable on: (a) Plant and Equipment (including Type Test Charges) and Mandatory Spares to be supplied from within the Employer's country specified in Price Schedule No. 1 (and also on locally supplied Recommended Spare Parts quoted in Price Schedule No. 5, when awarded) to be incorporated in the Facilities, by the law of country where the site is located, (b) local transportation & insurance, other local costs incidental to delivery of plant & equipment including mandatory spares specified in Price Schedule No. 2 (and also of locally supplied Recommended Spare Parts quoted in Price Schedule No. 5, when awarded) and (c) Installation Services including Erection, Civil & Allied Works and other services specified in Price Schedule No. 3. However, all other taxes, duties & levies as may be applicable on goods and services specified in Price Schedules Nos. 1, 2 & 3 and on the materials used for civil construction works and erection & commissioning shall be to the contractor's account and no separate claim in this regard will be entertained by the Employer.</p> <p>Notwithstanding anything to contrary contained in the Contract, the Contractor's right to payment under the Contract is subject to issuance of valid tax invoice, payment of applicable GST to the credit of appropriate Government and submission of valid particulars of tax invoice under GST returns in accordance with GST Law.</p> <p>The Contractor shall issue tax invoices, file appropriate returns, and deposit the applicable GST to the account of appropriate government within the time limit prescribed under the GST Law. In the event of any default, Contractor shall be liable to pay any penalty/demand raised on NTPC due to default by Contractor, and the same shall be recovered/Contractor shall make good the loss.</p> <p>The Contractor shall be responsible for the issuance of e-way bill and other compliances relating to e-way bill as per GST law.</p> <p>The Employer will deduct GST at source at the applicable</p>
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		<p>rates in case transactions under the contract are liable to GST deduction at source as per the prevailing provisions of GST Law.</p> <p>14.3 If any tax exemptions, reductions, allowances or privileges are available to the Contractor in the country where the Site is located, the Employer shall use its best endeavours to enable the Contractor to benefit from any such tax savings to the maximum allowable extent.</p> <p>14.4 For the purpose of the Contract, it is agreed that the Contract Price specified in Article 2 (Contract Price and Terms of Payment) of the Contract Agreement is based on the taxes, duties, levies and charges prevailing on seven (7) days prior to the deadline set for price bid submission in the country where the Site is located (hereinafter called "Tax" in this GCC Sub-Clause 14.4). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GCC Clause 36 (Change in Laws and Regulations) hereof. However, these adjustments would be restricted to direct transactions between the Employer and Contractor and Bought out items (dispatched directly from sub-vendor's works to Site). These adjustments shall not be applicable on procurement of raw materials, intermediary components and intermediary services etc. by the Contractor.</p>
9	GCC Clause 36.1	<p>Replace GCC Clause 36.1 (Changes in Laws and Regulations) with the following:</p> <p>36.1 If, after the date seven (7) days prior to the deadline set for Price Bid submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract. However, these adjustments would be restricted to direct transactions between the Employer and Contractor and Bought out items (to be dispatched directly from the sub-vendor's works to NTPC Site). These adjustments shall not be applicable on procurement of raw materials, intermediary components, and intermediary services etc. by the Contractor. Notwithstanding the foregoing, such</p>
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		additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with the Appendix 2 to the Contract Agreement.
10	GCC Sub-Clause 13.2	<p>Replace Sub-Clause 13.2 (Advance Payment Security) of Section-GCC with the following:</p> <p>13.2.1 The Contractor shall, within twenty-eight (28) days of the Notification of Award of Contract, provide a security in an amount equal to the advance payment for supply of Plant & Equipment and 110% of the advance amount for Installation Services and Civil & Allied Works calculated in accordance with Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, and in the currency or currencies of the Contract, with an initial validity of up to ninety (90) days beyond the schedule date of Completion of the last facility covered under the package in accordance with GCC Clause 24. However, in case of delay in completion of the facilities under the package, the validity of this security shall be extended by the period of such delay. The advance payment security shall also cover the amount of GST as applicable on the advance payment to be paid to the contractor.</p> <p>13.2.2 The security shall be in the form of an unconditional bank guarantee as per the proforma provided in Section VII (Forms and Procedures) Form of Advance Payment Security. The Advance payment Security shall be reduced prorata every three (3) months after First Running Account Bill/Stage Payment under the Contract based on the value of the respective equipment/facilities received and applicable GST. The cumulative amount of reduction at any point of time shall not exceed seventy five percent (75%) of the advance and the amount of GST paid on the advance amount corresponding to cumulative value of the respective equipment/Facilities supplied and received as per certificate issued by the Project Manager. The balance shall be released after ninety (90) days beyond Completion of those Facilities. It should be clearly understood that reduction in the value of security for advance shall not in any way dilute the Contractor's responsibility and liabilities under the Contract including in respect of the Facilities for which the reduction in the value of security is allowed.</p>
11	Add New GCC Clause 50	<p>50. Contractor's Labour Information Management System (CLIMS):</p> <p>(a) The Contractor has to necessarily get itself registered in the Contractor's Labour Information Management System (CLIMS), which will be installed by the Employer.</p> <p>(b) The entry and exit of all contract labour to the plant premises will be through Gate Access Control System of above 'Contractor's Labour Information Management System'.</p> <p>(c) It will be the responsibility of the Contractor to ensure timely exit of all labours from the plant premises after completion of job of that day.</p> <p>(d) The contractor has to abide with all the statutory compliance applicable to its workers and employees and update the details of</p>
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		the same in the above System.
12	GCC clause 44	<p>Replace GCC clause 44 as under:</p> <p>Contractor Performance Feedback and Evaluation System The Employer has in place an established 'Contractor Performance and Feedback System' against which the Contractor's performance during the execution of Contract shall be evaluated on a continuous basis at regular intervals on the following seven parameters:</p> <ul style="list-style-type: none"> • Engineering & Quality Assurance Capability • Finance • Supply • Construction/ Installation • Field Quality • Safety • Claims & Disputes <p>The score-based feedback formats based on which Contractor's performance shall be evaluated is enclosed.</p> <p>In case the performance of the Contractor is found unsatisfactory, the Contractor shall be considered ineligible for participating in future tenders for three years.</p> <p>On completion of the above ineligibility period, the Contractor would be required to submit a request to NTPC for participating in future tenders specifying the measures taken to improve their performance. The Contractor may also request for early revocation of suspension after completion of at least two (2) year of the suspension period. On receipt of such request, the performance of the Contractor shall be assessed/evaluated by NTPC and if the performance is found to be satisfactory, the Contractor shall be considered eligible for participation in future tenders.</p>
13	GCC Clause 11.2	Provision of Price Adjustment is applicable as specified in Appendix 2 to Form of Contract Agreement, Section VII. The bidder shall quote the total price for the entire scope of work (covered in the Bidding Documents) on Firm Price Basis. Price Adjustment is Not Applicable.
14	GCC Clause 27.10	<p>Add the following at the end of clause 27.10 of GCC:</p> <p>Extended Warranty: Not Applicable.</p>
15	GCC Clause 30	<p>Replace GCC clause 30 as under:</p> <p>30. Limitation of Liability</p> <p>30.1 Except in cases of criminal negligence or wilful misconduct, (a) Neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and</p> <p>(b) The aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Employer with respect to</p>
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		<p>patent infringement.</p> <p>(c) The aggregate liability of the Employer to the Contractor except for GCC Sub clause 29.3, whether under the Contract, in tort or otherwise, at any point of time during the execution/performance of the Contract, shall not exceed the 'total Contract Price less payments already released to the Contractor'.</p>
16	GCC Clause-51	<p>Add new GCC Clause 51 as under:</p> <p>51. No Claim for interest or damage</p> <p>51.1 Interest on money due to the contractor: Contractor shall not be entitled to any interest or damage in case of any delay on the part of the Employer to pay the amount due upon measurement or as per Contract or otherwise. Contractor shall also not be entitled to interest upon any guarantee/ security/ retention money or payments in arrears or upon any balance which may on the final settlement of his account be due to him.</p> <p>51.2 No claim for interest or damage: No claim for interest or damage will be entertained or be payable by the Employer in respect of any amount or balance which may be lying with the Employer or may become due upon settlement/adjudication of any dispute, difference or misunderstanding between the parties by way of arbitration or court proceedings or otherwise or in respect of any delay or omission on the part of the Employer in making intermediate or final payment or in respect of any amount/damage which may be claimed through arbitration or court proceedings or in any other respect whatsoever.</p>
17	GCC Clause 21.3.2	<p>Replace the existing sub clause with the following</p> <p>Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport operated by any person to carry the Plant and Equipment and the Contractor's Equipment.</p> <p>In case, the Contractor decides to transport the Plant and Equipment and the Contractor's Equipment by road, then such Plant and Equipment and the Contractor's Equipment must necessarily be transported through a registered common carrier as per Carriage by Road Rules 2011 of Central Government of India.</p>
18	GCC Sub Clause 18.6	<p>Replace the existing sub clause with the following</p> <p>Maintenance of Records for Weekly Review Meetings at Site The Contractor shall be required to attend all weekly site progress review meetings organized by the 'Project Manager' or his authorized representative. The deliberations in the meetings shall inter alia include the weekly program, progress of work (including details of manpower, tools and plants deployed by the contractor vis-a-vis agreed schedule), inputs to be provided by Employer, delays, if any, and recovery program, specific hindrances to work and work instructions by Employer. Record of Hindrances / events that lead to slow/ stoppage of smooth execution of work shall be maintained in "Hindrance Register". The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the 'Project Manager', or his authorized representative. These recordings shall be jointly signed by the Project Manager or his authorized representative and the Contractor and one copy of the signed records shall be</p>
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		handed over to the Contractor.
19	GCC Sub Clause 40.4	<p>Replace the existing sub clause with the following</p> <p>Documents for Consideration of time Extension The following documents shall form the principal basis for consideration of Extension of Time for Completion pursuant to GCC Clause 40 with or without LD, levy of Liquidated Damages pursuant to GCC Clause 26 and settlement of extra claims during the execution of contract:</p> <ol style="list-style-type: none"> 1. The joint recordings in “Hindrance Register” and “Weekly Review Register”. 2. Records of Technical Coordination Meetings. 3. Records of Contract Review Meetings, 4. Written notices issued by the “Project Manager” or his authorized representative to the Contractor in the relevant period.
20	GCC Sub Clause 22.3	<p>Replace the existing sub clause with the following</p> <p>22.3 Site Regulations & Safety:</p> <p>22.3.1 The Employer and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Contract at the Site and shall comply therewith. The Contractor shall prepare and submit to the Employer, with a copy to the Project Manager, proposed Site regulations for the Employer’s approval, which approval shall not be unreasonably withheld. Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Facilities in line with para 22.3.2, gate control, sanitation, medical care, and fire prevention.</p> <p>22.3.2 The Employer has formulated Safety Rules for Construction & Erection of Power Plants and is enclosed at Annexure-B to GCC. These Safety Rules lay down the safety requirements for safe execution of project activities, responsibilities of the Contractor, and all concerned involved in Construction and Erection. The Contractor, including his sub-contractors, while executing the Works, shall strictly comply with these Safety rules and statutory requirements (including amendments thereof), as applicable, in respect of safety of personnel, equipment and materials at site area under execution of the Contractor.</p>
		<p>22.3.3 In addition to other clauses specified in ‘NTPC Safety Rules for Construction and Erection of Power Plants’ [as enclosed with GCC/SCC], Contractor shall adhere to the following provisions for payment linked to Safety Compliances as specified in Payment Terms:</p> <p>i) Safety Personnel Contractor shall adhere to the requirements of Clause 2.3 (requirement of Safety personnel) of ‘NTPC Safety Rules for Construction and Erection of Power Plants’.</p> <p>i) Personal Protective Equipment & Safety Equipment Contractor shall adhere to the requirements of Clause 4 (Personal Protective Equipment) of ‘NTPC Safety Rules for Construction and</p>

		<p>Erection of Power Plants’ and the provisions of the Bidding Documents with regards to number of Safety Equipment/PPEs to be provided by the Contractor.</p> <p>In case Contractor fails to comply with aforesaid requirement, Project Manager /Safety Officer shall issue a warning letter/Non-compliance Memo to the Contractor regarding the same advising him to take corrective action.</p> <p>Project Manager /NTPC Safety Officer shall maintain written record of all such incidents when Warning letter/Non-compliance Memo is issued to the Contractor for not meeting the requirements of Clause 4.0 (Personal Protective Equipment) and the provisions of the Bidding Documents.</p> <p>ii) Safety Induction and Training Contractor shall adhere to the requirements of imparting Safety training as per Clause 8.0 (Safety Induction and Training) of ‘NTPC Safety Rules for Construction and Erection of Power Plants.</p> <p>Contractor shall maintain written record of Safety trainings imparted to its Employees/ workmen for purpose of aforesaid payment. These records shall be available for review of Project Manager /NTPC Safety Officer all the time.</p> <p>iii) Medical and First Aid Amenities Contractor shall adhere to the requirements of Clause 13 (Medical and First Aid Amenities) of ‘NTPC Safety Rules for Construction and Erection of Power Plants.</p> <p>NTPC Safety Officer/ Project Manager shall maintain written record of incidences when requisite Medical and first aid amenities as per Clause 13 of Safety Rules were not available for purpose of aforesaid payment.</p> <p>iv) Compliance to Work Permit System Contractor shall adhere to the requirements of Clause 17 (Work Permit System) of ‘NTPC Safety Rules for Construction and Erection of Power Plants’.</p> <p>In case Contractor fails to obtain work permit or fails to comply to any requirements of aforesaid Work permit system, he will be issued a warning letter/Non-compliance Memo by Project Manager /Safety Officer of NTPC regarding the same advising him to take corrective action.</p> <p>NTPC Safety Officer / Project Manager shall maintain written record of all such incidents when Warning letter / Non-compliance Memo is issued to Contractor for not complying with the requirements of Work Permit System as per Clause 17 of Safety Rules for purpose of aforesaid payment.</p>
21	GCC Clause 52	<p>Add new GCC Clause 52 as under:</p> <p>Procedure for Contract Closing</p> <p>52.1 The closing of the contract shall be effected after the warranty</p>
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period/Defect Liability Period is successfully completed and the CPG of the Contractor is returned/ discharged.

52.2 The following thirteen (13) certificates, as per the proforma enclosed in Section VII (Forms and Procedures), shall be issued by the 'concerned departments of NTPC'/ 'Contractor', as applicable, and submitted to the concerned authority designated in NTPC for closing of Contracts:

Certificate No.	Certificate Description	Responsibility	LIMITING DATES FOR ISSUANCE OF CERTIFICATE@
CCP-01	Certificate of Final Amendment to the Contract	SSC C&M dept.	7 Months from The last milestone to be executed/completed
CCP-02	Drawing Receipt Certificate	Executing Dept./EIC	2 Months from The last milestone to be executed/completed
CCP-03	QA Documents Receipt Certificate	FQA	2 Months from The last milestone to be executed/completed
CCP-04	O&M Manual Receipt Certificate	Executing Dept./EIC	4 Months from The last milestone to be executed/completed
CCP-05	Scope Completion Certificate	Executing Dept./EIC	8 Months from The last milestone to be executed/completed
CCP-06	Liquidated Damages for Delay Certificate	Executing Dept./EIC	7 Months from The last milestone to be executed/completed
CCP-07	Shortfall in Equipment Performance Certificate	Executing Dept./EIC	5 Months from Performance and Guarantee (PG) Tests
CCP-08	"Material Reconciliation" Certificate	Executing Dept./EIC & Site Materials Mgmt.	6 Months from The last milestone to be executed/completed
CCP-09	"Payment Reconciliation" Certificate	Finance	6 Months from The last milestone to be executed/completed
CCP-10	Certificate regarding Labour Payments and Statutory Requirements to be furnished	Contractor	9 Months from The last milestone to be executed/completed

		by Contractor.		
		CCP-11	"No Demand Certificate" by Contractor	Contractor 6 Months from PG Tests
		CCP-12	Certificate of Completion of Warranty Period	Executing Dept./EIC 14 Months from Trial Operation/ Completion of Facilities
		CCP-13	Certificate for Return of BGs/Security Deposit/Indemnity Bonds etc.	Finance All BGs except CPG: 5 Month from Trial Operation / Completion of Facilities CPG: 15 Months from Trial Operation/ Completion of Facilities
		<p>52.3 Both the Contractor and the Employer will make necessary efforts to complete the Contract Closing activities as per the timelines.</p> <p>It shall be the responsibility of the contractor to submit the drawings along with the reproducibles, QA documents, O&M Manuals, List of Spares, As Built drawings, deliverables, etc., as applicable, in a timely and sequential manner so that the contract closing activities are not delayed/impeded.</p> <p>The Employer shall also use its best endeavors to expedite all activities leading to successful closure of the contract. The Employer will review and approve the documents submitted by the Contractor in a timely and expeditious manner and the approvals shall not be unreasonably withheld.</p>		
22	GCC Sub clause 7.3.1.9	<p>Replace Sub clause 7.3.1.9 (Scope of Facilities) of Section- General Conditions of Contract (GCC) as under:</p> <p><i>"The prices of all future requirements of item of spares beyond 3 years operational requirement will be derived from the corresponding Ex-works price at which the order for such spares have been placed by Employer as a part of mandatory spares or recommended spares, or from the rates of mandatory spares or recommended spares as quoted by/negotiated with the Contractor. Ex-works order price of future spares shall be computed in accordance with the price adjustment provisions covered under the main Contract and there will be no ceiling on the amount of variation in the prices. The above option for procuring future recommended spares by the Employer shall remain valid for the period of 5 years from the date of Commissioning of the equipment."</i></p>		
23	GCC Clause 1	<p>Add following new definitions in GCC Clause 1</p> <p>(v) "Sub-contractor from a country which shares a land border with India" means;</p> <p>a) An entity incorporated, established or registered in such a country; or</p>		

		<p>b) A subsidiary of an entity incorporated, established or registered in such a country; or</p> <p>c) An entity substantially controlled through entities incorporated, established or registered in such a country; or</p> <p>d) An entity whose beneficial owner is situated in such a country; or</p> <p>e) An Indian (or other) agent of such an entity; or</p> <p>f) A natural person who is a citizen of such a country; or</p> <p>g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.</p> <p>(v1) The beneficial owner for the purpose of clause “v” above will be as under;</p> <p>a) In case of company of Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.</p> <p>Explanation-</p> <p>i. “Controlling ownership interest” means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company;</p> <p>ii. “Control” shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholdings or management rights or shareholders agreements or voting agreements;</p> <p>b) In case of a partnership firms, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more judicial person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;</p> <p>c) In case of an unincorporated associations or body of individuals, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;</p> <p>d) Where no natural person is identified under (a) or (b) or (c) above, the beneficial owner is the relevant natural person who holds the position of senior managing officials;</p> <p>e) In case of a trust, the identifications of beneficial owner(s) shall include identification of the author of trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.</p> <p>(v2) An Agent is a person employed to do any act for another, or to represent another in dealings with third person.</p>
24	GCC Clause 30.3	<p>Add a new Clause 19.4 under GCC clause regarding “Subcontracting” as under:</p> <p>19.4 The Contractor shall not be allowed to sub-contract works to any sub-contractor/ sub-vendor from a country which shares a land border with India unless such sub-contractor is registered with the competent Authority.</p> <p>The Competent Authority for the purpose of registration shall be as mentioned in the relevant annexure of SCC.</p> <p>However, the said requirement of registration will not apply to sub-</p>
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		contractors from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. The Contractor may apprise itself of the updated lists of such countries available in the website of the Ministry of External Affairs.
25	GCC Clause 42.2 Termination for Contractor's Default	Add the following sub-clause 42.2.1 (c) as per following: 42.2.1 (c) If the Contractor, sub-contracts any part of the works in violation of the provision of GCC Clause 19.4.
26	GCC Sub-Clause 13.3	GCC clause 13.3.1 under "Performance Security" is modified as under: 13.3.1 The Contractor shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of the Contract for Ten percent (10%) of the Contract Price of all the Contracts, with an initial validity up to ninety (90) days beyond the end of scheduled Defect Liability Period of the last equipment covered under the Contract. However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay.
27	New Clause- Restrictions on procurement from a Bidder of a country which shares a land border with India	Refer Annexure-II to SCC for details. Appendix I (Order Public Procurement), enclosed with bid documents, is an integral part of SCC.
		<u>ANNEXURES TO SCC</u> ANNEXURE-I: BANNING POLICY-Rev 3 ANNEXURE-II: REGISTRATION UNDER LAND BORDER

NTPC LIMITED
(A Government of India Enterprise)



SECTION – IV

GENERAL CONDITIONS OF CONTRACT
(GCC)

(APPLICABLE FOR E-TENDERS INVITED FOR THE FOLLOWING PACKAGES AND TYPE/MODE OF BIDDING:

PACKAGES: SUPPLY-CUM-INSTALLATION/ SUPPLY-CUM-INSTALLATION-CUM-CIVIL
MODE: ICB/DCB
TYPE: SINGLE STAGE TWO ENVELOPE/TWO STAGE)

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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
<p style="text-align: center;">A. Contract and Interpretation</p> <p>1. Definitions 1.1 Definitions</p> <p>The following words and expressions shall have the meanings hereby assigned to them:</p> <p>“Contract” means the Contract Agreement entered into between the Employer and the Contractor, together with the Contract Documents referred to therein; they shall constitute the Contract, and the term “the Contract” shall in all such documents be construed accordingly.</p> <p>“Contract Documents” means the documents listed in Article 1.1 (Contract Documents) of the Form of Contract Agreement (including any amendments thereto).</p> <p>“GCC” means the General Conditions of Contract hereof.</p> <p>“SCC” means the Special Conditions of Contract.</p> <p>“Day” means calendar day of the Gregorian Calendar.</p> <p>“Month” means calendar month of the Gregorian Calendar.</p> <p>“Employer” means the person named as such in the SCC and includes the legal successors or permitted assigns of the Employer.</p> <p>“Project Manager” means the person appointed by the Employer in the manner provided in GCC Sub-Clause 17.1 (Project Manager) hereof and named as such in the SCC to perform the duties delegated by the Employer.</p> <p>“Contractor” means the person(s) whose bid to perform the Contract has been accepted by the Employer and is named as such in the Contract Agreement, and includes the legal successors or permitted assigns of the Contractor.</p> <p>“Contractor’s Representative” means any person nominated by the Contractor and approved by the Employer in the manner provided in GCC Sub-Clause 17.2 (Contractor’s Representative and Construction Manager) hereof to perform the duties delegated by the Contractor.</p> <p>“Subcontractor,” including vendors, means any person to whom execution of any part of the Facilities, including preparation of any design or supply of any Plant and Equipment, is sub-contracted directly or indirectly by the Contractor, and includes its legal successors or permitted assigns.</p> <p>“Contract Price” means the sum specified in Article 2.1 (Contract Price) of the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.</p> <p>“Facilities” means the Plant and Equipment to be supplied and installed, as well as all the Installation Services to be carried out by the Contractor under the Contract.</p>	
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>“Plant and Equipment” means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the Facilities by the Contractor under the Contract (including the spare parts to be supplied by the Contractor under GCC Sub-Clause 7.3 hereof), but does not include Contractor’s Equipment.</p> <p>“Installation Services” means all those services ancillary to the supply of the Plant and Equipment for the Facilities, to be provided by the Contractor under the Contract; e.g., transportation and provision of marine or other similar insurance, inspection, expediting, Site preparation works (including the provision and use of Contractor’s Equipment and the supply of all construction materials required), installation, testing, pre-commissioning, commissioning, operations & maintenance required for achieving Completion of Facilities, the provision of operations and maintenance manuals, training of Employer’s Personnel etc.</p> <p>“Contractor’s Equipment” means all plant, facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for installation, completion and maintenance of Facilities that are to be provided by the Contractor, but does not include Plant and Equipment, or other things intended to form or forming part of the Facilities.</p> <p>“Site” means the land and other places upon which the Facilities are to be installed, and such other land or places as may be specified in the Contract as forming part of the Site.</p> <p>“Effective Date” means the date from which the Time for Completion shall be determined as stated in Article 3 (Effective Date for Determining Time for Completion) of the Form of Contract Agreement.</p> <p>“Time for Completion” means the time within which Completion of the Facilities as a whole (or of a part of the Facilities where a separate Time for Completion of such part has been prescribed) is to be attained in accordance with the stipulations in the SCC and the relevant provisions of the Contract.</p> <p>“Completion” means that the Facilities (or a specific part thereof where specific parts are specified in the SCC) have been completed operationally and structurally and put in a tight and clean condition, and that all work in respect of Pre-commissioning of the Facilities or such specific part thereof has been completed; and Commissioning has been attained as per Technical Specifications.</p> <p>“Pre-commissioning” means the testing, checking and other requirements specified in the Technical Specifications that are to be carried out by the Contractor in preparation for Commissioning as provided in GCC Clause 24 (Completion) hereof.</p> <p>“Commissioning” means trial/initial operation of the Facilities or any part thereof by the Contractor, which operation is to be carried out by the Contractor as provided in GCC Sub-Clause 25.1 (Commissioning) hereof, for the purpose of carrying out Guarantee Test(s).</p> <p>“Guarantee Test(s)” means the test(s) specified in the Technical Specifications to be carried out to ascertain whether the Facilities or a specified part thereof is able to attain the Functional Guarantees specified</p>

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	<p>in the Technical Specifications in accordance with the provisions of GCC Sub-Clause 25.2 (Guarantee Test) hereof.</p> <p>“Operational Acceptance” means the acceptance by the Employer of the Facilities (or any part of the Facilities where the Contract provides for acceptance of the Facilities in parts), which certifies the Contractor’s fulfilment of the Contract in respect of Functional Guarantees of the Facilities (or the relevant part thereof) in accordance with the provisions of GCC Clause 28 (Functional Guarantees) hereof and shall include deemed acceptance in accordance with GCC Clause 25 (Commissioning and Operational Acceptance) hereof.</p> <p>“Defect Liability Period” means the period of validity of the warranties given by the Contractor commencing at Completion of the Facilities or a part thereof, during which the Contractor is responsible for defects with respect to the Facilities (or the relevant part thereof) as provided in GCC Clause 27 (Defect Liability) hereof.</p> <p>“Goods and Services Tax” or “GST” means taxes levied under the Central Goods and Services Tax Act, Integrated Goods and Services Tax Act, Goods and Services Tax (Compensation to States) Act and various State/Union Territory Goods and Services Tax Laws and applicable cesses, if any under the laws in force (hereinafter referred to as relevant GST Laws).”</p>
<p>2. Contract Documents</p>	<p>2.1 Subject to Article 1.2 (Order of Precedence) of the Contract Agreement, all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.</p> <p>2.2 The Contract will be signed in three originals and the Contractor shall be provided with one signed original and the rest will be retained by the Employer.</p> <p>2.3 The Contractor shall provide free of cost to the Employer all the engineering data, drawing and descriptive materials submitted with the bid, in at least six (6) copies to form a part of the Contract immediately after Notification of Award.</p> <p>2.4 Subsequent to signing of the Contract, the Contractor at his own cost shall provide the Employer with at least twenty (20) copies of electronic version of the signed Contract Agreement on CD-ROM within thirty (30) days of its signing.</p>
<p>3. Interpretation</p>	<p>3.1 Language</p> <p>3.1.1 Unless the Contractor is a national of the Employer’s country and the Employer and the Contractor agree to use the local language, all Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language.</p>
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	<p>3.1.2 If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GCC Sub-Clause 3.1.1 above, the English translation of such documents, correspondence or communications shall prevail in matters of interpretation.</p> <p>3.1.3 The English Translation of the documents shall be carried out by professional translators and the translator shall certify that he is proficient in both languages in order to translate the document and that the translation is complete and accurate. Further, translation shall be authenticated by the Indian Consulate located in the Country where the documents have been issued or the Embassy of that Country in India.</p> <p>3.2 Singular and Plural</p> <p>The singular shall include the plural and the plural the singular, except where the context otherwise requires.</p> <p>3.3 Headings</p> <p>The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.</p> <p>3.4 Persons</p> <p>Words importing persons or parties shall include firms, corporations and government entities.</p> <p>3.5 Incoterms</p> <p>Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms.</p> <p>Incoterms means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.</p>
	<p>3.6 Construction of the Contract</p> <p>FOR INTERNATIONAL COMPETITIVE BIDDING (ICB) TENDER</p> <p>3.6.1 The Contracts to be entered into between the Employer and the successful bidder shall be as under:</p> <p>For Foreign Bidder</p> <ul style="list-style-type: none"> -- First Contract: For CIF (Indian port-of-entry) supply of all Plant and Equipment including Mandatory Spares to be supplied from abroad -- Second Contract: For Ex-works (India) supply of Plant and Equipment including Mandatory Spares. -- Third Contract : For providing all services i.e. port handling, port clearance and port charges for the imported goods, further loading,
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	<p>inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance, erection, testing, commissioning and conducting Guarantee tests in respect of all the equipment supplied under the 'First Contract' & the 'Second Contract' and all other services as specified in the Contract Documents.</p> <p>If the foreign bidder has proposed an Assignee in his bid to execute the Second Contract and/or the Third Contract and has also furnished written unequivocal consent of the proposed Assignee to work as independent Contractor on the terms and conditions offered by the bidder and if the Employer is satisfied with capacity and experience of the Assignee, the Employer will enter into the 'Second Contract' and/or 'Third Contract' with the said Assignee. In case no Assignee has been proposed by the foreign bidder in his bid or if the Assignee fails to enter into the Second Contract and/or Third Contract with the Employer or if the Employer in its judgment does not find acceptance of the proposed Assignee as its Contractor, then the foreign bidder shall be obliged to enter into and execute all the three Contracts with the Employer.</p> <p>For Domestic Bidder</p> <ul style="list-style-type: none"> -- First Contract: For CIF (Indian port-of-entry) supply of Plant and equipment including Mandatory Spares to be supplied from abroad -- Second Contract: For Ex-works (India) supply of Plant and Equipment including Mandatory Spares. -- Third Contract : For providing all services i.e. port handling, port clearance and port charges for the imported goods, further loading, inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance, erection, testing, commissioning and conducting Guarantee tests in respect of all the equipment supplied under the 'First Contract' & the 'Second Contract' and all other services as specified in the Contract Documents. <p>3.6.2 The award of separate Contracts shall not in any way dilute the responsibility of the Contractor for the successful completion of the Facilities as per Contract Documents and a breach in one Contract shall automatically be construed as a breach of the other Contract(s) which will confer a right on the Employer to terminate the other Contract(s) also at the risk and the cost of the Contractor</p> <p>FOR DOMESTIC COMPETITIVE BIDDING (DCB) TENDER</p> <p>3.6.1 The Contracts to be entered into between the Employer and the successful bidder shall be as under:</p> <ul style="list-style-type: none"> - First Contract: For Ex-works (India) supply of Plant and Equipment including Mandatory Spares. - Second Contract: For providing all services i.e. inland transportation for delivery at site, inland transit insurance, unloading, storage, handling at site, installation, insurance covers other than inland transit insurance,
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	<p>testing and commissioning including carrying out guarantee tests in respect of all the Plant and Equipment supplied under the 'First Contract' and all other services specified in the Contract Documents.</p> <p>3.6.2 The award of separate Contracts shall not in any way dilute the responsibility of the Contractor for the successful completion of the Facilities as per Contract Documents and a breach in one Contract shall automatically be construed as a breach of the other Contract(s) which will confer a right on the Employer to terminate the other Contract(s) also at the risk and the cost of the Contractor.</p> <p>3.7 Entire Agreement</p> <p>Subject to GCC Sub-Clause 16.4 hereof, the Contract constitutes the entire agreement between the Employer and Contractor with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.</p> <p>3.8 Amendment</p> <p>No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party hereto.</p> <p>3.9 Independent Contractor</p> <p>The Contractor shall be an independent contractor performing the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties hereto.</p> <p>Subject to the provisions of the Contract, the Contractor shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Subcontractors engaged by the Contractor in connection with the performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the Employer, and nothing contained in the Contract or in any subcontract awarded by the Contractor shall be construed to create any contractual relationship between any such employees, representatives or Subcontractors and the Employer.</p> <p>3.10 Joint Venture or Consortium</p> <p>If the Contractor is a joint venture or consortium of two or more firms, all such firms shall be jointly and severally bound to the Employer for the fulfilment of the provisions of the Contract and shall designate one of such firms to act as a leader with authority to bind the joint venture or consortium. The composition or the constitution of the joint venture or consortium shall not be altered without the prior consent of the Employer.</p> <p>3.11 Non-Waiver</p> <p>3.11.1 Subject to GCC Sub-Clause 3.11.2 below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by</p>

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	<p>either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.</p> <p>3.11.2 Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.</p> <p>3.12 Severability</p> <p>If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.</p> <p>3.13 Country of Origin</p> <p>"Origin" means the place where the materials, equipment and other supplies for the Facilities are mined, grown, produced or manufactured, and from which the services are provided.</p>
<p>4. Notices</p>	<p>4.1 Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, cable, telegraph, telex, facsimile or Electronic Data Interchange (EDI) to the address of the relevant party set out in the Contract Coordination Procedure to be finalised pursuant to GCC Sub-Clause 17.2.3.1, with the following provisions.</p> <p>4.1.1 Any notice sent by cable, telegraph, facsimile or EDI shall be confirmed within two (2) days after despatch by notice sent by airmail post or special courier, except as otherwise specified in the Contract.</p> <p>4.1.2 Any notice sent by airmail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have been delivered ten (10) days after despatch. In proving the fact of despatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyed to the postal authorities or courier service for transmission by airmail or special courier.</p> <p>4.1.3 Any notice delivered personally or sent by telegraph, facsimile shall be deemed to have been delivered on date of its despatch.</p> <p>4.1.4 Either party may change its postal, cable, telex, facsimile or EDI address or addressee for receipt of such notices by ten (10) days' notice to the other party in writing.</p> <p>4.2 Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.</p>
<p>5. Governing Laws</p>	<p>5.1 The Contract shall be governed by and interpreted in accordance with laws in force in India. The Courts of Delhi shall have exclusive jurisdiction in all matters arising under the Contract.</p>

6. Settlement of Disputes**6.1 Mutual Consultation**

If any dispute of any kind whatsoever shall arise between the Employer and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities, whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such dispute or difference by mutual consultation. If the parties fail to resolve such a dispute or difference by mutual consultation, then the dispute may be settled through Expert Settlement Council / Arbitration / other remedies available under the applicable laws.

6.2 Resolution of Dispute through Expert Settlement Council

If the parties fail to resolve such a dispute or difference by mutual consultation, the dispute if the parties agree, may be referred to Conciliation in cases involving disputed amount up to Rs 250 crores, which is to be arrived at considering the claim and counter claim of the parties to the dispute.

6.2.1 Invitation for Conciliation:

6.2.1.1 A party shall notify the other party in writing about such a dispute it wishes to refer for Conciliation within a period of 30 days from the date of raising of the dispute in case of failure to resolve the same through mutual consultation. Such Invitation for Conciliation shall contain sufficient information as to the dispute to enable the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action.

6.2.1.2 Upon acceptance of the invitation to conciliate, the other party shall submit its counter claim, if any, within a period of 30 days from the date of the invitation to conciliate. If the other party rejects the invitation or disputed amount exceeds Rs 250 crores, there will be no Conciliation proceedings. There shall be no Conciliation where claim amount is only up to Rs 5 lakhs.

6.2.1.3 If the party initiating Conciliation does not receive a reply within thirty days from the date on which it sends the invitation, or within such other period of time as specified in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party.

6.2.2 Conciliation:

6.2.2.1 Where Invitation for Conciliation has been furnished under GCC sub clause 6.2.1, the parties shall attempt to settle such dispute through Expert Settlement Council (ESC) which shall be constituted by CMD, NTPC.

6.2.2.2 ESC will be formed from experts comprising of three members from the panel of conciliators maintained by NTPC. However, there will be single member ESC for disputes involving claim and counter claim (if any) up to Rs. 1 crore. CMD will have authority to reconstitute an ESC to fill any vacancy.

6.2.2.3 The eligible persons for consideration for empanelment in the panel of conciliators shall be amongst Retired Civil Servants of Govt. of India not below the rank of Joint Secretary, Retired Judges, Retired Executive directors/Directors/ Chairman of any Maharatna / Navratna company in India other than NTPC Ltd, Retired Independent Directors who have served on the Board of any Maharatna / Navratna company in India other than NTPC Ltd and Independent experts in their respective fields preferably registered with the Indian Council of Arbitration or Delhi International Arbitration Centre or Federation of Indian Chambers of Commerce and Industry or SCOPE Arbitration Forum.

6.2.3 Proceedings before ESC:

6.2.3.1 The claimant shall submit its statement of claims along with relevant documents to ESC members, and to the party(s) indicated in the appointment letter within 30 days of the issue of the appointment letter. The respondent shall file its reply and counter claim (if any) within 30 days of the receipt of the statement of claims. Parties may file their rejoinder/additional documents, if any in support of their claim/counterclaim within next 15 days. No documents shall be allowed thereafter, except with the permission of ESC.

6.2.3.2 The parties shall file their claim and counterclaim in the following format

- a. Chronology of the dispute
- b. Brief of the contract
- c. Brief history of the dispute
- d. Issues

Sl. No.	Description of Claims/Counter claims	Amount (in foreign currency/INR)	Relevant Contract Clause

- e. Details of Claim(s)/Counter Claim(s)

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	<p>f. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)</p> <p>Note: Statement of claims shall be restricted to maximum limit of 20 pages.</p> <p>6.2.3.3 In case of 3 members ESC, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, ESC recommendations will be signed by all the members.</p> <p>6.2.3.4 The parties shall be represented by their in house employees. No party shall be allowed to bring any advocate or outside consultant/advisor/agent to contest on their behalf. Ex-officers of NTPC who have handled the subject matter in any capacity shall not be allowed to attend and present the case before ESC on behalf of contractor. However, ex-employees of parties may represent their respective organizations. Parties shall not claim any interest on claims/counter-claims from the date of notice invoking Conciliation till execution of settlement agreement, if so arrived. In case, parties are unable to reach a settlement, no interest shall be claimed by either party for the period from the date of notice invoking Conciliation till the date of ESC recommendations and 30 days thereafter in any further proceeding.</p> <p>6.2.3.5 ESC will conclude its proceedings in maximum 10 meetings, and give its recommendations within 90 days of its first meeting. ESC will give its recommendations to both the parties recommending possible terms of settlement. CMD, NTPC may extend the time/number of meetings, in exceptional cases, if ESC requests for the same with sufficient reasons.</p> <p>6.2.3.6 Depending upon the location of ESC members and the parties, the venue of the ESC meeting shall be either Delhi/Mumbai/Kolkata/Chennai or any other city whichever is most economical from the point of view of travel and stay etc. All the expenditure incurred in ESC proceedings shall be shared by the parties in equal proportion.</p> <p>6.2.4 Fees & Facilities to the Members of the ESC</p> <p>The cost of conciliation proceedings including but not limited to fees for Conciliator, Airfare, Local transport, Accommodation, cost towards conference facility etc shall be as provided herein below:</p> <table><tr><th>Sl.No.</th><th>Fees/ Facility</th><th>Entitlement</th></tr><tr><td></td><td></td><td></td></tr></table>	Sl.No.	Fees/ Facility	Entitlement			
Sl.No.	Fees/ Facility	Entitlement					

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	1	Fees	As paid to NTPC Independent Directors [Presently Rs. 20,000 per meeting]. In addition each conciliator to be paid Rs 10,000 for attending meeting to authenticate the settlement agreement. - max. of Rs. 2,10,000 per case per Conciliator.
	2	Secretarial expenses	Rs. 10,000 lump sum (to 1 member only).
	3	Transportation in the city of the meeting	Car as per entitlement or Rs. 2,000 per day
	4	Venue for meeting	NTPC conference rooms
	Facilities to be provided to the out -stationed member		
	5	Travel from the city of residence to the city of meeting	As per entitlement of Independent Directors. Executive class air tickets / first class AC train tickets/ Luxury car/ reimbursement of actual fare. However, entitlement of air travel by Business class shall be subject to austerity measures, if any, ordered by Govt of India.
	6	Transport to and fro airport/ railway station in the city of residence	Car as per entitlement or Rs. 3,000
	7	Stay for out stationed members	As per entitlement of Independent Directors.
	8	Transport in the city of meeting	Car as per entitlement or Rs. 2000 per day
<p>Aforesaid fees is subject to revision by NTPC from time to time and subject to government guidelines on austerity measures, if any. All the expenditure incurred in the ESC proceedings shall be shared by the parties in equal proportions. The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the ESC proceedings.</p> <p>6.2.5 If decision of NTPC is acceptable to the contractor, a Settlement Agreement under section 73 of the Arbitration and Conciliation</p>			

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	<p>Act 1996 will be signed within 15 days of contractor's acceptance and same shall be authenticated by all the ESC members. Parties are free to terminate Conciliation proceedings at any stage as provided under the Arbitration and Conciliation Act 1996.</p> <p>6.2.6 The parties shall keep confidential all matters relating to the Conciliation proceedings. Parties shall not rely upon them as evidence in arbitration proceedings or court proceedings.</p> <p>Arbitration</p> <p>6.3</p> <p>6.3.1 If the process of mutual consultation and/or ESC fails to arrive at a settlement between the parties as mentioned at GCC Sub-Clauses 6.1 & 6.2 above, Employer or the Contractor may, within Thirty (30) days of such failure, give notice to the other party, with a copy for information to the ESC (as applicable), of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. The mechanism of settling the disputes through arbitration shall be applicable only in cases where the disputed amount (i.e. total amount of Claims excluding claims of interest) does not exceed Rs. 25 crores. In case the disputed amount exceeds Rs. 25 Crores, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party. There shall be no arbitration where the claim amount is only up to Rs. 5 lakhs.</p> <p>The parties at the time of invocation of arbitration shall submit all the details of the claims and the counter-claims including the Heads/Sub-heads of the Claims/Counter-Claims and the documents relied upon by the parties for their respective claims and counter-claims. The parties shall not file any documents/details of the claims and counter-claims thereafter.</p> <p>The claims and the counter claims raised by the parties at the time of invocation of the arbitration shall be final and binding on the parties and no further change shall be allowed in the same at any stage during arbitration under any circumstances whatsoever.</p> <p>The parties to the contract shall invoke arbitration within Six months from the date of completion of the Facilities under the contract or the termination of the contract as the case may be and the parties shall not invoke arbitration later on after expiry of the said period of six months. The parties shall not invoke arbitration other than in the case of completion of the Facilities or the termination of the contract as mentioned above.</p>
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Notwithstanding the above, in case of disputes with Indian Contractor who is a Central Government Department /Enterprise /organisation or a State Level Public Enterprise (SLPE), the aforesaid limit of Rs 25 crores shall not be applicable and arbitration proceeding may be commenced irrespective of the amount involved in dispute if the dispute could not be resolved through Conciliation as brought out at GCC Sub Clause 6.2 above.

6.3.2 Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GCC Sub Clause 6.3.1, shall be finally settled by arbitration.

6.3.3 Any dispute raised by a party to arbitration shall be adjudicated by a Sole Arbitrator appointed by CMD, NTPC from the List of empanelled Arbitrators of NTPC in the following manner :-

- a) A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving 60 days notice to the other party.
- b) If the Arbitrator so appointed dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings, it shall be lawful for CMD, NTPC to appoint another person in his place in the same manner as aforesaid. Such person shall proceed with the reference from the stage where his predecessor had left.
- c) It is agreed between the parties that the Arbitration proceedings shall be conducted as per the provisions of Fast Track Procedure as provided under section 29B of the Arbitration and Conciliation Act, 1996 as amended.
- d) Arbitrator shall be paid fees at the following rates:

Amount of Claims and Counter Claims (excluding interest)	Lump sum fees (including fees for study of pleadings, case material, writing of the award, secretarial charges etc.) to be shared equally by the parties.
Upto Rs 50 lakhs	Rs. 10,000 per meeting subject to a ceiling of Rs. 1,00,000/-.
Above Rs 50 lakhs to Rs 1 crore	Rs. 1,35,000/- plus Rs. 1,800/- per lakh or a part there of subject to a ceiling of Rs. 2,25,000/-.

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<i>Above Rs. 1 crore and upto Rs. 5 Crores</i>	<i>Rs. 2,25,000/- plus Rs. 33,750 per crore or a part there of subject to a ceiling of Rs. 3,60,000/-.</i>
<i>Above Rs. 5 crores and upto Rs. 10 crores.</i>	<i>Rs. 3,60,000/- plus Rs. 22,500/- per crore or a part there of subject to a ceiling of Rs. 4,72,500/-.</i>
<i>Above Rs. 10 crores</i>	<i>Rs. 4,72,500 plus Rs. 18,000/- per crore or part thereof subject to a ceiling of Rs. 10,00,000/-.</i>

If the claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee which may be used for determining the arbitration fee as brought out above.

- e) If after commencement of the Arbitration proceedings, the parties agree to settle the dispute mutually or refer the dispute to Conciliation, the arbitrator shall put the proceedings in abeyance until such period as requested by the parties. Where the proceedings are put in abeyance or terminated on account of mutual settlement of dispute by the parties, the fees payable to the arbitrator shall be determined as under:
- (i) 40% of the fees if the Pleadings are complete.
 - (ii) 60% of the fees if the Hearing has commenced.
 - (iii) 80% of the fees if the Hearing is concluded but the Award is yet to be passed.
- f) Each party shall pay its share of arbitrator's fees in stages as under:
- (i) 40 % of the fees on Completion of Pleadings.
 - (ii) 40% of the fees on Conclusion of the Final Hearing.
 - (iii) 20% at the time when arbitrator notifies the date of final award.
- g) The Claimant shall be responsible for making all necessary arrangements for the travel/ stay of the Arbitrator including venue of arbitration, hearings. The parties shall share the expenses for the same equally.

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	<p>h) The Arbitration shall be held at Delhi only.</p> <p>i) The Arbitrator shall give reasoned and speaking award and it shall be final and binding on the parties.</p> <p>j) Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof shall apply to the arbitration proceedings under this clause.</p> <p>6.3.4 In case the Indian Contractor is a Central Government Department/Enterprise/organisation or a State Level Public Enterprise (SLPE), the dispute arising between the Employer and the Contractor shall be referred for resolution to the Permanent Machinery of Arbitrators (PMA) of the Department of Public Enterprises, Government of India as per Office Memorandum No. 4(1) 2011-DPE(PMA)-GL dated 12.06.2013 issued by Government of India, Ministry of Heavy Industries and Public Enterprises, Department of Public Enterprises and its further modifications and amendments.</p> <p>6.4 Notwithstanding any reference to the Conciliation or Arbitration herein,</p> <p>(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.</p> <p>(b) the Employer shall pay the Contractor any monies due to the Contractor.</p>
<p>7. Scope Of Facilities</p> <p>7.1</p>	<p>Unless otherwise expressly limited in the Technical Specifications, the Contractor's obligations cover the provision of all Plant and Equipment including structural steel and the performance of all Installation Services and civil works, allied works etc. required for the design, the manufacture (including procurement, quality assurance, construction, installation, associated civil works, Pre-commissioning and delivery) of the Plant and Equipment and the installation, completion, commissioning and performance testing of the Facilities in accordance with the plans, procedures, specifications, drawings, codes and any other documents as specified in the Technical Specifications. Such specifications include, but are not limited to, the provision of supervision and engineering services; the supply of labour, materials, equipment, spare parts (as specified in GCC Sub-Clause 7.3 below) and accessories; Contractor's Equipment; construction utilities and supplies; temporary materials, structures and facilities; transportation (including, without limitation, unloading and hauling to, from and at the Site); and storage, except for those supplies, works and services that will be provided or performed by the Employer,</p>
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	<p>as set forth in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement.</p> <p>7.2 The Contractor shall, unless specifically excluded in the Contract, perform all such work and/or supply all such items and materials not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Completion of the Facilities as if such work and/or items and materials were expressly mentioned in the Contract.</p> <p>7.3 In addition to the supply of Mandatory Spare Parts included in the Contract, the Contractor agrees to supply spare parts required for the operation and maintenance of the Facilities. However, the identity, specifications and quantities of such spare parts and the terms and conditions relating to the supply thereof are to be agreed between the Employer and the Contractor, and the price of such spare parts shall be that given in Price Schedule No. 6, which shall be added to the Contract Price. The price of such spare parts shall include the purchase price therefor and other costs and expenses (including the Contractor's fees) relating to the supply of spare parts. Prices of recommended spares covered under price Schedule No. 6 shall be kept valid for a period of six (6) months after placement of Notification of Award for Main Equipment and Mandatory Spares.</p> <p>7.3.1 The Contractor agrees that the spare parts recommended by him for 3 years operation and quoted in Schedule No. 6 shall be supplied by him at the same terms and conditions as are otherwise applicable to this Contract. Further, the Contractor also agrees to supply spare parts required for the operation and maintenance of the Facilities as per provision of subsequent paragraphs of this Sub-Clause.</p> <p>7.3.1.1 All the spares for the equipment under the Contract will strictly conform to the Specification and other relevant documents and will be identical to the corresponding main equipment/components supplied under the Contract and shall be fully interchangeable.</p> <p>7.3.1.2 All the mandatory spares covered under the Contract shall be produced alongwith the main equipment as a continuous operation and the delivery of the spares will be effected alongwith the main equipment in a phased manner and the delivery would be completed by the respective dates for the various categories of equipment as per the agreed network. In case of recommended spares the above will be applicable provided the order for the recommended spares have been placed with the Contractor prior to commencement of manufacture of the main equipment.</p> <p>7.3.1.3 The Contractor will provide the Employer with the manufacturing drawings, catalogues, assembly drawings and any other document required by the Employer so as to enable the Employer to identify the recommended spares. Such details will be furnished to the Employer as soon as they are prepared but in any case not later than six months prior to commencement of manufacture of the corresponding main equipment.</p>
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	<p>7.3.1.4 To enable the Employer to finalise the requirement of recommended spares which are ordered subsequent to placement of order for main equipment/plant, in addition to necessary technical details, catalogue and such other information brought-out herein above, the Contractor will also provide a justification in support of reasonableness of the quoted prices of spares which will, inter-alia, include documentary evidence that the prices quoted by the Contractor to the Employer are not higher than those charged by him from other customers in the same period.</p> <p>7.3.1.5 In addition to the spares recommended by the Contractor, if the Employer further identifies certain items of spares, the Contractor will submit the prices and delivery quotation for such spares within thirty (30) days of receipt of such request with a validity period of six (6) months for consideration by the Employer and placement of order for additional spares if the Employer so desires.</p> <p>7.3.1.6 The quality plan and the inspection requirement finalised for the main equipment will also be applicable to the corresponding spares.</p> <p>7.3.1.7 The Contractor will provide the Employer with all the addresses and particulars of his sub-suppliers while placing the order on vendors for items/components/equipment covered under the Contract and will further ensure with his vendors that the Employer, if so desires, will have the right to place order for spares directly on them on mutually agreed terms based on offers of such vendors.</p> <p>7.3.1.8 The Contractor shall guarantee the long term availability of spares to the Employer for the full life of the equipment covered under the Contract. The Contractor shall guarantee that before going out of production of spare parts of the equipment covered under the Contract, he shall give the Employer atleast 2 years advance notice so that the latter may order his bulk requirement of spares, if it so desires. The same provision will also be applicable to Sub-contractors. Further, in case of discontinuance of manufacture of any spares by the Contractor and/or his Sub-contractor, Contractor will provide the Employer, two years in advance, with full manufacturing drawings, material specification and technical information including information on alternative equivalent makes required by the Employer for the purpose of manufacture/procurement of such items.</p> <p>7.3.1.9 The prices of all future requirements of item of spares beyond 3 years operational requirement will be derived from the corresponding Ex-works price at which the order for such spares have been placed by Employer as a part of mandatory spares or recommended spares, or from the rates of mandatory spares or recommended spares as quoted by/negotiated with the Contractor. Ex-works order price of future spares shall be computed in accordance with the price adjustment provisions covered under the main Contract and</p>
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	<p>there will be no ceiling on the amount of variation in the prices. The above option for procuring future recommended spares by the Employer shall remain valid for the period of 5 years from the date of Commissioning of the equipment.”</p> <p>7.3.1.10 The Contractor will indicate in advance the delivery period of the items of spares, which the Employer may procure in accordance with above sub-clause. In case of emergency requirements of spares, the Contractor would make every effort to expedite the manufacture and delivery of such spares on the basis of mutually agreed time schedule.</p> <p>7.3.1.11 In case the Contractor fails to supply the mandatory, recommended or long term spares in the terms stipulated above, the Employer shall be entitled to purchase the same from the alternate sources at the risk and the cost of the Contractor and recover from the Contractor, the excess amount paid by the Employer over the rates worked on the above basis. In the event of such risk purchase by the Employer, the purchases will be as per the Works and Procurement Policy of the Employer prevalent at the time of such purchases and the Employer at his option may include a representative from the Contractor in finalising the purchases.</p> <p>7.3.1.12 It is expressly understood that the final settlement between the parties in terms of relevant clauses of the Contract Documents shall not relieve the Contractor of any of his obligations under the provision of long term availability of spares and such provisions shall continue to be enforced till the expiry of 5 years period reckoned from the scheduled date of Commissioning of the Plant and Equipment unless otherwise discharged expressly in writing by the Employer. Further, the provisions pertaining to long term availability of spares shall be extended beyond 5 years applicability period mentioned hereinabove if so desired by the Employer and at the mutually acceptable escalation formula.</p> <p>7.3.1.13 The Contractor shall warrant that all spares supplied will be new and in accordance with the Contract Documents and will be free from defects in design, material and workmanship and shall further guarantee as under:</p> <p>(i) For 3 years operational spares (both mandatory and recommended)</p> <p>a) For any item of spares ordered or to be ordered by the Employer for 3 years operational requirement of the plant which are manufactured as a continuous operation together with the corresponding main equipment/component, the Defect Liability Period will be twelve (12) months from the scheduled date of commercial operation of main equipment/plant under the Contract. 'Commercial Operation' shall mean the conditions of operation in which the complete equipment covered under the Contract is officially declared by the Employer to be available for continuous operation at different loads upto and</p>
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	<p>including rated capacity. Such declaration by the Employer, however, shall not relieve or prejudice the Contractor any of his obligations under the Contract. In case of any failure in the original component/equipment due to faulty designs, materials and workmanship, the corresponding spare parts, if any, supplied will be replaced without any extra cost to the Employer unless a joint examination and analysis by the Employer and the Contractor of such spare parts prove that the defect found in the original part that failed, can safely be assumed not to be present in spare parts. Such replaced spare parts will have the same Defect Liability as applicable to the replacement made for the defective original part/component provided that such replacement for the original equipment and the spare replaced are again manufactured together. The discarded spare parts will become the property of the Contractor as soon as they have been replaced by the Contractor.</p> <p>b) For the item of spares ordered or to be ordered by the Employer for 3 years operational requirement of the plant, which with the written approval of the Employer, are not manufactured as a continuous operation will be warranted for 7000 hrs of trouble free operation if used within a period of eighteen (18) months reckoned from the date of delivery at site. However, if such spare parts are put to use after eighteen (18) months of the delivery at Site then the guarantee of such spares will stand valid till the expiry of thirty six (36) months from the scheduled date of Commissioning of equipment/plant covered under the contract or 7000 hrs of trouble free operation after such spares are put in service, whichever is earlier.</p> <p>c) For long term requirement</p> <p>For item of spares that may be ordered by the Employer to cover requirements beyond 3 years of Initial Operation of the plant, the warranty will be till the expiry of 7000 hrs of trouble free operation if used within a period of eighteen (18) months from the date of delivery at site. For item of spares that may be used after eighteen (18) months from the date of delivery at site, the warranty period will be 12 months from the date they are put to use or 7000 hrs of trouble free operation, whichever is earlier. In any case the defect liability of spares will expire at the end of forty eight (48) months from the date of their receipt at site.</p> <p>ii) The Defect Liability of spares covered in para (b) & (c) above, that are not used within 18 months from the respective date of the delivery at Site will, however, be subject to condition that all such spares being</p>
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	<p>stored/maintained/preserved in accordance with Contractor's standard recommended practice, if any, and the same has been furnished to the Employer.</p>
<p>8. Time for Commencement and Completion</p>	<p>8.1 The Contractor shall commence work on the Facilities from the date of Notification of Award and without prejudice to GCC Sub-Clause 26.2 hereof, the Contractor shall thereafter proceed with the Facilities in accordance with the time schedule specified in Appendix 4 (Time Schedule) to the Contract Agreement.</p> <p>8.2 The Contractor shall attain Completion of the Facilities (or of a part where a separate time for Completion of such part is specified in the Contract) within the time stated in the SCC or within such extended time to which the Contractor shall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.</p>
<p>9. Contractor's Responsibilities</p>	<p>9.1 The Contractor shall design, manufacture (including associated purchases and/or subcontracting), install and complete the Facilities with due care and diligence in accordance with the Contract.</p> <p>9.2 The Contractor confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the Facilities (including any data as to boring tests) provided by the Employer, and on the basis of information that the Contractor could have obtained from a visual inspection of the Site (if access thereto was available) and of other data readily available to it relating to the Facilities as at the date twenty-eight (28) days prior to deadline set for price bid submission. The Contractor acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Facilities.</p> <p>9.3 The Contractor shall acquire in its name all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located that are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals and/or licenses that are not the responsibility of the Employer under GCC Sub-Clause 10.3 hereof and that are necessary for the performance of the Contract.</p> <p>9.4 The Contractor shall comply with all laws in force in the country where the Facilities are installed and where the Installation Services are carried out. The laws will include all national, provincial, municipal or other laws that affect the performance of the Contract and bind upon the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GCC Sub-Clause 10.1 hereof.</p>
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9.5	Any Plant, Material and Services that will be incorporated in or be required for the Facilities and other supplies shall have their origin as specified under GCC Clause 3.13 (Country of Origin).
10. Employer's Responsibilities	
10.1	The Employer shall ensure the accuracy of all information and/or data to be supplied by the Employer as described in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract, except when otherwise expressly stated in the Contract.
10.2	The Employer shall be responsible for acquiring and providing legal and physical possession of the Site and access thereto, and for providing possession of and access to all other areas reasonably required for the proper execution of the Contract, including all requisite rights of way, as specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement. The Employer shall give full possession of and accord all rights of access thereto on or before the date(s) specified in Appendix 6.
10.3	The Employer shall acquire and pay for all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located which such authorities or undertakings require the Employer to obtain them in the Employer's name, are necessary for the execution of the Contract (they include those required for the performance by both the Contractor and the Employer of their respective obligations under the Contract), including those specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement.
10.4	If requested by the Contractor, the Employer shall use its best endeavours to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings that such authorities or undertakings require the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, as the case may be, to obtain.
10.5	Unless otherwise specified in the Contract or agreed upon by the Employer and the Contractor, the Employer shall provide sufficient, properly qualified operating and maintenance personnel; shall supply and make available all raw materials, utilities, lubricants, chemicals, catalysts, other materials and facilities ; and shall perform all work and services of whatsoever nature, to enable the Contractor to properly carry out Pre-commissioning, Commissioning and Guarantee Tests, all in accordance with the provisions of Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement at or before the time specified in the program furnished by the Contractor under GCC Sub-Clause 18.2 (Program of Performance) hereof and in the manner thereupon specified or as otherwise agreed upon by the Employer and the Contractor.
10.6	The Employer shall be responsible for the continued operation of the Facilities after Completion, in accordance with GCC Sub-Clause 24.8, and shall be responsible for facilitating the Guarantee Test(s) for the Facilities, in accordance with GCC Sub-Clause 25.2.

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10.7	All costs and expenses involved in the performance of the obligations under this GCC Clause 10 shall be the responsibility of the Employer, save those to be incurred by the Contractor with respect to the performance of Guarantee Tests, in accordance with GCC Sub-Clause 25.2.
	<p>C. Payment</p>
11. Contract Price	
11.1	The Contract Price shall be as specified in Article 2 (Contract Price and Terms of Payment) of the Form of Contract Agreement.
11.2	The Contract Price shall be adjusted in accordance with provisions of Appendix-2 (Price Adjustment) to the Contract Agreement.
11.3	Subject to GCC Sub-Clauses 9.2, 10.1 and 35 (Unforeseen Conditions) hereof, the Contractor shall be deemed to have satisfied itself as to the correctness and sufficiency of the Contract Price, which shall, except as otherwise provided for in the Contract, cover all its obligations under the Contract.
12. Terms of Payment	
12.1	The Contract Price shall be paid as specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement. The procedures to be followed in making application for and processing payments shall be those outlined in the same Appendix 1.
12.2	No payment made by the Employer herein shall be deemed to constitute acceptance by the Employer of the Facilities or any part(s) thereof.
12.3	The currency or currencies in which payments are made to the Contractor under this Contract shall be specified in Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, subject to the general principle that payments will be made in the currency or currencies in which the Contract Price has been stated in the Contractor's bid.
13. Securities	
13.1	<p>Issuance of Securities</p> <p>The Contractor shall provide the securities specified below in favor of the Employer at the times, and in the amount, manner and form specified below.</p>
13.2	<p>Advance Payment Security</p>
	<p>13.2.1 The Contractor shall, within twenty-eight (28) days of the Notification of Award of Contract, provide a security in an amount equal to the advance payment for supply of Plant & Equipment and 110% of the advance amount for Installation Services and Civil & Allied Works calculated in accordance with Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, and in the currency or currencies of the Contract, with an initial validity of up to ninety (90) days beyond the schedule date of Completion of the last facility covered under the package in accordance with GCC Clause 24. However, in case of delay in completion of the facilities under the package, the validity of this</p>
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	<p>security shall be extended by the period of such delay. The advance payment security shall also cover the amount of GST as applicable on the advance payment to be paid to the contractor.</p> <p>13.2.2 The security shall be in the form of an unconditional bank guarantee as per the proforma provided in Section VII (Forms and Procedures) - Form of Advance Payment Security. The Advance payment Security shall be reduced prorata every three (3) months after First Running Account Bill/Stage Payment under the Contract based on the value of the respective equipment/facilities received and applicable GST. The cumulative amount of reduction at any point of time shall not exceed seventy five percent (75%) of the advance and the amount of GST paid on the advance amount corresponding to cumulative value of the respective equipment/Facilities supplied and received as per certificate issued by the Project Manager. The balance shall be released after ninety (90) days beyond Completion of those Facilities. It should be clearly understood that reduction in the value of security for advance shall not in any way dilute the Contractor's responsibility and liabilities under the Contract including in respect of the Facilities for which the reduction in the value of security is allowed.</p> <p>13.3 Performance Security</p> <p>13.3.1 The Contractor shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of the Contract for ten percent (10%) of the Contract Price of all the Contracts, with an initial validity upto ninety (90) days beyond the end of scheduled Defect Liability Period of the last equipment covered under the package.</p> <p>If the Employer accepts to enter into 'Second Contract' and/or 'Third Contract' with the Assignee of a foreign Contractor, pursuant to GCC Sub-Clause 3.6, the said Assignee, in addition to the Contract Performance Securities to be provided by the foreign contractor for ten percent (10%) of the value of all the Contracts i.e. First Contract, Second Contract and Third Contract, shall provide within twenty eight (28) days of the Notification of Award, separate Contract Performance Security(ies) equivalent to ten percent (10%) of the value of Contract(s) entered into with the Assignee, for the due performance of Contract, with an initial validity upto ninety (90) days beyond the end of Scheduled Defect Liability period of the last equipment covered under the package. (Applicable in case of ICB Tender only)</p> <p>However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay.</p> <p>13.3.2 The performance security shall be denominated in the currency or currencies of the Contract, or in a freely convertible currency acceptable to the Employer, and shall be in the form of unconditional bank guarantee provided in Section-VII (Forms</p>

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	<p>and Procedures)-Form of Performance Security of the bidding documents.</p> <p>13.3.3 Unless otherwise stipulated in SCC, the security shall be reduced pro rata to the Contract Price of a part of the Facilities for which a separate time for Completion is provided, twenty one (21) months after Completion of the Facilities or where relevant part thereof, or fifteen (15) months after Operational Acceptance of the Facilities (or the relevant part thereof), whichever occurs first; provided, however, that if the Defects Liability Period has been extended on any part of the Facilities pursuant to GCC Sub-Clause 27.8 hereof, the Contractor shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Contractor immediately after its expiration, provided, however, that if the Contractor, pursuant to GCC Sub-Clause 27.10, is liable for an extended warranty obligation, the performance security shall be extended for the period and up to the amount agreed upon or as specified in the SCC.</p> <p>13.4 Security for Joint Deed of Undertaking</p> <p>In case Deed(s) of Joint Undertaking by the Contractor along with his Collaborator(s) / Associate(s) form part of the Contract, then, in addition to the Contract performance securities furnished by the Contractor, the Collaborator(s) / Associate(s) shall furnish, within twenty eight (28) days of the Notification of Award, separate unconditional Bank Guarantee(s) towards faithful performance of the Deed(s) of Joint Undertaking for amount(s) specified in relevant Item of Bid Data Sheets and with validity till such period as specified in the corresponding format for Deed of Joint Undertaking. However, in case of delay in completion of defect liability period, the validity of Bank Guarantee(s) submitted towards faithful performance of Deed(s) of Joint Undertaking shall be extended by such period of delay.</p> <p>The Bank Guarantee(s) shall be denominated in the currency or currencies of Contract and shall be as per the proforma provided in Section-VII (Forms and Procedures) - Form of Bank Guarantee to be furnished by Associate(s) / Collaborator(s).</p> <p>13.5 The Bank Guarantees submitted towards Advance Payment Security, Contract Performance Security and Security in compliance to the Deed of Joint Undertaking (if applicable) shall be essentially from any of the Banks listed at Annexure-I to Section-V (Special Conditions of Contract) of the bidding documents.</p> <p>In case of guarantees issued by branches outside India for foreign banks, the bank guarantees shall be routed through the correspondent Bank in India for due verification of signatures of the executant. (Applicable in case of ICB Tender only)</p> <p>The bank guarantee submitted from within India towards Advance Payment Security, Contract Performance Security and Security for Deed of Joint Undertaking (if applicable) shall be issued on a</p>
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	<p>stamp paper of appropriate value as per stamp act prevailing in the State of the issuing Bank in India or the state of U.P. in India or the State from where the BG shall be operated, whichever is higher.</p> <p>13.6 Where a BG issued by a Bank outside India also needs to bear Stamp Duty of appropriate value applicable to the place in NTPC where BG is to be submitted, the BG will be adjudicated from Collector of Stamps, within 3 months of arrival of BG in India and the expenses incurred in this regard shall be borne by the Contractor. (Applicable in case of ICB Tender only)</p>
<p>14. Taxes and Duties</p>	<p>14.1 Except as otherwise specifically provided in the Contract, the Contractor shall bear and pay all taxes, duties, levies and charges assessed on the Contractor, its Sub-contractor or their employees by all municipal, state or national government authorities in connection with the Facilities in and outside of the country where the Site is located.</p> <p>14.2 Notwithstanding GCC Sub-Clauses 14.1 above, the Employer shall bear and promptly pay/reimburse all Customs and Import duties, if imposed on the Plant and Equipment including Mandatory Spares supplied from abroad and specified in relevant Price Schedule (and on Recommended Spare Parts to be supplied from abroad and specified in relevant Price Schedule, when awarded) and that are to be incorporated into the Facilities, by the law of the country where the Site is located. However, if the Plant and Equipment are shipped in Shipper's containers, then the custom duty levied on the cost of empty containers shall be borne and paid/reimbursed by the Contractor. (Applicable in case of ICB Tender only)</p> <p>Notwithstanding GCC Sub-Clauses 14.1 above, the Employer shall also bear and pay/reimburse to the Contractor Excise Duty, Sales Tax (but not the surcharge in lieu of Sales Tax), and Octroi (if applicable) in respect of both direct transactions between the Employer and Contractor and on Bought out items (to be dispatched directly from the sub-vendor's works to Project site), if imposed on the Plant and Equipment including Mandatory Spares supplied from within the Employer's country and specified in relevant Price Schedule (and also on locally supplied Recommended Spare Parts quoted in relevant Price Schedule, when awarded) to be incorporated in the Facilities, by the law of country where the site is located.</p> <p>For the above purpose, the Ex-works price if quoted in foreign currency and so incorporated in the contract, shall be converted to Indian Rupees as per the TT buying exchange rates established by State Bank of India prevailing on the actual date of Ex-works (India) despatch. (Applicable in case of ICB Tender only)</p> <p>Employer will issue the requisite sales tax declaration form(s) in order to get the benefit of any concession in the rate of sales tax. Further, in case of all components, equipment and materials identified by the contractor and NTPC to be despatched directly from the sub-vendor's work to NTPC site in a state different from the state wherein sub-vendor's works are located, the contractor will effect sale in transit. For effecting the sale in transit, the contractor shall ensure that his sub-vendor raises invoices in</p>
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	<p>the contractor's name (and not in the name of NTPC) and obtains GR/LR/RR in the name of Contractor (and not in the name of NTPC). The Contractor shall further ensure that he endorses the GR/LR/RR in the name of NTPC during transit of the equipment before the delivery of equipment is taken by NTPC.</p> <p>All taxes, duties and levies on Works Contract, if any, shall be to the contractor's account and no separate claim in this regard will be entertained by the Employer.</p> <p>All taxes, duties and levies in respect of local transportation & insurance, other local costs incidental to delivery of plant & equipment including mandatory spares, civil construction works and erection and commissioning and also taxes, duties & levies including entry tax as may be applicable on the materials used for civil construction works and erection & commissioning shall be to the contractor's account and no separate claim in this regard will be entertained by the Employer.</p> <p>Incidence of Service Tax & Cess on any component of the bid price shall be to the contractor's account and included in the Contract Price as applicable on seven (7) days prior to the deadline set for price bid submission. However, financial implication if any on account of any change in the rate of service tax as applicable for direct transactions between the Employer and the contractor shall be to Employer's account in line with the provision of GCC clause 14.4.</p> <p>Entry Tax</p> <p>Entry Tax on the Plant and Equipment including Mandatory Spares specified in relevant Price Schedules shall be paid directly by the Employer to the concerned State Tax Authorities and the Entry Tax as per rates applicable as on seven days prior to the deadline set for price bid submission shall be deducted from the payments due to the Contractor.</p> <p>14.3 If any tax exemptions, reductions, allowances or privileges are available to the Contractor in the country where the Site is located, the Employer shall use its best endeavours to enable the Contractor to benefit from any such tax savings to the maximum allowable extent.</p> <p>14.4 For the purpose of the Contract, it is agreed that the Contract Price specified in Article 2 (Contract Price and Terms of Payment) of the Contract Agreement is based on the taxes, duties, levies and charges prevailing on seven (7) days prior to the deadline set for price bid submission in the country where the Site is located (hereinafter called "Tax" in this GCC Sub-Clause 14.4). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GCC Clause 36 (Change in Laws and Regulations) hereof. However, these adjustments would be restricted to items in respect of direct transactions between the Employer and Contractor and Bought out items (dispatched directly from sub-vendor's works to Site). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the Contractor.</p>

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	<p>Notwithstanding the above in case of any upward variation in rates of Entry Tax between those applicable seven days prior to the deadline set for price bid submission and the date of entry of goods and payment of Entry Tax by Owner, the deduction from Contractor's bills will be limited to the amount being worked out at the rates of Entry Tax as applicable seven days prior to the deadline set for price bid submission. In case of downward variation, the contract price will be adjusted for such downward variation in rates of Entry Tax between those applicable seven days prior to the deadline set for price bid submission and the date of entry of goods and payment of Entry Tax by Owner.</p> <p>14.5 In case the CIF price of mandatory spares and / or of recommended spares exceeds the exemption limit as provided under the extant Policy/Notifications of GOI, all applicable additional taxes & duties (if any) on the excess price shall be to the account of Employer. (Applicable in case of ICB Tender only).</p> <p>If the Employer orders any spare at a later date as per GCC Cl 7.3, all applicable additional taxes & duties, If any, not included in the original price shall be to the account of Employer.</p> <p>14.6 Income Tax (Applicable in case of ICB Tender only): As per Indian Income Tax Act & Rules, Employer is required to deduct Income Tax at source from all the payments to be made to Non resident/Foreign Contractor. For this purpose, the Contractor shall be required to either furnish</p> <ul style="list-style-type: none"> (i) the certificate from Indian Tax Authority or (ii) Ruling from "the Authority for Advance Ruling (AAR)" determining the applicable rate of Income tax in India before release of first payment. <p>The Contractor will be required to submit PAN details to the Project Manager before the submission of the first bill.</p> <p>D. Intellectual Property</p>
<p>15. Copyright</p>	<p>15.1 The copyright in all drawings, documents and other materials containing data and information furnished to the Employer by the Contractor herein shall remain vested in the Contractor or, if they are furnished to the Employer directly or through the Contractor by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party. The Employer shall however be free to reproduce all drawings, documents and other material furnished to the Employer for the purpose of the contract including, if required, for operation and maintenance of the facilities.</p>
<p>16. Confidential Information</p>	<p>16.1 The Employer and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Contractor</p>
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	<p>may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this GCC Clause 16.</p> <p>16.2 The Employer shall not use such documents, data and other information received from the Contractor for any purpose other than the operation and maintenance of the Facilities. Similarly, the Contractor shall not use such documents, data and other information received from the Employer for any purpose other than the design, procurement of Plant and Equipment, construction or such other work and services as are required for the performance of the Contract.</p> <p>16.3 The obligation of a party under GCC Sub-Clauses 16.1 and 16.2 above, however, shall not apply to that information which</p> <ul style="list-style-type: none"> (a) now or hereafter enters the public domain through no fault of that party (b) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party hereto (c) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality. <p>16.4 The above provisions of this GCC Clause 16 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Facilities or any part thereof.</p> <p>16.5 The provisions of this GCC Clause 16 shall survive termination, for whatever reason, of the Contract.</p> <p>E. Work Execution</p>
<p>17. Representatives</p> <p>17.1</p>	<p>Project Manager</p> <p>If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the Employer shall appoint and notify the Contractor in writing of the name of the Project Manager. The Employer may from time to time appoint some other person as the Project Manager in place of the person previously so appointed, and shall give a notice of the name of such other person to the Contractor without delay. The Employer shall take reasonable care to see that no such appointment is made at such a time or in such a manner as to impede the progress of work on the Facilities. The Project Manager shall represent and act for the Employer at all times during the currency of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager, except as herein otherwise provided.</p>

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	<p>All notices, instructions, information and other communications given by the Contractor to the Employer under the Contract shall be given to the Project Manager, except as herein otherwise provided.</p> <p>17.2 Contractor's Representative & Construction Manager</p> <p>17.2.1 The Contractor shall appoint the Contractor's Representative within fourteen (14) days of the Effective Date or before start of work whichever is earlier and shall request the Employer in writing to approve the person so appointed.</p> <p>17.2.1.1 The Contractor's representative shall be a regular Employee/ Partner/ Director only and the Contractor shall be required to submit a Power of Attorney in original in favour of its representative. Notarized photocopy of the Power of Attorney shall be acceptable only if the Power of Attorney has been registered by the Contractor. The Employer may verify the photocopy of the Power of Attorney with the Original and the Contractor shall be required to produce the original Power of Attorney for verification, if required by the Employer. The relation of the Contractor's representative with the contractor such as Partner/ Employee etc. should be clearly brought out in the Power of Attorney. The Contractor would be required to submit a documentary proof of the relation of the Contractor's representative with the contractor in the form of self-attested copy of any of the following documents:</p> <ul style="list-style-type: none"> i. Previous financial year's Form 16 as available at TRACES site of Income tax department, if the Contractor's representative is an employee of contractor or his Appointment Letter/Salary Slip/other documentary evidence (only in case of recent appointment or where Form 16 details are not uploaded at TRACES). Further, the Contractor shall submit the copy of Form 16 as available through TRACES site for every subsequent year also in respect of the Contractor's representative till the period of authorization. ii. Article of Association / Registered Partnership Deed if the Contractor's representative is a partner or stake holder in Company. <p>In case, the Contractor is not able to submit any of the documentary proofs as mentioned above at para (i) & (ii), he would be required to submit an affidavit stating the relationship between the Contractor's representative and the Contractor.</p> <p>17.2.1.2 In case, the Contractor's representative is also doing some other Contract(s)/Work(s) as nominee of the same contractor, the Contractor shall give a declaration citing list of all works where the Contractor's representative is the nominee.</p> <p>17.2.1.3 If the Employer objects to the appointment giving the reason therefore, then the Contractor shall appoint a replacement within fourteen (14) days of such objection, and the foregoing provisions of this GCC Sub-Clause 17.2.1 shall apply thereto.</p>

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	<p>17.2.2 The Contractor's Representative shall represent and act for the Contractor at all times during the currency of the Contract and shall give to the Project Manager all the Contractor's notices, instructions, information and all other communications under the Contract.</p> <p>All notices, instructions, information and all other communications given by the Employer or the Project Manager to the Contractor under the Contract shall be given to the Contractor's Representative or, in its absence, its deputy, except as herein otherwise provided.</p> <p>The Contractor shall not revoke the appointment of the Contractor's Representative without the Employer's prior written consent, which shall not be unreasonably withheld. If the Employer consents thereto, the Contractor shall appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GCC Sub-Clause 17.2.1.</p> <p>17.2.3 The Contractor's Representative may, subject to the approval of the Employer (which shall not be unreasonably withheld), at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Employer and the Project Manager.</p> <p>Any act or exercise by any person of powers, functions and authorities so delegated to him or her in accordance with this GCC Sub-Clause 17.2.3 shall be deemed to be an act or exercise by the Contractor's Representative.</p> <p>17.2.3.1 Notwithstanding anything stated in GCC Sub-clause 17.1 and 17.2.1 above, for the purpose of execution of contract, the Employer and the Contractor shall finalise and agree to a Contract Co-ordination Procedure and all the communication under the Contract shall be in accordance with such Contract Co-ordination Procedure.</p> <p>17.2.4 From the commencement of installation of the Facilities at the Site until Operational Acceptance, the Contractor's Representative shall appoint a suitable person as the construction manager (hereinafter referred to as "the Construction Manager"). The Construction Manager shall supervise all work done at the Site by the Contractor and shall be present at the Site throughout normal working hours except when on leave, sick or absent for reasons connected with the proper performance of the Contract. Whenever the Construction Manager is absent from the Site, a suitable person shall be appointed to act as his or her deputy.</p> <p>17.2.5 The Employer may by notice to the Contractor object to any representative or person employed by the Contractor in the execution of the Contract who, in the reasonable opinion of the Employer, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site regulations</p>
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	<p>provided under GCC Sub-Clause 22.3. The Employer shall provide evidence of the same, whereupon the Contractor shall remove such person from the Facilities.</p> <p>17.2.6 If any representative or person employed by the Contractor is removed in accordance with GCC Sub-Clause 17.2.5, the Contractor shall, where required, promptly appoint a replacement.</p> <p>17.2.7 In case any of the information/declaration/undertaking provided by Contractor/Contractor's representative is found to be false and/or the Contractor/Contractor's representative suppresses any relevant information at any stage, the Contractor will be liable for actions in terms of Employer's Banning policy.</p>
<p>18. Work Program</p>	<p>18.1 Contractor's Organization</p> <p>The Contractor shall supply to the Employer and the Project Manager a chart showing the proposed organization to be established by the Contractor for carrying out work on the Facilities. The chart shall include the identities of the key personnel together with the curricula vitae of such key personnel to be employed within twenty-one (21) days of the Effective Date. The Contractor shall promptly inform the Employer and the Project Manager in writing of any revision or alteration of such an organization chart.</p> <p>18.2 Program of Performance</p> <p>Within twenty-eight (28) days after the date of notification of award of Contract, the Contractor shall prepare and submit to the Project Manager a detailed program of performance of the Contract, made in the form of PERT Network and showing the sequence in which it proposes to design, manufacture, transport, assemble, install and precommission the Facilities, as well as the date by which the Contractor reasonably requires that the Employer shall have fulfilled its obligations under the Contract so as to enable the Contractor to execute the Contract in accordance with the program and to achieve Completion and Acceptance of the Facilities in accordance with the Contract. The program so submitted by the Contractor shall accord with the Time Schedule included in Appendix 4 (Time Schedule) to the Contract Agreement and any other dates and periods specified in the Contract. The Contractor shall update and revise the program as and when appropriate or when required by the Project Manager, but without modification in the Times for Completion given in the SCC and any extension granted in accordance with GCC Clause 40, and shall submit all such revisions to the Project Manager.</p> <p>18.3 Progress Report</p> <p>The Contractor shall monitor progress of all the activities specified in the program referred to in GCC Sub-Clause 18.2 (Program of Performance) above, and supply a progress report to the Project Manager every month.</p> <p>The progress report shall be in a form acceptable to the Project Manager and shall also indicate: (a) percentage completion achieved compared</p>
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	<p>with the planned percentage completion for each activity; and (b) where any activity is behind the program, giving comments and likely consequences and stating the corrective action being taken.</p> <p>18.4 Progress of Performance</p> <p>If at any time the Contractor's actual progress falls behind the program referred to in GCC Sub-Clause 18.2 (Program of Performance), or it becomes apparent that it will so fall behind, the Contractor shall, at the request of the Employer or the Project Manager, prepare and submit to the Project Manager a revised program, taking into account the prevailing circumstances, and shall notify the Project Manager of the steps being taken to expedite progress so as to attain Completion of the Facilities within the Time for Completion under GCC Sub-Clause 8.2 (Time for Commencement and Completion), any extension thereof entitled under GCC Sub-Clause 40.1 (Extension of Time for Completion), or any extended period as may otherwise be agreed upon between the Employer and the Contractor.</p> <p>18.5 Work Procedures</p> <p>The Contract shall be executed in accordance with the Contract Documents and the procedures given in the section on Forms and Procedures of the Contract Documents.</p> <p>If agreed between the Employer and the Contractor, the Contractor may execute the Contract in accordance with its own standard project execution plans and procedures to the extent that they do not conflict with the provisions contained in the Contract.</p> <p>18.6 Maintenance of Records of Weekly Progress Review Meetings at Site</p> <p>The Contractor shall be required to attend all weekly site progress review meetings organized by the 'Project Manager' or his authorised representative. The deliberations in the meetings shall interalia include the weekly program, progress of work (including details of manpower tools and plants deployed by the contractor vis-à-vis agreed schedule), inputs to be provided by Employer, delays, if any and recovery program, specific hindrances to work and work instructions by Employer. The minutes of the weekly meetings shall be recorded in triplicate in a numbered register available with the Project Manager or his authorized representative. These recordings shall be jointly signed by the Project Manager or his authorized representative and the Contractor and one copy of the signed records shall be handed over to the Contractor".</p>
<p>19. Subcontracting</p> <p>19.1</p>	<p>Appendix 5 (List of Approved Subcontractors) to the Contract Agreement specifies major items of supply or services and a list of approved Subcontractors against each item, including vendors. Insofar as no Subcontractors are listed against any such item, the Contractor shall prepare a list of Subcontractors for such item for inclusion in such list. The Contractor may from time to time propose any addition to or deletion from any such list. The Contractor shall submit any such list or any modification thereto to the Employer for its approval in sufficient time so as not to impede the progress of work on the Facilities. Such approval by the</p>

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	<p>Employer for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties or responsibilities under the Contract.</p> <p>19.2 The Contractor shall select and employ its Subcontractors for such major items from those listed in the lists referred to in GCC Sub-Clause 19.1.</p> <p>19.3 For items or parts of the Facilities not specified in Appendix 5 (List of Approved Subcontractors) to the Contract Agreement, the Contractor may employ such Subcontractors as it may select, at its discretion.</p>
<p>20. Design And Engineering</p>	<p>20.1 Specifications and Drawings</p> <p>20.1.1 The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice.</p> <p>The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Employer.</p> <p>20.1.2 The Contractor shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designated by or on behalf of the Employer, by giving a notice of such disclaimer to the Project Manager.</p> <p>20.2 Codes and Standards</p> <p>Wherever references are made in the Contract to codes and standards in accordance with which the Contract shall be executed, the edition or the revised version of such codes and standards current at the date twenty-eight (28) days prior to deadline set for price bid submission shall apply unless otherwise specified. During Contract execution, any changes in such codes and standards shall be applied after approval by the Employer and shall be treated in accordance with GCC Clause 39 (Changes Originating from Contractor).</p> <p>20.3 Approval/Review of Technical Documents by Project Manager</p> <p>20.3.1 The Contractor shall prepare (or cause its Subcontractors to prepare) and furnish to the Project Manager the documents listed in Appendix 7 (List of Documents for Approval or Review) to the Contract Agreement for its approval or review as specified and as in accordance with the requirements of GCC Sub-Clause 18.2 (Program of Performance).</p>

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	<p>Any part of the Facilities covered by or related to the documents to be approved by the Project Manager shall be executed only after the Project Manager's approval thereof.</p> <p>GCC Sub-Clauses 20.3.2 through 20.3.7 shall apply to those documents requiring the Project Manager's approval, but not to those furnished to the Project Manager for its review only.</p> <p>20.3.2 Within twenty one (21) days after receipt by the Project Manager of any document requiring the Project Manager's approval in accordance with GCC Sub-Clause 20.3.1, the Project Manager shall either return one copy thereof to the Contractor with its approval endorsed thereon or shall notify the Contractor in writing of its disapproval thereof and the reasons therefor and the modifications that the Project Manager proposes.</p> <p>20.3.3 The Project Manager shall not disapprove any document, except on the grounds that the document does not comply with some specified provision of the Contract or that it is contrary to good engineering practice.</p> <p>20.3.4 If the Project Manager disapproves the document, the Contractor shall modify the document and resubmit it for the Project Manager's approval in accordance with GCC Sub-Clause 20.3.2. If the Project Manager approves the document subject to modification(s), the Contractor shall make the required modification(s), and upon resubmission with the required modifications the document shall be deemed to have been approved.</p> <p>The procedure for submission of the documents by the Contractor and their approval by the Project Manager shall be discussed and finalised with the Contractor.</p> <p>20.3.5 If any dispute or difference occurs between the Employer and the Contractor in connection with or arising out of the disapproval by the Project Manager of any document and/or any modification(s) thereto that cannot be settled between the parties within a reasonable period, then such dispute or difference may be referred to Expert Settlement Council (ESC) for determination in accordance with GCC Sub-Clause 6.2 hereof. If such dispute or difference is referred to ESC, the Project Manager shall give instructions as to whether and if so, how, performance of the Contract is to proceed. The Contractor shall proceed with the Contract in accordance with the Project Manager's instructions, provided that if the ESC upholds the Contractor's view on the dispute and if the Employer has not given notice under GCC Sub-Clause 6.3.1 hereof, then the Contractor shall be reimbursed by the Employer for any additional costs incurred by reason of such instructions and shall be relieved of such responsibility or liability in connection with the dispute and the execution of the instructions as the ESC shall decide, and the Time for Completion shall be extended accordingly.</p> <p>20.3.6 The Project Manager's approval, with or without modification of the document furnished by the Contractor, shall not relieve the Contractor of any responsibility or liability imposed upon it by any</p>
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	<p>provisions of the Contract except to the extent that any subsequent failure results from modifications required by the Project Manager.</p> <p>20.3.7 The Contractor shall not depart from any approved document unless the Contractor has first submitted to the Project Manager an amended document and obtained the Project Manager's approval thereof, pursuant to the provisions of this GCC Sub-Clause 20.3.</p> <p>If the Project Manager requests any change in any already approved document and/or in any document based thereon, the provisions of GCC Clause 39 (Change in the Facilities) shall apply to such request.</p>
21. Procurement	<p>21.1 Plant and Equipment</p> <p>Subject to GCC Sub-Clause 14.2, the Contractor shall manufacture or procure and transport all the Plant and Equipment in an expeditious and orderly manner to the Site.</p> <p>21.2 Employer-Supplied Plant, Equipment, and Materials</p> <p>If Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement provides that the Employer shall furnish any specific items of machinery, equipment or materials to the Contractor, the following provisions shall apply:</p> <p>21.2.1 The Employer shall, at its own risk and expense, transport each item to the place on or near the Site as agreed upon by the parties and make such item available to the Contractor at the time specified in the program furnished by the Contractor, pursuant to GCC Sub-Clause 18.2 (Program of Performance), unless otherwise mutually agreed.</p> <p>21.2.2 Upon receipt of such item, the Contractor shall inspect the same visually and notify the Project Manager of any detected shortage, defect or default. The Employer shall immediately remedy any shortage, defect or default, or the Contractor shall, if practicable and possible, at the request of the Employer, remedy such shortage, defect or default at the Employer's cost and expense. After inspection, such item shall fall under the care, custody and control of the Contractor. The provision of this GCC Sub-Clause 21.2.2 shall apply to any item supplied to remedy any such shortage or default or to substitute for any defective item, or shall apply to defective items that have been repaired.</p> <p>21.2.3 The foregoing responsibilities of the Contractor and its obligations of care, custody and control shall not relieve the Employer of liability for any undetected shortage, defect or default, nor place the Contractor under any liability for any such shortage, defect or default whether under GCC Clause 27 (Defect Liability) or under any other provision of Contract.</p>

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21.3	<p>Transportation</p> <p>21.3.1 The Contractor shall at its own risk and expense transport all the Plant and Equipment and the Contractor's Equipment to the Site by the mode of transport that the Contractor judges most suitable under all the circumstances.</p> <p>Packing Material</p> <p>The Contractor shall ensure that all the plant and equipment are suitably packed and protected to prevent damage or deterioration during its transportation to site, handling and storage at site till the time of its installation. The ownership of all such packing material (except empty shipper's containers on which the customs duty has been paid by the Contractor pursuant to GCC Clause 14.2) shall stand transferred to the Employer upon dispatch of the plant and equipment and endorsement of dispatch documents in favour of the Employer.</p> <p>21.3.2 Unless otherwise provided in the Contract, the Contractor shall be entitled to select any safe mode of transport operated by any person to carry the Plant and Equipment and the Contractor's Equipment.</p> <p>21.3.3 Upon despatch of each shipment of the Plant and Equipment and the Contractor's Equipment, the Contractor shall notify the Employer by telex, cable, facsimile or Electronic Data Interchange (EDI) of the description of the Plant and Equipment and of the Contractor's Equipment, the point and means of dispatch, and the estimated time and point of arrival in the country where the Site is located, if applicable, and at the Site. The Contractor shall furnish the Employer with relevant shipping documents to be agreed upon between the parties.</p> <p>21.3.4 The Contractor shall be responsible for obtaining, if necessary, approvals from the authorities for transportation of the Plant and Equipment and the Contractor's Equipment to the Site. The Employer shall use its best endeavors in a timely and expeditious manner to assist the Contractor in obtaining such approvals, if requested by the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any claim for damage to roads, bridges or any other traffic facilities that may be caused by the transport of the Plant and Equipment and the Contractor's Equipment to the Site.</p>
21.4	<p>Customs Clearance (Applicable in case of ICB Tender only)</p> <p>The Contractor shall, at its own expense, handle all imported Plant and Equipment and Contractor's Equipment at the point(s) of import and shall handle any formalities for customs clearance, subject to the Employer's obligations under GCC Sub-Clause 14.2, provided that if applicable laws or regulations require any application or act to be made by or in the name of the Employer, the Employer shall take all necessary steps to comply with such laws or regulations. In the event of delays in customs clearance due to fault of the Employer, the Contractor shall be entitled to an extension in the Time for Completion, pursuant to GCC Clause 40.</p>

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<p>22. Installation</p>	<p>22.1 Setting Out/Supervision/Labour</p> <p>22.1.1 Bench Mark: The Contractor shall be responsible for the true and proper setting-out of the Facilities in relation to bench marks, reference marks and lines provided to it in writing by or on behalf of the Employer.</p> <p>If, at any time during the progress of installation of the Facilities, any error shall appear in the position, level or alignment of the Facilities, the Contractor shall forthwith notify the Project Manager of such error and, at its own expense, immediately rectify such error to the reasonable satisfaction of the Project Manager. If such error is based on incorrect data provided in writing by or on behalf of the Employer, the expense of rectifying the same shall be borne by the Employer.</p> <p>22.1.2 Contractor's Supervision: The Contractor shall give or provide all necessary superintendence during the installation of the Facilities, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand.</p> <p>22.1.3 Labour:</p> <p>(a) The Contractor shall provide and employ on the Site in the installation of the Facilities such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution of the Contract. The Contractor shall preferably engage skilled/semiskilled/unskilled workers from amongst the land oustees of the Project.</p> <p>(b) Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and catering of all labour, local or expatriate, required for the execution of the Contract and for all payments in connection therewith.</p> <p>(c) The Contractor shall be responsible for obtaining all necessary permit(s) and/or visa(s) from the appropriate authorities for the entry of all labour and personnel to be employed on the Site into the country where the Site is located.</p> <p>(d) The Contractor shall at its own expense provide the means of repatriation to all of its and its Subcontractor's personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults</p>
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	<p>in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor.</p> <p>(e) The Contractor shall at all times during the progress of the Contract use its best endeavor to prevent any unlawful, riotous or disorderly conduct or behaviour by or amongst its employees and the labour of its Subcontractors.</p> <p>(f) The Contractor shall, in all dealings with its labour and the labour of its Subcontractors currently employed on or connected with the Contract, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labour.</p>
22.2	<p>Contractor's Equipment</p> <p>22.2.1 All Contractors' Equipment brought by the Contractor onto the Site shall be deemed to be intended to be used exclusively for the execution of the Contract. The Contractor shall not remove the same from the Site without the Project Manager's consent that such Contractor's Equipment is no longer required for the execution of the Contract.</p> <p>22.2.2 Unless otherwise specified in the Contract, upon completion of the Facilities, the Contractor shall remove from the Site all Equipment brought by the Contractor onto the Site and any surplus materials remaining thereon.</p> <p>22.2.3 The Employer will, if requested, use its best endeavor to assist the Contractor in obtaining any local, state or national government permission required by the Contractor for the export of the Contractor's Equipment imported by the Contractor for use in the execution of the Contract that is no longer required for the execution of the Contract.</p>
22.3	<p>Site Regulations and Safety</p> <p>The Employer and the Contractor shall establish Site regulations setting out the rules to be observed in the execution of the Contract at the Site and shall comply therewith. The Contractor shall prepare and submit to the Employer, with a copy to the Project Manager, proposed Site regulations for the Employer's approval, which approval shall not be unreasonably withheld.</p> <p>Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Facilities, gate control, sanitation, medical care, and fire prevention.</p>
22.4	<p>Opportunities for Other Contractors</p> <p>22.4.1 The Contractor shall, upon written request from the Employer or the Project Manager, give all reasonable opportunities for</p>

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	<p>carrying out the work to any other contractors employed by the Employer on or near the Site.</p> <p>22.4.2 If the Contractor, upon written request from the Employer or the Project Manager, makes available to other contractors any roads or ways the maintenance for which the Contractor is responsible, permits the use by such other contractors of the Contractor's Equipment, or provides any other service of whatsoever nature for such other contractors, the Employer shall fully compensate the Contractor for any loss or damage caused or occasioned by such other contractors in respect of any such use or service, and shall pay to the Contractor reasonable remuneration for the use of such equipment or the provision of such services.</p> <p>22.4.3 The Contractor shall also so arrange to perform its work as to minimize, to the extent possible, interference with the work of other contractors. The Project Manager shall determine the resolution of any difference or conflict that may arise between the Contractor and other contractors and the workers of the Employer in regard to their work.</p> <p>22.4.4 The Contractor shall notify the Project Manager promptly of any defects in the other Contractors' work that come to its notice, and that could affect the Contractor's work. The Project Manager shall determine the corrective measures, if any, required to rectify the situation after inspection of the Facilities. Decisions made by the Project Manager shall be binding on the Contractor.</p>
22.5	<p>Emergency Work</p> <p>If, by reason of an emergency arising in connection with and during the execution of the Contract, any protective or remedial work is necessary as a matter of urgency to prevent damage to the Facilities, the Contractor shall immediately carry out such work.</p> <p>If the Contractor is unable or unwilling to do such work immediately, the Employer may do or cause such work to be done as the Employer may determine is necessary in order to prevent damage to the Facilities. In such event the Employer shall, as soon as practicable after the occurrence of any such emergency, notify the Contractor in writing of such emergency, the work done and the reasons therefor. If the work done or caused to be done by the Employer is work that the Contractor was liable to do at its own expense under the Contract, the reasonable costs incurred by the Employer in connection therewith shall be paid by the Contractor to the Employer. Otherwise, the cost of such remedial work shall be borne by the Employer.</p>
22.6	<p>Site Clearance</p> <p>22.6.1 Site Clearance in Course of Performance: In the course of carrying out the Contract, the Contractor shall keep the Site reasonably free from all unnecessary obstruction, store or remove any surplus materials, clear away any wreckage, rubbish or temporary works from the Site, and remove any Contractor's Equipment no longer required for execution of the Contract.</p> <p>22.6.2 Clearance of Site after Completion: After Completion of all parts of the Facilities, the Contractor shall clear away and remove all</p>
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	<p>wreckage, rubbish and debris of any kind from the Site, and shall leave the Site and Facilities clean and safe.</p> <p>22.6.3 Disposal of Scrap</p> <p>"The Contractor shall with the agreement of the Employer promptly remove from the site any 'Scrap' generated during performance of any activities at site in pursuance of the Contract. The term 'Scrap' shall refer to scrap / waste / remnants arising out of the fabrication of structural steel work and piping work at the project site in the course of execution of the contract and shall also include any wastage of cables during the termination process while installing the cables.</p> <p>The ownership of such Scrap shall vest with the Contractor except in cases where the items have been issued by the Employer from its stores for their installation only without any adjustment to the Contract Price. The removal of scrap shall be subject to the Contractor producing the necessary clearance from the relevant authorities (Custom, Excise etc.), if required by the law, in respect of disposal of the scrap. The liability for the payment of the applicable taxes/duties shall be that of the Contractor.</p> <p>The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of scrap. The Indemnity-cum-Undertaking Agreement shall be furnished by Contractor as per proforma enclosed in Section-VII (Forms and Procedure). Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the scrap to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer".</p> <p>22.7 Watching and Lighting</p> <p>The Contractor shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper execution and the protection of the Facilities, or for the safety of the owners and occupiers of adjacent property and for the safety of the public.</p> <p>22.8 Shift Work</p> <p>22.8.1 To achieve the required rate of progress in order to complete the Facilities within the Time for Completion, the Contractor may carry on the work, round the clock, in multiple shifts per day, as may be necessary. The Contractor shall however be responsible to comply with all applicable laws in this regard.</p> <p>22.8.2 No additional payment will be made on account of round the clock working in multiple shifts.</p> <p>22.8.3</p>
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	<p>Wherever the work is carried out at night adequate lighting of working areas and access routes for pedestrians or vehicles shall be provided by the Contractor at his cost. Sufficient notice should be given by the Contractor to the Employer regarding the details of works in shifts so that necessary supervision could be provided.</p> <p>23. Test And Inspection</p> <p>23.1 The Contractor shall at its own expense carry out at the place of manufacture and/or on the Site all such tests and/or inspections of the Plant and Equipment and any part of the Facilities as are specified in the Contract.</p> <p>23.2 The Employer and the Project Manager or their designated representatives shall be entitled to attend the aforesaid test and/or inspection, provided that the Employer shall bear all costs and expenses incurred in connection with such attendance including, but not limited to, all travelling and board and lodging expenses.</p> <p>23.3 Whenever the Contractor is ready to carry out any such test and/or inspection, the Contractor shall give a reasonable advance notice of such test and/or inspection and of the place and time thereof to the Project Manager. The Contractor shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Employer and the Project Manager (or their designated representatives) to attend the test and/or inspection.</p> <p>23.4 The Contractor shall provide the Project Manager with a certified report of the results of any such test and/or inspection.</p> <p>If the Employer or Project Manager (or their designated representatives) fails to attend the test and/or inspection, or if it is agreed between the parties that such persons shall not do so, then the Contractor may proceed with the test and/or inspection in the absence of such persons, and may provide the Project Manager with a certified report of the results thereof.</p> <p>23.5 The Project Manager may require the Contractor to carry out any test and/or inspection not required by the Contract, provided that the Contractor's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of work on the Facilities and/or the Contractor's performance of its other obligations under the Contract, due allowance will be made in respect of the Time for Completion and the other obligations so affected.</p> <p>23.6 If any Plant and Equipment or any part of the Facilities fails to pass any test and/or inspection, the Contractor shall either rectify or replace such Plant and Equipment or part of the Facilities and shall repeat the test and/or inspection upon giving a notice under GCC Sub-Clause 23.3.</p> <p>23.7 If any dispute or difference of opinion shall arise between the parties in connection with or arising out of the test and/or inspection of the Plant and Equipment or part of the Facilities that cannot be settled between the parties within a reasonable period of time, it may be referred to the Expert</p>

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	<p>Settlement Council (ESC) for determination in accordance with GCC Sub-Clause 6.2.</p> <p>23.8 The Contractor shall afford the Employer and the Project Manager, at the Employer's expense, access at any reasonable time to any place where the Plant and Equipment are being manufactured or the Facilities are being installed, in order to inspect the progress and the manner of manufacture or installation, provided that the Project Manager shall give the Contractor a reasonable prior notice.</p> <p>23.9 The Contractor agrees that neither the execution of a test and/or inspection of Plant and Equipment or any part of the Facilities, nor the attendance by the Employer or the Project Manager, nor the issue of any test certificate pursuant to GCC Sub-Clause 23.4, shall release the Contractor from any other responsibilities under the Contract.</p> <p>23.10 No part of the Facilities or foundations shall be covered up on the Site without the Contractor carrying out any test and/or inspection required under the Contract. The Contractor shall give a reasonable notice to the Project Manager whenever any such part of the Facilities or foundations are ready or about to be ready for test and/or inspection; such test and/or inspection and notice thereof shall be subject to the requirements of the Contract.</p> <p>23.11 The Contractor shall uncover any part of the Facilities or foundations, or shall make openings in or through the same as the Project Manager may from time to time require at the Site, and shall reinstate and make good such part or parts.</p> <p>If any part of the Facilities or foundations have been covered up at the Site after compliance with the requirement of GCC Sub-Clause 23.10 and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating, and making good the same shall be borne by the Employer, and the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been delayed or impeded in the performance of any of its obligations under the Contract.</p>
<p>24. Completion of the Facilities</p>	<p>24.1 As soon as installation of the Facilities or any part thereof has, in the opinion of the Contractor, been completed as specified in the Technical Specifications, excluding minor items not materially affecting the operation or safety of the Facilities, the Contractor shall so notify the Employer in writing.</p> <p>24.2 Within seven (7) days after receipt of the notice from the Contractor under GCC Sub-Clause 24.1, the Employer shall supply the operating and maintenance personnel and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services as specified in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement, required for Pre-commissioning of the Facilities or any part thereof.</p> <p>24.3 As soon as reasonably practicable after the operating and maintenance personnel have been supplied by the Employer and the raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters, if so specified in Appendix 6 (Scope of Works and Supply by the</p>
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	<p>Employer)/ Technical Specifications, have been provided by the Employer in accordance with GCC Sub-Clause 24.2, the Contractor shall commence Pre-commissioning of the Facilities or the relevant part thereof in preparation for Commissioning.</p> <p>24.4 As soon as all works in respect of Pre-commissioning are completed and, in the opinion of the Contractor, the Facilities or any part thereof is ready for Commissioning, the Contractor shall commence Commissioning as per procedures stipulated in Technical Specifications, and as soon as Commissioning is satisfactorily completed, the Contractor shall so notify the Project Manager in writing.</p> <p>24.5 The Project Manager shall, within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 24.4, either issue a Completion Certificate in the form specified in the Forms and Procedures section in the bidding documents, stating that the Facilities or that part thereof have reached Completion as at the date of the Contractor's notice under GCC Sub-Clause 24.4, or notify the Contractor in writing of any defects and/or deficiencies.</p> <p>If the Project Manager notifies the Contractor of any defects and/or deficiencies, the Contractor shall then correct such defects and/or deficiencies, and shall repeat the procedure described in GCC Sub-Clause 24.4.</p> <p>If the Project Manager is satisfied that the Facilities or that part thereof have reached Completion, the Project Manager shall, within seven (7) days after receipt of the Contractor's repeated notice, issue a Completion Certificate stating that the Facilities or that part thereof have reached Completion as at the date of the Contractor's repeated notice.</p> <p>If the Project Manager is not so satisfied, then it shall notify the Contractor in writing of any defects and/or deficiencies within seven (7) days after receipt of the Contractor's repeated notice, and the above procedure shall be repeated.</p> <p>24.6 If the Project Manager fails to issue the Completion Certificate and fails to inform the Contractor of any defects and/or deficiencies within fourteen (14) days after receipt of the Contractor's notice under GCC Sub-Clause 24.4 or within seven (7) days after receipt of the Contractor's repeated notice under GCC Sub-Clause 24.5, or if the Employer makes use of the Facilities or part thereof, then the Facilities or that part thereof shall be deemed to have reached Completion as of the date of the Contractor's notice or repeated notice, or as of the Employer's use of the Facilities, as the case may be.</p> <p>24.7 As soon as possible after Completion, the Contractor shall complete all outstanding minor items so that the Facilities are fully in accordance with the requirements of the Contract, failing which the Employer will undertake such completion and deduct the costs thereof from any monies owing to the Contractor.</p> <p>24.8 Upon Completion, the Employer shall be responsible for the care and custody of the Facilities or the relevant part thereof, together with the risk</p>

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	<p>of loss or damage thereto, and shall thereafter take over the Facilities or the relevant part thereof.</p> <p>25. Commissioning, Guarantee Tests and Operational Acceptance</p> <p>25.1 Commissioning</p> <p>25.1.1 Commissioning of the Facilities or any part thereof shall be completed by the Contractor as per procedures detailed in the Technical Specifications.</p> <p>The Employer shall, unless otherwise specified in Appendix 6 (Scope of Works and Supply by the Employer)/ Technical Specifications, supply the operating and maintenance personnel and all raw materials, utilities, lubricants, chemicals, catalysts, facilities, services and other matters required for Commissioning of the Facilities.</p> <p>25.2 Guarantee Test</p> <p>25.2.1 The Guarantee Test (and repeats thereof) shall be conducted by the Contractor after Commissioning of the Facilities or the relevant part thereof to ascertain whether the Facilities or the relevant part can attain the Functional Guarantees specified in the Contract Documents. The Contractor's and Project Manager's advisory personnel shall attend the Guarantee Test. The Employer shall promptly provide the Contractor with such information as the Contractor may reasonably require in relation to the conduct and results of the Guarantee Test (and any repeats thereof).</p> <p>25.2.2 If for reasons attributable to the Employer, the Guarantee Test of the Facilities or the relevant part thereof cannot be successfully completed within the period of twelve months from the date of Completion of respective facility, the payment towards Successful Completion of Guarantee Test, shall be released to the Contractor against Bank Guarantee. Such Bank Guarantee shall have initial validity of one (1) year. The Bank Guarantee shall be extended for any subsequent period, if required, such that the same remains valid till the Successful Completion of Guarantee Test.</p> <p>25.3 Operational Acceptance</p> <p>25.3.1 Subject to GCC Sub-Clause 25.4 (Partial Acceptance) below, Operational Acceptance shall occur in respect of the Facilities or any part thereof when</p> <p>(a) the Guarantee Test has been successfully completed and the Functional Guarantees are met; or</p> <p>(b) the Contractor has paid the liquidated damages specified in GCC Sub-Clause 28.3 hereof; and</p> <p>(c) any minor items mentioned in GCC Sub-Clause 24.7 hereof relevant to the Facilities or that part thereof have been completed.</p>
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	<p>25.3.2 At any time after any of the events set out in GCC Sub-Clause 25.3.1 have occurred, the Contractor may give a notice to the Project Manager requesting the issue of an Operational Acceptance Certificate in the form provided in the Bidding Documents or in another form acceptable to the Employer in respect of the Facilities or the part thereof specified in such notice as at the date of such notice.</p> <p>25.3.3 The Project Manager shall, after consultation with the Employer, and within forty five (45) days after receipt of the Contractor's notice, issue an Operational Acceptance Certificate.</p> <p>25.3.4 If within forty five (45) days after receipt of the Contractor's notice, the Project Manager fails to issue the Operational Acceptance Certificate or fails to inform the Contractor in writing of the justifiable reasons why the Project Manager has not issued the Operational Acceptance Certificate, the Facilities or the relevant part thereof shall be deemed to have been accepted as at the date of the Contractor's said notice.</p>
25.4	<p>Partial Acceptance</p> <p>25.4.1 If the Contract specifies that Completion and Commissioning shall be carried out in respect of parts of the Facilities, the provisions relating to Completion and Commissioning including the Guarantee Test shall apply to each such part of the Facilities individually, and the Operational Acceptance Certificate shall be issued accordingly for each such part of the Facilities.</p> <p>25.4.2 If a part of the Facilities comprises facilities such as buildings, for which no Commissioning or Guarantee Test is required, then the Project Manager shall issue the Operational Acceptance Certificate for such facility when it attains Completion, provided that the Contractor shall thereafter complete any outstanding minor items that are listed in the Operational Acceptance Certificate.</p>
	<p>F. Guarantees and Liabilities</p>
26.	<p>Completion Time Guarantee</p> <p>26.1 The Contractor guarantees that it shall attain Completion of the Facilities (or a part for which a separate time for completion is specified in the SCC) within the Time for Completion specified in the SCC pursuant to GCC Sub-Clause 8.2, or within such extended time to which the Contractor shall be entitled under GCC Clause 40 (Extension of Time for Completion) hereof.</p> <p>26.2 If the Contractor fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under GCC Clause 40 (Extension of Time for Completion), the Contractor shall pay to the Employer liquidated damages in the amount computed at the rates specified in the SCC. The aggregate amount of such liquidated damages shall in no event exceed the amount specified as "Maximum" in</p>

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	<p>the SCC. Once the "Maximum" is reached, the Employer may consider termination of the Contract, pursuant to GCC Sub-Clause 42.2.2.</p> <p>Such payment shall completely satisfy the Contractor's obligation to attain Completion of the Facilities or the relevant part thereof within the Time for Completion or any extension thereof under GCC Clause 40 (Extension of Time for Completion). The Contractor shall have no further liability whatsoever to the Employer in respect thereof.</p> <p>However, the payment of liquidated damages shall not in any way relieve the Contractor from any of its obligations to complete the Facilities or from any other obligations and liabilities of the Contractor under the Contract.</p> <p>Save for liquidated damages payable under this GCC Sub-Clause 26.2, the failure by the Contractor to attain any milestone or other act, matter or thing by any date specified in Appendix 4 (Time Schedule) to the Contract Agreement and/or other program of work prepared pursuant to GCC Clause 18 (Program of Performance) shall not render the Contractor liable for any loss or damage thereby suffered by the Employer.</p>
26.3	No bonus shall be given for earlier completion of the facilities or part thereof.
27. Defect Liability	<p>27.1 The Contractor warrants that the Facilities or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the Plant and Equipment supplied and of the work executed.</p> <p>27.2 The Defect Liability Period shall be eighteen (18) months from the date of Completion of the Facilities (or any part thereof) or twelve (12) months from the date of Operational Acceptance of the Facilities (or any part thereof), whichever first occurs, unless specified otherwise in the SCC.</p> <p>If during the Defect Liability Period any defect should be found in the design, engineering, materials and workmanship of the Plant and Equipment supplied or of the work executed by the Contractor, the Contractor shall promptly, in consultation and agreement with the Employer regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Contractor shall, at its discretion, determine) such defect as well as any damage to the Facilities caused by such defect. The Contractor shall not be responsible for the repair, replacement or making good of any defect or of any damage to the Facilities arising out of or resulting from any of the following causes:</p> <ul style="list-style-type: none"> (a) improper operation or maintenance of the Facilities by the Employer (b) operation of the Facilities outside specifications provided in the Contract (c) normal wear and tear. <p>27.3 The Contractor's obligations under this GCC Clause 27 shall not apply to</p> <ul style="list-style-type: none"> (a) any materials that are supplied by the Employer under GCC Sub-Clause 21.2 (Employer-Supplied Plant, Equipment and Materials),

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	<p>are normally consumed in operation, or have a normal life shorter than the Defect Liability Period stated herein</p> <p>(b) any designs, specifications or other data designed, supplied or specified by or on behalf of the Employer or any matters for which the Contractor has disclaimed responsibility herein</p> <p>(c) any other materials supplied or any other work executed by or on behalf of the Employer, except for the work executed by the Employer under GCC Sub-Clause 27.7.</p>
27.4	<p>The Employer shall give the Contractor a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Employer shall afford all reasonable opportunity for the Contractor to inspect any such defect.</p>
27.5	<p>The Employer shall afford the Contractor all necessary access to the Facilities and the Site to enable the Contractor to perform its obligations under this GCC Clause 27.</p> <p>The Contractor may, with the consent of the Employer, remove from the Site any Plant and Equipment or any part of the Facilities that are defective if the nature of the defect, and/or any damage to the Facilities caused by the defect, is such that repairs cannot be expeditiously carried out at the Site.</p>
27.6	<p>If the repair, replacement or making good is of such a character that it may affect the efficiency of the Facilities or any part thereof, the Employer may give to the Contractor a notice requiring that tests of the defective part of the Facilities shall be made by the Contractor immediately upon completion of such remedial work, whereupon the Contractor shall carry out such tests.</p> <p>If such part fails the tests, the Contractor shall carry out further repair, replacement or making good (as the case may be) until that part of the Facilities passes such tests. The tests in character shall in any case be not less than what has already been agreed by the Employer and the Contractor for the original equipment/part of the Facilities.</p>
27.7	<p>If the Contractor fails to commence the work necessary to remedy such defect or any damage to the Facilities caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Employer may, following notice to the Contractor, proceed to do such work, and the reasonable costs incurred by the Employer in connection therewith shall be paid to the Employer by the Contractor or may be deducted by the Employer from any monies due to the Contractor or claimed under the Performance Security.</p>
27.8	<p>If the Facilities or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period of the Facilities or such part, as the case may be, shall be extended by a period equal to the period during which the Facilities or such part cannot be used by the Employer because of any of the aforesaid reasons. Upon correction of the defects in the Facilities or any part thereof by repair/replacement, such repair/replacement shall have the Defect Liability Period extended</p>

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	<p>by a period of twelve (12) month from the time such replacement/repair of the Facilities or any part thereof.</p> <p>27.8.1 At the end of the Defect Liability Period, the contractor liability ceases except for latent defects. The contractor's liability for latent defects warranty shall be limited to a period of five (5) years from the end of Defect Liability Period. For the purpose of the this clause, the latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the Defect Liability Period in this GCC clause 27, but later.</p> <p>27.9 Except as provided in GCC Clauses 27 and 33 (Loss of or Damage to Property / Accident or Injury to Workers/Indemnification), the Contractor shall be under no liability whatsoever and howsoever arising, and whether under the Contract or at law, in respect of defects in the Facilities or any part thereof, the Plant and Equipment, design or engineering or work executed that appear after Completion of the Facilities or any part thereof, except where such defects are the result of the gross negligence, fraud, criminal or wilful action of the Contractor.</p> <p>27.10 In addition, the Contractor shall also provide an extended warranty for any such component of the Facilities and during the period of time as may be specified in the SCC. Such obligation shall be in addition to the defect liability specified under GCC Sub-Clause 27.2.</p>
28. Functional Guarantees	<p>28.1 The Contractor guarantees that during the Guarantee Test, the Facilities and all parts thereof shall attain the Functional Guarantees specified in Appendix 8 (Functional Guarantees) to the Contract Agreement, subject to and upon the conditions therein specified.</p> <p>28.2 If, for reasons attributable to the Contractor, the guaranteed level of the Functional Guarantees specified in Appendix 8 (Functional Guarantees) to the Contract Agreement are not met either in whole or in part, the Contractor shall, within a mutually agreed time, at its cost and expense make such changes, modifications and/or additions to the Plant or any part thereof as may be necessary to meet such Guarantees. The Contractor shall notify the Employer upon completion of the necessary changes, modifications and/or additions, and shall seek the Employer's consent to repeat the Guarantee Test. If the specified Functional Guarantees are not established even during the repeat of the Guarantee Test, the Employer may at its option, either</p> <ul style="list-style-type: none"> (a) Reject the Equipment and recover the payments already made, or (b) Terminate the Contract pursuant to GCC Sub-Clause 42.2.2 and recover the payments already made, or (c) Accept the equipment after levy of liquidated damages in accordance with the provisions specified in Appendix-8(Functional Guarantees) to the Contract Agreement.

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28.3	<p>In case the Employer exercises its option to accept the equipment after levy of liquidated damages, the payment of liquidated damages under GCC Sub-Clause 28.2, up to the limitation of liability specified in the Appendix-8 (Functional Guarantees) to the Contract Agreement, shall completely satisfy the Contractor's guarantees under GCC Sub-Clause 28.2, and the Contractor shall have no further liability whatsoever to the Employer in respect thereof. Upon the payment of such liquidated damages by the Contractor, the Project Manager shall issue the Operational Acceptance Certificate for the Facilities or any part thereof in respect of which the liquidated damages have been so paid.</p>
<p>29. Patent Indemnity</p>	
29.1	<p>The Contractor shall, subject to the Employer's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract by reason of: (a) the installation of the Facilities by the Contractor or the use of the Facilities in the country where the Site is located; and (b) the sale of the products produced by the Facilities in any country.</p> <p>Such indemnity shall not cover any use of the Facilities or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, any infringement resulting from the use of the Facilities or any part thereof, or any products produced thereby in association or combination with any other equipment, plant or materials not supplied by the Contractor, pursuant to the Contract Agreement.</p>
29.2	<p>If any proceedings are brought or any claim is made against the Employer arising out of the matters referred to in GCC Sub-Clause 29.1, the Employer shall promptly give the Contractor a notice thereof, and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defence of any such proceedings or claim.</p> <p>The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.</p>
29.3	<p>The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's</p>
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<p>30. Limitation of Liability</p>	<p>fees and expenses, which the Contractor may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Employer.</p> <p>30.1 Except in cases of criminal negligence or wilful misconduct,</p> <p>(a) the Contractor shall not be liable to the Employer, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and</p> <p>(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.</p> <p>G. Risk Distribution</p> <p>31. Transfer of Ownership</p> <p>31.1 Ownership of the Plant and Equipment</p> <p>FOR ICB TENDER</p> <p>Ownership of the Plant and Equipment (including spare parts) to be imported into the country where the Site is located shall be transferred to the Employer upon loading on to the mode of transport to be used to convey the Plant and Equipment from the country of origin to that country and upon endorsement of despatch document in favour of the Employer.</p> <p>Ownership of the Plant and Equipment (including spare parts) procured in the country where the Site is located shall be transferred to the Employer when the Plant and Equipment are loaded on to the mode of transport to be used to convey the Plant and Equipment from the works to the site and upon endorsement of the despatch documents in favour of the Employer.</p> <p>FOR DCB TENDER</p> <p>Ownership of the Plant and Equipment (including spare parts) procured in the country where the Site is located shall be transferred to the Employer when the Plant and Equipment are loaded on to the mode of transport to be used to convey the Plant and Equipment from the works to the site and upon endorsement of the despatch documents in favour of the Employer.</p>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>31.2 Ownership of the Contractor's Equipment used by the Contractor and its Subcontractors in connection with the Contract shall remain with the Contractor or its Subcontractors.</p> <p>31.3 Disposal of Surplus Material "Ownership of any Plant and Equipment in excess of the requirements for the Facilities (i.e. surplus material) shall revert to the Contractor upon Completion of the Facilities and Guarantee Test or at such earlier time when the Employer and the Contractor agree that the Plant and Equipment in question are no longer required for the Facilities, provided quantity of any Plant and Equipment specifically stipulated in the Contract shall be the property of the Employer whether or not incorporated in the Facilities. The Contractor shall remove from the site such surplus material brought by him in pursuance of the Contract, subject to the Contractor producing the necessary clearance from the relevant authorities (Customs, Excise etc.), if required by law, in respect of re-export or disposal of the surplus material locally. The liability for the payment of the applicable taxes/duties, if any, on the surplus material so re-exported and/or disposed locally shall be that of the Contractor.</p> <p>The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal/disposal of surplus material. The Indemnity-cum-Undertaking Agreement shall be furnished by contractor as per proforma enclosed in Section-VII (Part 3 of 3 - Forms and Procedures). Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the surplus material to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer."</p> <p>31.4 Notwithstanding the transfer of ownership of the Plant and Equipment, the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor pursuant to GCC Clause 32 (Care of Facilities) hereof until Completion of the Facilities or the part thereof in which such Plant and Equipment are incorporated.</p> <p>31.5 In case of two/three Contracts entered into between the Employer and the Contractor as per GCC Sub-Clause 3.6 or where the Employer hands over his equipment to the Contractor for executing the Contract, then the Contractor shall at the time of taking delivery of the Equipment through Bill of Lading or other despatch documents furnish Trust Receipt for Plant, Equipment and Materials and also execute an Indemnity-cum-Undertaking Agreement in favour of the Employer in the form acceptable to Employer for keeping the equipment in safe custody and to utilise the same exclusively for the purpose of the said Contract. Proforma for the Trust Receipt and Indemnity-cum-Undertaking Agreement is enclosed under Section-VII (Forms and Procedures). The Employer shall also issue a separate Authorisation Letter to the Contractor to enable him to take physical delivery of plant, equipment and materials from the Employer as per proforma enclosed under Section-VII (Forms and Procedures).</p>
32. Care of Facilities	
	<p>32.1 The Contractor shall be responsible for the care and custody of the Facilities or any part thereof until the date of Completion of the Facilities pursuant to GCC Clause 24 (Completion of the Facilities) or, where the</p>
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>Contract provides for Completion of the Facilities in parts, until the date of Completion of the relevant part, and shall make good at its own cost any loss or damage that may occur to the Facilities or the relevant part thereof from any cause whatsoever during such period. The Contractor shall also be responsible for any loss or damage to the Facilities caused by the Contractor or its Subcontractors in the course of any work carried out, pursuant to GCC Clause 27 (Defect Liability). Notwithstanding the foregoing, the Contractor shall not be liable for any loss or damage to the Facilities or that part thereof caused by reason of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clauses 32.2 and 38.1.</p> <p>32.2 If any loss or damage occurs to the Facilities or any part thereof or to the Contractor's temporary facilities by reason of</p> <ul style="list-style-type: none"> (a) (insofar as they relate to the country where the Site is located) nuclear reaction, nuclear radiation, radioactive contamination, pressure wave caused by aircraft or other aerial objects, or any other occurrences that an experienced contractor could not reasonably foresee, or if reasonably foreseeable could not reasonably make provision for or insure against, insofar as such risks are not normally insurable on the insurance market and are mentioned in the general exclusions of the policy of insurance, including War Risks and Political Risks, taken out under GCC Clause 34 (Insurance) hereof (b) any use or occupation by the Employer or any third party (other than a Subcontractor) authorized by the Employer of any part of the Facilities (c) any use of or reliance upon any design, data or specification provided or designated by or on behalf of the Employer, or any such matter for which the Contractor has disclaimed responsibility herein, <p>the Employer shall pay to the Contractor all sums payable in respect of the Facilities executed, notwithstanding that the same be lost, destroyed or damaged, and will pay to the Contractor the replacement value of all temporary facilities and all parts thereof lost, destroyed or damaged. If the Employer requests the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Contractor shall make good the same at the cost of the Employer in accordance with GCC Clause 39 (Change in the Facilities). If the Employer does not request the Contractor in writing to make good any loss or damage to the Facilities thereby occasioned, the Employer shall either request a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of that part of the Facilities thereby lost, destroyed or damaged, or, where the loss or damage affects a substantial part of the Facilities, the Employer shall terminate the Contract pursuant to GCC Sub-Clause 42.1 (Termination for Employer's Convenience) hereof, except that the Contractor shall have no entitlement to profit under paragraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecuted Facilities as at the date of termination.</p> <p>32.3 The Contractor shall be liable for any loss of or damage to any Contractor's Equipment, or any other property of the Contractor used or intended to be used for purposes of the Facilities, except (i) as mentioned in GCC Sub-Clause 32.2 (with respect to the Contractor's temporary</p>
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	<p>facilities), and (ii) where such loss or damage arises by reason of any of the matters specified in GCC Sub-Clauses 32.2(b) and (c) and 38.1.</p> <p>32.4 With respect to any loss or damage caused to the Facilities or any part thereof or to the Contractor's Equipment by reason of any of the matters specified in GCC Sub-Clause 38.1, the provisions of GCC Sub-Clause 38.3 shall apply.</p>
	<p>33. Loss of or Damage to Property; Accident or Injury to workers; Indemnification</p> <p>33.1 Subject to GCC Sub-Clause 33.3, the Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property (other than the Facilities whether accepted or not), arising in connection with the supply and installation of the Facilities and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Employer, its contractors, employees, officers or agents.</p> <p>33.2 If any proceedings are brought or any claim is made against the Employer that might subject the Contractor to liability under GCC Sub-Clause 33.1, the Employer shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defence of any such proceedings or claim.</p> <p>The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.</p> <p>33.3 The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from any liability for loss of or damage to property of the Employer, other than the Facilities not yet taken over, that is caused by fire, explosion or any other perils, in excess of the amount recoverable from insurances procured under GCC Clause 34 (Insurances), provided that such fire, explosion or other perils were not caused by any act or failure of the Contractor.</p> <p>33.4 The party entitled to the benefit of an indemnity under this GCC Clause 33 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the party fails to take such measures, the other party's liabilities shall be correspondingly reduced.</p>
	<p>34. Insurance</p>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>34.1 To the extent specified in Appendix 3 (Insurance Requirements) to the Contract Agreement, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurances set forth below in the sums and with the deductibles and other conditions specified in the said Appendix. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, who should not unreasonably withhold such approval.</p> <p>(a) Cargo Insurance During Transport</p> <p>Covering loss or damage occurring while in transit from the Contractor's or Subcontractor's works or stores until arrival at the Site, to the Plant and Equipment (including spare parts therefor) and to the Contractor's Equipment.</p> <p>(b) Installation All Risks Insurance</p> <p>Covering physical loss or damage to the Facilities at the Site, occurring prior to Completion of the Facilities, with extended maintenance coverage for the Contractor's liability in respect of any loss or damage occurring during the Defect Liability Period while the Contractor is on the Site for the purpose of performing its obligations during the Defect Liability Period.</p> <p>(c) Third Party Liability Insurance</p> <p>Covering bodily injury or death suffered by third parties (including the Employer's personnel) and loss of or damage to property occurring in connection with the supply and installation of the Facilities.</p> <p>(d) Automobile Liability Insurance</p> <p>Covering use of all vehicles used by the Contractor or its Subcontractors (whether or not owned by them) in connection with the execution of the Contract.</p> <p>(e) Workers' Compensation</p> <p>In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.</p> <p>(f) Employer's Liability</p> <p>In accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed.</p> <p>(g) Other Insurances</p> <p>Such other insurances as may be specifically agreed upon by the parties hereto as listed in the said Appendix 3.</p> <p>34.2 The Employer shall be named as co-insured under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 34.1, except for the Third Party Liability, Workers' Compensation and Employer's Liability Insurances, and the Contractor's Subcontractors shall be named</p>
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>as co-insureds under all insurance policies taken out by the Contractor pursuant to GCC Sub-Clause 34.1 except for the Cargo Insurance During Transport, Workers' Compensation and Employer's Liability Insurances. All insurer's rights of subrogation against such co-insureds for losses or claims arising out of the performance of the Contract shall be waived under such policies.</p> <p>34.3 The Contractor shall, in accordance with the provisions of Appendix 3 (Insurance Requirements) to the Contract Agreement, deliver to the Employer certificates of insurance (or copies of the insurance policies) as evidence that the required policies are in full force and effect. The certificates shall provide that no less than twenty-one (21) days' notice shall be given to the Employer by insurers prior to cancellation or material modification of a policy.</p> <p>34.4 The Contractor shall ensure that, where applicable, its Subcontractor(s) shall take out and maintain in effect adequate insurance policies for their personnel and vehicles and for work executed by them under the Contract, unless such Subcontractors are covered by the policies taken out by the Contractor.</p> <p>34.5 The Employer shall at its expense take out and maintain in effect during the performance of the Contract those insurances specified in Appendix 3 (Insurance Requirements) to the Contract Agreement.</p> <p>34.6 If the Contractor fails to take out and/or maintain in effect the insurances referred to in GCC Sub-Clause 34.1, the Employer may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Contractor under the Contract any premium that the Employer shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Contractor. If the Employer fails to take out and/or maintain in effect the insurances referred to in GCC 34.5, the Contractor may take out and maintain in effect any such insurances and may from time to time deduct from any amount due the Employer under the Contract any premium that the Contractor shall have paid to the insurer, or may otherwise recover such amount as a debt due from the Employer. If the Contractor fails to or is unable to take out and maintain in effect any such insurances, the Contractor shall nevertheless have no liability or responsibility towards the Employer, and the Contractor shall have full recourse against the Employer for any and all liabilities of the Employer herein.</p> <p>34.7 Unless otherwise provided in the Contract, the Contractor shall prepare and conduct all and any claims made under the policies effected by it pursuant to this GCC Clause 34, and all monies payable by any insurers shall be paid to the Contractor as per the procedure outlined in GCC Sub-Clause 34.8 below. The Employer shall give to the Contractor all such reasonable assistance as may be required by the Contractor. With respect to insurance claims in which the Employer's interest is involved, the Contractor shall not give any release or make any compromise with the insurer without the prior written consent of the Employer. With respect to insurance claims in which the Contractor's interest is involved, the Employer shall not give any release or make any compromise with the insurer without the prior written consent of the Contractor.</p>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
34.8	<p>(i) Wherever total damages/loss of equipment/material, would occur, the Contractor will be entitled to payment of all payments received from the underwriters except the following amounts:</p> <p>(a) The amount paid to the Contractor under the Contract in respect of equipment/material damaged/lost (excluding the pro-rata initial advance) but including the entire amount of escalation, if any, already paid to the Contractor.</p> <p>(b) Taxes and duties which have already been paid by the Employer.</p> <p>In the event the claim money settled, is less than the total of the amount in a & b above, then the entire claim money settled will be retained by the Employer and the Contractor will forthwith pay the Employer the short fall amount between the claim money and the total of amounts as per a & b mentioned above.</p> <p>Subsequent payments, if any, due under the Contract shall be regulated by the relevant terms of payment.</p> <p>(ii) In case of damage to any equipment/material during any stage, the Contractor upon rectification of the damaged equipment to the satisfaction of the Employer shall be paid to the extent of full claims settled by the underwriters.</p>
35. Unforeseen Conditions	<p>35.1 If, during the execution of the Contract, the Contractor shall encounter on the Site any physical conditions (other than climatic conditions) or artificial obstructions that could not have been reasonably foreseen prior to the date of the Contract Agreement by an experienced contractor on the basis of reasonable examination of the data relating to the Facilities (including any data as to boring tests) provided by the Employer, and on the basis of information that it could have obtained from a visual inspection of the Site (if access thereto was available) or other data readily available to it relating to the Facilities, and if the Contractor determines that it will in consequence of such conditions or obstructions incur additional cost and expense or require additional time to perform its obligations under the Contract that would not have been required if such physical conditions or artificial obstructions had not been encountered, the Contractor shall promptly, and before performing additional work or using additional Plant and Equipment or Contractor's Equipment, notify the Project Manager in writing of</p> <p>(a) the physical conditions or artificial obstructions on the Site that could not have been reasonably foreseen</p> <p>(b) the additional work and/or Plant and Equipment and/or Contractor's Equipment required, including the steps which the Contractor will or proposes to take to overcome such conditions or obstructions</p> <p>(c) the extent of the anticipated delay</p> <p>(d) the additional cost and expense that the Contractor is likely to incur.</p> <p>On receiving any notice from the Contractor under this GCC Sub-Clause 35.1, the Project Manager shall promptly consult with the Employer and</p>
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	<p>Contractor and decide upon the actions to be taken to overcome the physical conditions or artificial obstructions encountered. Following such consultations, the Project Manager shall instruct the Contractor, with a copy to the Employer, of the actions to be taken.</p> <p>35.2 Any reasonable additional cost and expense incurred by the Contractor in following the instructions from the Project Manager to overcome such physical conditions or artificial obstructions referred to in GCC Sub-Clause 35.1 shall be paid by the Employer to the Contractor as an addition to the Contract Price.</p> <p>35.3 If the Contractor is delayed or impeded in the performance of the Contract because of any such physical conditions or artificial obstructions referred to in GCC Sub-Clause 35.1, the Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).</p>
<p>36. Change in Laws and Regulations</p>	<p>36.1 If, after the date seven (7) days prior to the deadline set for Price Bid submission, in the country where the Site is located, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or changed (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the costs and expenses of the Contractor and/or the Time for Completion, the Contract Price shall be correspondingly increased or decreased, and/or the Time for Completion shall be reasonably adjusted to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract. However, these adjustments would be restricted to items in respect of both direct transactions between the Employer and Contractor and Bought out items (to be dispatched directly from the sub-vendor's works to NTPC Site). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the Contractor. Notwithstanding the foregoing, such additional or reduced costs shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with the Appendix 2 to the Contract Agreement.</p>
<p>37. Force Majeure</p>	<p>37.1 "Force Majeure" shall mean any event beyond the reasonable control of the Employer or of the Contractor, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected.</p> <p>37.2 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.</p> <p>37.3 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract</p>
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	<p>for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GCC Clause 40 (Extension of Time for Completion).</p> <p>37.4 The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfil its or their obligations under the Contract, but without prejudice to either party's right to terminate the Contract under GCC Sub-Clauses 37.6 and 38.5.</p> <p>37.5 No delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall</p> <p>(a) constitute a default or breach of the Contract</p> <p>(b) (subject to GCC Sub-Clauses 32.2, 38.3 and 38.4) give rise to any claim for damages or additional cost or expense occasioned thereby</p> <p>if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.</p> <p>37.6 If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute shall be resolved in accordance with GCC Clause 6.</p> <p>37.7 Notwithstanding GCC Sub-Clause 37.5, Force Majeure shall not apply to any obligation of the Employer to make payments to the Contractor herein.</p>
<p>38. War Risks</p>	<p>38.1 "War Risks" shall mean any of the following events occurring or existing in or near the country (or countries) where the Site is located:</p> <p>(a) war, hostilities or warlike operations (whether a state of war is declared or not), invasion, act of foreign enemy and civil war</p> <p>(b) rebellion, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion and terrorist acts, and</p> <p>(c) any explosion or impact of any mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war.</p> <p>38.2 Notwithstanding anything contained in the Contract, the Contractor shall have no liability whatsoever for or with respect to</p> <p>(a) destruction of or damage to Facilities, Plant & Equipment, or any part thereof</p> <p>(b) destruction of or damage to property of the Employer or any third party</p>
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	<p>(c) injury or loss of life</p> <p>if such destruction, damage, injury or loss of life is caused by any War Risks, and the Employer shall indemnify and hold the Contractor harmless from and against any and all claims, liabilities, actions, lawsuits, damages, costs, charges or expenses arising in consequence of or in connection with the same.</p> <p>38.3 If the Facilities or any Plant and Equipment or Contractor's Equipment or any other property of the Contractor used or intended to be used for the purposes of the Facilities shall sustain destruction or damage by reason of any War Risks, the Employer shall pay the Contractor for</p> <p>(a) any part of the Facilities or the Plant and Equipment so destroyed or damaged (to the extent not already paid for by the Employer)</p> <p>(b) replacing or making good any Contractor's Equipment or other property of the Contractor so destroyed or damaged so far as may be required by the Employer, and as may be necessary for completion of the Facilities,</p> <p>(c) replacing or making good any such destruction or damage to the Facilities or the Plant and Equipment or any part thereof.</p> <p>If the Employer does not require the Contractor to replace or make good any such destruction or damage to the Facilities, the Employer shall either request a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of that part of the Facilities thereby destroyed or damaged or, where the loss, destruction or damage affects a substantial part of the Facilities, shall terminate the Contract, pursuant to GCC Sub-Clause 42.1 (Termination for Employer's Convenience).</p> <p>38.4 Notwithstanding anything contained in the Contract, the Employer shall pay the Contractor for any increased costs or incidentals to the execution of the Contract that are in any way attributable to, consequent on, resulting from, or in any way connected with any War Risks, provided that the Contractor shall as soon as practicable notify the Employer in writing of any such increased cost.</p> <p>38.5 If during the performance of the Contract any War Risks shall occur that financially or otherwise materially affect the execution of the Contract by the Contractor, the Contractor shall use its reasonable efforts to execute the Contract with due and proper consideration given to the safety of its and its Subcontractors' personnel engaged in the work on the Facilities, provided, however, that if the execution of the work on the Facilities becomes impossible or is substantially prevented for a single period of more than sixty (60) days or an aggregate period of more than one hundred and twenty (120) days on account of any War Risks, the parties will attempt to develop a mutually satisfactory solution, failing which the dispute will be resolved in accordance with GCC Clause 6.</p> <p>38.6 In the event of termination pursuant to GCC Sub-Clauses 38.3, the rights and obligations of the Employer and the Contractor shall be specified in GCC Sub-Clauses 42.1.2 and 42.1.3, except that the Contractor shall have no entitlement to profit under paragraph (e) of GCC Sub-Clause 42.1.3 in respect of any unexecuted Facilities as of the date of termination.</p>
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H. Change in Contract Elements**39. Change In The Facilities****39.1 Introducing a Change**

39.1.1 The Employer shall have the right to propose, and subsequently require, that the Project Manager order the Contractor from time to time during the performance of the Contract to make any change, modification, addition or deletion to, in or from the Facilities (hereinafter called "Change"), provided that such Change falls within the general scope of the Facilities and does not constitute unrelated work and that it is technically practicable, taking into account both the state of advancement of the Facilities and the technical compatibility of the Change envisaged with the nature of the Facilities as specified in the Contract .

39.1.2 The Contractor may from time to time during its performance of the Contract propose to the Employer (with a copy to the Project Manager) any Change that the Contractor considers necessary or desirable to improve the quality, efficiency or safety of the Facilities. The Employer may at its discretion approve or reject any Change proposed by the Contractor.

39.1.3 Notwithstanding GCC Sub-Clauses 39.1.1 and 39.1.2, no change made necessary because of any default of the Contractor in the performance of its obligations under the Contract shall be deemed to be a Change, and such change shall not result in any adjustment of the Contract Price or the Time for Completion.

39.1.4 The procedure on how to proceed with and execute Changes is specified in GCC Sub-Clauses 39.2 and 39.3.

39.2 Changes Originating from Employer

39.2.1 If the Employer proposes a Change pursuant to GCC Sub-Clause 39.1.1, it shall send to the Contractor a "Request for Change Proposal," requiring the Contractor to prepare and furnish to the Project Manager as soon as reasonably practicable a "Change Proposal," which shall include the following:

- (a) brief description of the Change
- (b) effect on the Time for Completion
- (c) estimated cost of the Change
- (d) effect on Functional Guarantees (if any)
- (e) effect on any other provisions of the Contract.

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	<p>39.2.2 The pricing of any change shall, as far as practicable, be calculated in accordance with the rates and prices included in the Contract. If the rates and prices of any change are not available in the Contract, the parties thereto shall agree on specific rates for the variation of the change.</p> <p>39.2.3 If before or during the preparation of the Change Proposal it becomes apparent that the aggregate effect of compliance therewith and with all other Change Orders that have already become binding upon the Contractor under this GCC Clause 39 would be to increase or decrease the Contract Price as originally set forth in Article 2 (Contract Price) of the Contract Agreement by more than fifteen (15) percent, the Contractor may give a written notice of objection thereto prior to furnishing the Change Proposal as aforesaid. If the Employer accepts the Contractor's objection, the Employer and the Contractor shall agree on specific rates for valuation of the change.</p> <p>39.2.4 Upon receipt of the Change Proposal, the Employer and the Contractor shall mutually agree upon all matters therein contained including agreement on rates if such rates are not available in the Contract or if the limit of 15% set forth in Clause 39.2.3 has been exceeded. Within fourteen (14) days after such agreement, the Employer shall, if it intends to proceed with the Change, issue the Contractor with a Change Order.</p> <p>If the Employer is unable to reach a decision within fourteen (14) days, it shall notify the Contractor with details of when the Contractor can expect a decision.</p> <p>If the Employer decides not to proceed with the Change for whatever reason, it shall, within the said period of fourteen (14) days, notify the Contractor accordingly.</p> <p>39.2.5 If the Employer and the Contractor cannot reach agreement on the price for the Change, an equitable adjustment to the Time for Completion, or any other matters identified in the Change Proposal, the Employer may nevertheless instruct the Contractor to proceed with the Change by issue of a "Pending Agreement Change Order."</p> <p>Upon receipt of a Pending Agreement Change Order, the Contractor shall immediately proceed with effecting the Changes covered by such Order. The parties shall thereafter attempt to reach agreement on the outstanding issues under the Change Proposal.</p> <p>If the parties cannot reach agreement within sixty (60) days from the date of issue of the Pending Agreement Change Order, then the matter may be referred to the Expert Settlement Council (ESC) in accordance with the provisions of GCC Sub-Clause 6.2.</p> <p>39.3 Changes Originating from Contractor</p> <p>39.3.1 If the Contractor proposes a Change pursuant to GCC Sub-Clause 39.1.2, the Contractor shall submit to the Project Manager a written "Application for Change Proposal," giving</p>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>reasons for the proposed Change and including the information specified in GCC Sub-Clause 39.2.1.</p> <p>Upon receipt of the Application for Change Proposal, the parties shall follow the procedures outlined in GCC Sub-Clauses 39.2.4 and 39.2.5.</p> <p>40. Extension of Time for Completion</p> <p>40.1 The Time(s) for Completion specified in the SCC shall be extended if the Contractor is delayed or impeded in the performance of any of its obligations under the Contract by reason of any of the following:</p> <ul style="list-style-type: none"> (a) any Change in the Facilities as provided in GCC Clause 39 (Change in the Facilities) (b) any occurrence of Force Majeure as provided in GCC Clause 37 (Force Majeure), unforeseen conditions as provided in GCC Clause 35 (Unforeseen Conditions), or other occurrence of any of the matters specified or referred to in paragraphs (a), (b) and (c) of GCC Sub-Clause 32.2 (c) any suspension order given by the Employer under GCC Clause 41 (Suspension) hereof or reduction in the rate of progress pursuant to GCC Sub-Clause 41.2 or (d) any changes in laws and regulations as provided in GCC Clause 36 (Change in Laws and Regulations) or (e) any default or breach of the Contract by the Employer, specifically including failure to supply the items listed in Appendix 6 (Scope of Works and Supply by the Employer) to the Contract Agreement, or any activity, act or omission of any other contractors employed by the Employer or failure to give possession of site under GCC Clause 10.2. (f) any other matter specifically mentioned in the Contract; <p>by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.</p> <p>40.2 Except where otherwise specifically provided in the Contract, the Contractor shall submit to the Project Manager a notice of a claim for an extension of the Time for Completion, together with particulars of the event or circumstance justifying such extension as soon as reasonably practicable after the commencement of such event or circumstance. As soon as reasonably practicable after receipt of such notice and supporting particulars of the claim, the Employer and the Contractor shall agree upon the period of such extension. In the event that the Contractor does not accept the Employer's estimate of a fair and reasonable time extension, the Contractor shall be entitled to refer the matter to the Expert Settlement Council (ESC), pursuant to GCC Sub-Clause 6.2.</p> <p>40.3 The Contractor shall at all times use its reasonable efforts to minimize any delay in the performance of its obligations under the Contract.</p>
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	<p>40.4 Documents for Consideration of Time Extension</p> <p>The following documents shall form the principal basis for consideration of Time Extension pursuant to GCC clause 40 with or without LD, levy of liquidated damages pursuant to GCC clause 26 and settlement of extra claims during the execution of contract:</p> <ol style="list-style-type: none"> 1. The joint recordings in the weekly meetings register 2. Records of Technical Coordination Meetings. 3. Records of Contract Review meetings. 4. Written notices issued by the "Project Manager" or his authorized representative to Contractor in the relevant period.
<p>41. Suspension</p>	<p>41.1 The Employer/ Project Manager may, by notice to the Contractor, order the Contractor to suspend performance of any or all of its obligations under the Contract. Such notice shall specify the obligation of which performance is to be suspended, the effective date of the suspension and the reasons therefor. The Contractor shall thereupon suspend performance of such obligation (except those obligations necessary for the care or preservation of the Facilities) until ordered in writing to resume such performance by the Project Manager/ Employer.</p> <p>If, by virtue of a suspension order given by the Project Manager/Employer, other than by reason of the Contractor's default or breach of the Contract, the Contractor's performance of any of its obligations is suspended for an aggregate period of more than ninety (90) days, then at any time thereafter and provided that at that time such performance is still suspended, the Contractor may give a notice to the Project Manager requiring that the Employer shall, within twenty-eight (28) days of receipt of the notice, order the resumption of such performance or request and subsequently order a change in accordance with GCC Clause 39 (Change in the Facilities), excluding the performance of the suspended obligations from the Contract.</p> <p>If the Employer fails to do so within such period, the Contractor may, by a further notice to the Project Manager, elect to treat the suspension, where it affects a part only of the Facilities, as a deletion of such part in accordance with GCC Clause 39 (Change in the Facilities) or, where it affects the whole of the Facilities, as termination of the Contract under GCC Sub-Clause 42.1 (Termination for Employer's Convenience).</p> <p>41.2 If</p> <ol style="list-style-type: none"> (a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum, fails to approve such invoice or
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	<p>supporting documents or give its reasons for withholding such approval, or fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice or</p> <p>(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas in accordance with GCC Sub-Clause 10.2, or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities;</p> <p>then the Contractor may by fourteen (14) days' notice to the Employer suspend performance of all or any of its obligations under the Contract, or reduce the rate of progress.</p> <p>41.3 If the Contractor's performance of its obligations is suspended or the rate of progress is reduced pursuant to this GCC Clause 41, then the Time for Completion shall be extended in accordance with GCC Sub-Clause 40.1, and any and all additional costs or expenses incurred by the Contractor as a result of such suspension or reduction shall be paid by the Employer to the Contractor in addition to the Contract Price, except in the case of suspension order or reduction in the rate of progress by reason of the Contractor's default or breach of the Contract.</p> <p>41.4 During the period of suspension, the Contractor shall not remove from the Site any Plant and Equipment, any part of the Facilities or any Contractor's Equipment, without the prior written consent of the Employer.</p>
42. Termination	<p>42.1 Termination for Employer's Convenience</p> <p>42.1.1 The Employer may at any time terminate the Contract for any reason by giving the Contractor a notice of termination that refers to this GCC Sub-Clause 42.1.</p> <p>42.1.2 Upon receipt of the notice of termination under GCC Sub-Clause 42.1.1, the Contractor shall either immediately or upon the date specified in the notice of termination</p> <p>(a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition</p> <p>(b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d)(ii) below</p> <p>(c) remove all Contractor's Equipment from the Site, repatriate the Contractor's and its Subcontractors' personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition</p>
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	<p>(d) In addition, the Contractor, subject to the payment specified in GCC Sub-Clause 42.1.3, shall</p> <ul style="list-style-type: none"> (i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as at the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (iii) deliver to the Employer all non-proprietary drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Facilities. <p>42.1.3 In the event of termination of the Contract under GCC Sub-Clause 42.1.1, the Employer shall pay to the Contractor the following amounts:</p> <ul style="list-style-type: none"> (a) the Contract Price, properly attributable to the parts of the Facilities executed by the Contractor as of the date of termination (b) the costs reasonably incurred by the Contractor in the removal of the Contractor's Equipment from the Site and in the repatriation of the Contractor's and its Subcontractors' personnel (c) any amounts to be paid by the Contractor to its Subcontractors in connection with the termination of any subcontracts, including any cancellation charges (d) costs incurred by the Contractor in protecting the Facilities and leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC Sub-Clause 42.1.2 (e) the cost of satisfying all other obligations, commitments and claims that the Contractor may in good faith have undertaken with third parties in connection with the Contract and that are not covered by paragraphs (a) through (d) above. <p>42.2 Termination for Contractor's Default</p> <p>42.2.1 The Employer, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstances by giving a notice of termination and its reasons therefor to the Contractor, referring to this GCC Sub-Clause 42.2:</p> <ul style="list-style-type: none"> (a) if the Contractor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Contractor is a corporation, a resolution is
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Contractor takes or suffers any other analogous action in consequence of debt</p> <p>(b) if the Contractor assigns or transfers the Contract or any right or interest therein in violation of the provision of GCC Clause 43 (Assignment).</p> <p>(c) if the Contractor, in the judgement of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.</p> <p>For the purpose of this Sub-Clause :</p> <p>"corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.</p> <p>"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.</p> <p>42.2.2 If the Contractor</p> <p>(a) has abandoned or repudiated the Contract</p> <p>(b) has without valid reason failed to commence work on the Facilities promptly or has suspended (other than pursuant to GCC Sub-Clause 41.2) the progress of Contract performance for more than twenty-eight (28) days after receiving a written instruction from the Employer to proceed</p> <p>(c) persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause</p> <p>(d) refuses or is unable to provide sufficient materials, services or labour to execute and complete the Facilities in the manner specified in the program furnished under GCC Clause 18 (Program of Performance) at rates of progress that give reasonable assurance to the Employer that the Contractor can attain Completion of the Facilities by the Time for Completion as extended</p> <p>then the Employer may, without prejudice to any other rights it may possess under the Contract, give a notice to the Contractor stating the nature of the default and requiring the Contractor to remedy the same. If the Contractor fails to remedy or to take steps to remedy the same within fourteen (14) days of its receipt of such notice, then the Employer may terminate the Contract forthwith by giving a notice of</p>

Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>termination to the Contractor that refers to this GCC Sub-Clause 42.2.</p> <p>42.2.3 Upon receipt of the notice of termination under GCC Sub-Clauses 42.2.1 or 42.2.2, the Contractor shall, either immediately or upon such date as is specified in the notice of termination,</p> <ul style="list-style-type: none"> (a) cease all further work, except for such work as the Employer may specify in the notice of termination for the sole purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition (b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d) below (c) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (d) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Works and to the Plant and Equipment as at the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (e) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as at the date of termination in connection with the Facilities. <p>42.2.4 The Employer may enter upon the Site, expel the Contractor, and complete the Facilities itself or by employing any third party. The Employer may, to the exclusion of any right of the Contractor over the same, take over and use with the payment of a fair rental rate to the Contractor, with all the maintenance costs to the account of the Employer and with an indemnification by the Employer for all liability including damage or injury to persons arising out of the Employer's use of such equipment, any Contractor's Equipment owned by the Contractor and on the Site in connection with the Facilities for such reasonable period as the Employer considers expedient for the supply and installation of the Facilities.</p> <p>Upon completion of the Facilities or at such earlier date as the Employer thinks appropriate, the Employer shall give notice to the Contractor that such Contractor's Equipment will be returned to the Contractor at or near the Site and shall return such Contractor's Equipment to the Contractor in accordance with such notice. The Contractor shall thereafter without delay and at its cost remove or arrange removal of the same from the Site.</p> <p>42.2.5 Subject to GCC Sub-Clause 42.2.6, the Contractor shall be entitled to be paid the Contract Price attributable to the Facilities executed as at the date of termination, the value of any unused or partially used Plant and Equipment on the Site, and the costs, if any, incurred in protecting the Facilities and in leaving the Site in a clean and safe condition pursuant to paragraph (a) of GCC</p>
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
	<p>Sub-Clause 42.2.3. Any sums due to the Employer from the Contractor accruing prior to the date of termination shall be deducted from the amount to be paid to the Contractor under this Contract.</p> <p>42.2.6 If the Employer completes the Facilities, the cost of completing the Facilities by the Employer shall be determined.</p> <p>If the sum that the Contractor is entitled to be paid, pursuant to GCC Sub-Clause 42.2.5, plus the reasonable costs incurred by the Employer in completing the Facilities, exceeds the Contract Price, the Contractor shall be liable for such excess.</p> <p>If such excess is greater than the sums due to the Contractor under GCC Sub-Clause 42.2.5, the Contractor shall pay the balance to the Employer, and if such excess is less than the sums due to the Contractor under GCC Sub-Clause 42.2.5, the Employer shall pay the balance to the Contractor.</p> <p>The Employer and the Contractor shall agree, in writing, on the computation described above and the manner in which any sums shall be paid.</p> <p>42.3 Termination by Contractor</p> <p>42.3.1 If</p> <p>(a) the Employer has failed to pay the Contractor any sum due under the Contract within the specified period, has failed to approve any invoice or supporting documents without just cause pursuant to Appendix 1 (Terms and Procedures of Payment) of the Contract Agreement, or commits a substantial breach of the Contract, the Contractor may give a notice to the Employer that requires payment of such sum, requires approval of such invoice or supporting documents, or specifies the breach and requires the Employer to remedy the same, as the case may be. If the Employer fails to pay such sum, fails to approve such invoice or supporting documents or give its reasons for withholding such approval, fails to remedy the breach or take steps to remedy the breach within fourteen (14) days after receipt of the Contractor's notice, or</p> <p>(b) the Contractor is unable to carry out any of its obligations under the Contract for any reason attributable to the Employer, including but not limited to the Employer's failure to provide possession of or access to the Site or other areas or failure to obtain any governmental permit necessary for the execution and/or completion of the Facilities which the Employer is required to obtain as per provision of the Contract or as per relevant applicable laws of the country,</p> <p>then the Contractor may give a notice to the Employer thereof, and if the Employer has failed to pay the outstanding sum, to approve the invoice or supporting documents, to give its reasons for withholding such approval, or to remedy the breach within twenty-eight (28) days of such notice, or if the Contractor is still</p>
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	<p>unable to carry out any of its obligations under the Contract for any reason attributable to the Employer within twenty-eight (28) days of the said notice, the Contractor may by a further notice to the Employer referring to this GCC Sub-Clause 42.3.1, forthwith terminate the Contract.</p> <p>42.3.2 The Contractor may terminate the Contract forthwith by giving a notice to the Employer to that effect, referring to this GCC Sub-Clause 42.3.2, if the Employer becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, being a corporation, if a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Employer takes or suffers any other analogous action in consequence of debt.</p> <p>42.3.3 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, then the Contractor shall immediately</p> <ul style="list-style-type: none"> (a) cease all further work, except for such work as may be necessary for the purpose of protecting that part of the Facilities already executed, or any work required to leave the Site in a clean and safe condition (b) terminate all subcontracts, except those to be assigned to the Employer pursuant to paragraph (d)(ii) (c) remove all Contractor's Equipment from the Site and repatriate the Contractor's and its Subcontractor's personnel from the Site (d) In addition, the Contractor, subject to the payment specified in GCC Sub-Clause 42.3.4, shall <ul style="list-style-type: none"> (i) deliver to the Employer the parts of the Facilities executed by the Contractor up to the date of termination (ii) to the extent legally possible, assign to the Employer all right, title and benefit of the Contractor to the Facilities and to the Plant and Equipment as of the date of termination, and, as may be required by the Employer, in any subcontracts concluded between the Contractor and its Subcontractors (iii) deliver to the Employer all drawings, specifications and other documents prepared by the Contractor or its Subcontractors as of the date of termination in connection with the Facilities. <p>42.3.4 If the Contract is terminated under GCC Sub-Clauses 42.3.1 or 42.3.2, the Employer shall pay to the Contractor all payments specified in GCC Sub-Clause 42.1.3 and reasonable compensation for all loss or damage sustained by the Contractor arising out of, in connection with or in consequence of such termination.</p>

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	<p>42.3.5 Termination by the Contractor pursuant to this GCC Sub-Clause 42.3 is without prejudice to any other rights or remedies of the Contractor that may be exercised in lieu of or in addition to rights conferred by GCC Sub-Clause 42.3.</p> <p>42.4 In this GCC Clause 42, the expression "Facilities executed" shall include all work executed, Installation Services provided, any or all Plant and Equipment acquired (or subject to a legally binding obligation to purchase) by the Contractor and used or intended to be used for the purpose of the Facilities, up to and including the date of termination.</p> <p>42.5 In this GCC Clause 42, in calculating any monies due from the Employer to the Contractor, account shall be taken of any sum previously paid by the Employer to the Contractor under the Contract, including any advance payment paid pursuant to Appendix 1 (Terms and Procedures of Payment) to the Contract Agreement.</p>
43. Assignment	<p>43.1 The Contractor shall not, without the express prior written consent of the Employer, assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or that may become due and payable to it under the Contract.</p>
44. Contractor Performance Feedback and Evaluation System	<p>The Employer has in place an established 'Contractor Performance and Feedback System' against which the Contractor's performance during the execution of Contract shall be evaluated on a continuous basis at regular intervals. In case the performance of the Contractor is found unsatisfactory on any of the following four parameters, the Contractor shall be considered ineligible for participating in future tenders for two years.</p> <ul style="list-style-type: none"> * Financial Status * Project Execution and Project Management Capability. * Engineering & QA Capability * Claims & Disputes <p>On completion of above ineligibility period, the Contractor would be required to submit a request to NTPC for participating in future tenders specifying the measures taken to improve their performance. On receipt of such request, the performance of contractor shall be assessed/ re-evaluated by NTPC and if the performance is found to be satisfactory, the Contractor shall be considered eligible for participation in future tenders.</p>
45. Fraud Prevention Policy	<p>"The contractor along with their associate / collaborator / subcontractors / sub-vendors / consultants / service providers shall strictly adhere to the Fraud Prevention policy of the Employer displayed on its tender website http://www.ntpctender.com. The Contractor along with their associate /</p>
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Clause No.	GENERAL CONDITIONS OF CONTRACT (GCC)
<p>46.</p> <p>Withholding/ Banning</p>	<p>collaborator / subcontractors / sub-vendors / consultants / service providers shall observe the highest standard of ethics and shall not indulge or allow anybody else working in their organization to indulge in fraudulent activities during execution of the contract. The contractor shall immediately apprise the Employer about any fraud or suspected fraud as soon as it comes to their notice.</p> <p>The Employer has in place a Policy for withholding and Banning of Business Dealings as enclosed at Annexure-II to Special Conditions of Contract (SCC) of the Bidding Documents. Business dealings may be withheld or banned with the Contractor on account of any Default by the Contractor under GCC Clause 42.2.1 & 42.2.2 or any of the grounds as detailed in the said Banning Policy.</p>

PERFORMANCE REPORT OF CONTRACTOR

GUIDELINES FOR FILLING THE FORMAT

- 1.0 The feedback shall be based on records, evidences and documents (hindrance register, DPR, monthly PRT MoM, contractor's MPR, etc). Due diligence shall be taken to capture the actual progress, hindrances, if any from the monthly progress report to be submitted by the concerned agency. As Daily Progress Report / Weekly Progress Report / Monthly Progress Report are key documents / inputs for Vendor Performance measurement. Non-submission of the aforesaid documents may also be reckoned as poor performance.
- 2.0 For measurement of contractor performance in various activities in supply, site execution etc, the Contractor shall submit quantified L-2 schedule within 3 months after scheduled completion of Basic Engg or 180 days from date of award, whichever is earlier. Based on the progress of detailed Engg, quantified L-2 shall be updated as and when required.
- 3.0 This vendor performance rating system is applicable for a particular package being executed by the vendor. If the same vendor is executing multiple packages in a project or at number of NTPC projects, the performance report shall be prepared package wise and the screening committee may then take a final view for evaluating the overall performance of the vendor before initiating action for issuance of Notice for Withholding of business dealings with the concerned contractor, in case the performance is found unsatisfactory.

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PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR ENGG & QA SCORE

(TO BE FILLED IN BY NTPC ENGG.)

S.No.	Parameters	Max Score (A)	Act % age w.r.t. sch (B)	Marks obtained (C) = (A)x(B)
(i)	%age of “ Approval ” category drgs/ docs submitted within submission schedule.	30		
(ii)	%age of “ Information ” category drgs/ docs submitted within submission schedule.	20		
(iii)	%age of drgs/docs approved within approval schedule (in Cat-I/IV)*	20		
(iv)	%age of drgs/docs approved within approval schedule (in Cat-II/IVR)*	20		
(v)	%age of Sub-vendor proposal for items identified in “DR” category & submitted within agreed schedule (i.e. 3 months prior to schedule date of ordering identified in L2)**	10		
	TOTAL	100		

* For (iii) & (iv) above - If all drawings/documents due for approval are approved in Cat-I/IV within approval schedule, then marks allocated against (iii) & (iv) above shall be clubbed for calculation purpose.

** In case no “DR” proposal is submitted and orders are placed on already approved vendors, then full marks shall be given for calculation purpose against item (v).

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PROJECT	
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FORMAT FOR FINANCE SCORE

(TO BE FILLED IN BY NTPC PP&M PRT COORDINATOR ON MONTHLY BASIS DURING PRT MEETING, BASED ON DETAILS TO BE FURNISHED BY NTPC SITE P&S)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C) = (A) *(B)
(i)	Number of instances NTPC has to issue Comfort letters to sub-vendors for getting supplies.	25		
(ii)	Number of instances vendor has requested for advance against BG from NTPC (beyond contractual provision)	25		
(iii)	Number of instances of supply delay beyond 1 month after issuance of MDCC.	25		
(iv)	Number of instances of direct supply / diversion of materials / consumables by NTPC.	25		
	TOTAL	100		

*Performance to be captured by NTPC PP&M PRT Coordinator on monthly basis during PRT Meeting, based on details to be furnished by site P&S.

*(No instances = 100%

Up to 1 instance = 50%

more than 1 instances = 0%).

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FORMAT FOR SUPPLY SCORE

(TO BE FILLED IN BY NTPC CONTRACTS)

S. no	Parameters	Max Score (A)	Actual % w.r.t. L2 schedule (B)	Marks Obtained (C) = (A) *(B)
(i)	Ordering of Bought out items as per approved L2 network*			
	Major Bought out items	20		
	Minor Bought out items	5		
	Number of instances of cancellation / changes of Bol orders (No instances = 100% Up to 1 instances = 50% more than 1 instances = 0%).	10		
(ii)	Supply of Main Equipment per approved L2 network	60		
(iii)	Supply of Mandatory spares as per approved L2 network	5		
	TOTAL	100		

*If Major & Minor Bought out items are not separately identified in L-2 network then both shall be clubbed into single line item with Max score of 25.

Note: Overall % of actual progress vis-à-vis L2 schedule in Col (B) shall be arrived in the following manner:

- (i) Let there be n type of Items/systems identified in L2/Quantified L2 schedule i.e. E1, E2, E3En.
- (ii) Let % progress for each type of Item/system vis-à-vis L2 schedule be %E1, %E2, %E3.....%En.
- (iii) Overall % in Col (B) = (%E1+ %E2+ %E3.....+%En)/n

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PROJECT	
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FORMAT FOR CONSTRUCTION/INSTALLATION SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% of actual vis-à-vis L2 schedule (B)	Marks Obtained (C)=(A) *(B)
(i)	Physical progress i.e. Installation of equipment / item, Civil works (i.e. Excavation, RCC, Piling, etc), Structural Works (i.e. Structural Fabrication, Erection, etc) as per approved L2 network	95		
(ii)	Project Management Capability and resource Management by Vendor at site. (5 Negative marks per instance)			
	Number of instances of delay due to inadequate deployment of equipment and T&P, based on record maintained in hindrance register, monthly PRT MoM, contractor's MPR, etc.	(-)5		
	Number of instances of direct payment by NTPC to Contractor's sub-vendors to expedite supplies / services / the progress of work at site affected due to strike / delay in payments to labourers.	(-)5		
(iii)	Submission of Monthly Report in specified formats.	5		
	TOTAL	100		

Details of Area-wise performance is mentioned below:

Sr No.	Activities	Scope	L2 Finish Date	Actual Completed till L2 Finish	%age Comp
1	Excavation				
2	RCC				
3	Structural / Equipment Erection				
				Avg Comp %	

Note: For Physical Progress, overall % of actual progress vis-à-vis quantified L2 schedule in Col (B) shall be arrived in the following manner (Unit of measurement shall be as per approved BBU for respective activities):

- (i) Let there be n category of works identified in L-2/Quantified L2 schedule i.e. W1, W2, W3Wn.**
- (ii) Let % progress for each category of work vis-à-vis L2 schedule be %W1, %W2, %W3.....%Wn.**
- (iii) Overall %in Col (B) = (%W1+ %W2+ %W3.....+%Wn)/n**

Note:

- All incidences shall be relevant to the current performance evaluation cycle.
- In case of delay in front (including construction drawings for civil packages and other inputs, if any) release by NTPC, measurement of delay in execution by the contractor shall be normalized proportionally.
- Contractor will have to submit monthly progress report capturing actual physical progress viv-a-vis L2 schedule and delay in hand over of front by NTPC, if any. In case of front delay the same has to be jointly signed by NTPC engineer & Vendor.

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FORMAT FOR QUALITY SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	Availability of Testing facilities (Available as per contractual requirement – 100% Not available – 0%)	25		
(ii)	Preventing recurrence of defects/complaints (up to 5 cases – 100%, Up to 10 cases – 40%, more than 10 cases – 0%)	25		
(iii)	Proper Storage & Preservation of Equipment/Material (Nil violation – 100%, Up to 1 case of violation – 40%, more than 1 cases of violation – 0%)	25		
(iv)	Deployment of Qualified Quality Officers/Manpower as per Contract (% deployment w.r.t. contractual requirement)	25		
	TOTAL	100		

PROJECT	
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FORMAT FOR SAFETY SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	Having safety policy and approved Safety Assurance Plan (available as per requirement – 100%, Not-available – 0%)	10		
(ii)	Violation of safety requirement as per Safety Assurance Plan. (0 violation = 100% Upto 3 violations = 50% more than 3 = 0%)	20		
(iii)	No. of incidence of Fatal accidents due to contractor's negligence (0 incidence = 100% 1 incidence = 50% more than 1 cases, or multiple fatalities in one instance = 0%)	50		
(iv)	No. of incidence of Non-Fatal accidents due to contractor's negligence (0 incidence = 100% Up to 5 incidence = 50% more than 5 = 0%)	10		
(v)	Deployment of Qualified Safety Officers as per contract (% deployment w.r.t. contractual requirement)	10		
	TOTAL	100		

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

FORMAT FOR CLAIMS & DISPUTE SCORE

(TO BE FILLED IN BY NTPC SITE)

S. no	Parameters	Max Score (A)	% Rating (B)	Marks Obtained (C)=(A) *(B)
(i)	No. of cases where Contractor stopped work on account of non-admittance/non settlement of claims (No case = 100% Upto 3 cases = 50% more than 3 cases = 0%)	70		
(ii)	No. of arbitration/legal cases resorted to by the Contractor (No case – 100%, otherwise 0%)	30		
	TOTAL	100		

PROJECT	
PACKAGE	
CONTRACTOR	
PACKAGE AWARD DATE	
PACKAGE COMPLETION DATE	

Overall Performance Evaluation

S.No.	Parameters	Max Score (A)	Score Obtained (B)	Weightage (C)	Max Weighted Score (D) = (A)*(C)	Weighted Score obtained (E) = (B)*(C)
(i)	Engineering & QA	100		0.20	20	
(ii)	Finance	100		0.20	20	
(iii)	Supply	100		0.20	20	
(iv)	Construction/Installation	100		0.20	20	
(v)	Quality	100		0.05	05	
(vi)	Safety	100		0.10	10	
	Claims & Disputes	100		0.05	05	
	Total			1.00	100	

Note: In case of Civil Contracts, score of Engineering & QA and Supply shall be NIL and weightage of Construction/Installation shall be 0.60.

Performance Rating

Total Weighted Score obtained	Performance Grade
Upto 50	Unsatisfactory
>50 to 70	Satisfactory
>70 to 80	Good
>80	Excellent



NTPC Limited

(A Government of India Enterprise)

CPG-1,Raipur

Plot No. -87, Sector-24, Atal Nagar Nava Raipur

RAIPUR

Chhattisgarh- 492018, India

Telephone No. : 0771-2544505 Fax No. : 0771- 2544550

TIN No : 22521704180

ENQUIRY TO VENDORS AS PER ATTACHED ANNEXURE

NIT Number	:	9900236202/035/1041
NIT Date	:	11.03.2022
Technical Bid Opening Date	:	25.03.2022
EMD Amount in INR	:	100,000.00
EMD Amount in US\$:	Not Applicable
Bid Opening Date	:	27.03.2022

Subject: (i) Design, Supply, Erection, Testing and Commissioning of 265 KWp Roof top solar system with integrated grid and (ii) O&M for 05 (five) years at NTPC Bongaigaon.

Dear Sir,

With reference to your request for issue of tender documents vide your letter number , the tender papers consisting of the following documents are enclosed.

Tender Document consist of no. of pages.

Your offer should reach this office latest by 23:30:00 Hrs on BOD.

Tender shall be submitted in sealed envelope by Regd post/Hand Delivery super scribing Enquiry No. & Date, Bid Opening Date and EMD Details.

Thanking You,

For & behalf of NTPC Limited

Mohammad Maniruddin DGM CnM
USSC CPG-1,Raipur

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NIT No.: 9900236202/035/1041

(Contracts Services)

(Bid Proposal Sheet)

Name of Work: (i) Design, Supply, Erection, Testing and Commissioning of 265 KWp Roof top solar system with integrated grid and (ii) O&M for 05 (five) years at NTPC Bongaigaon.

Delivery Address:

Bongaigaon Thermal Power Project
PO Salakati, Dist Kokrajhar
Salakati
Assam
783369
India
0771-2544505
0771- 2544550

SI No.	Code	Description	Unit	Quantity	Rate	Amount	Long Text
10		Main eqpt supply for 265KWp solar PV		#####	#####	#####	
10.10		Supply of materials for 60KWP solar PV	AU	2			
10.10	Rate In Words :						
10.20		Supply of materials for 50KWP solar PV	AU	2			
10.20	Rate In Words :						
10.30		Supply of materials for 45KWP solar PV	AU	1			
10.30	Rate In Words :						
UOM Legends:- AU - Activity unit AU - Activity unit							

(Signature of Buyer's Representative)

(Signature of Supplier/Contractor)

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NIT No.: 9900236202/035/1041

SI No.	Code	Description	Unit	Quantity	Rate	Amount	Long Text
20		E&C of 265 KWp rooftop solar PV system		#####	#####	#####	
20.10		E&C of 60KWP rooftop solar PV system	AU	2			
20.10	Rate In Words :						
20.20		E&C of 50KWp rooftop solar PV system	AU	2			
20.20	Rate In Words :						
20.30		E&C of 45KWp rooftop solar PV system	AU	1			
20.30	Rate In Words :						
UOM Legends:- AU - Activity unit AU - Activity unit							

(Signature of Buyer's Representative)

(Signature of Supplier/Contractor)

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SI No.	Code	Description	Unit	Quantity	Rate	Amount	Long Text
30		Compliance of safety aspects		#####	#####	#####	
30.10		Compliance of safety aspects	AU	1			
30.10	Rate In Words :						
UOM Legends:- AU - Activity unit AU - Activity unit							

(Signature of Buyer's Representative)

(Signature of Supplier/Contractor)

NTPC Limited

(A Government of India Enterprise)

NIT No.: 9900236202/035/1041

SI No.	Code	Description	Unit	Quantity	Rate	Amount	Long Text
40		O&M for 5 years		#####	#####	#####	
40.10		O&M for 5 years	AU	1			
40.10	Rate In Words :						
UOM Legends:- AU - Activity unit AU - Activity unit							
GRAND TOTAL in Figure:							
GRAND TOTAL in Words:							

(Signature of Buyer's Representative)

(Signature of Supplier/Contractor)

NTPC Limited

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NIT No.: 9900236202/035/1041**SCOPE OF WORK****00010:Main eqpt supply for 265KWp solar PV**

Installation of grid connected Solar PV Project on Rooftop of Various buildings of NTPC Bongaigaon Township.

Total Estimated Solar PV Capacity: 265KWp

SCOPE OF WORK & TERMS CONDITIONS

The Solar Photo Voltaic (PV) installation on Rooftop of various buildings of the Township shall be carried out preferably on shadow free area in such a way that the generation is maximized on each building suitable for installation of Solar PV power plants.

List of buildings identified by NTPC for installation of rooftop Solar PV power are as follow and the bidder shall consider utilizing all the rooftops for installing solar PV project.

1. Hospital Building.
2. Administrative Building.
3. SBI Building.
4. Heavy Material Store
5. Community Centre
6. Ladies Club & Bal Bhawan Building

However, the bidder is advised to visit the plant to ascertain site conditions prior to bidding in order to avoid any uncertainty or ambiguity later.

NTPC reserves the right to add/reduce one or more building(s) and change rooftop area available on any of the building(s) during the course of execution of the contract depending on the prevailing circumstances. The resulting variation in the actual Solar PV plant capacity with respect to estimated capacity as above and consequent variation in contract prices shall be in proportion with the quoted unit rate basis (cost quoted per KWp).

Bidder to do assessment for water connection from our existing service during site survey. Bidder also to do assessment of expansion joints and door opening etc. for capacity finalization. Material handling / lifting equipment shall be arranged by agency and there should be no any dependency on NTPC.

Standard Quality plan has been uploaded in the system. The successful bidder after award the contract shall have to submit their own quality plan based on standard quality plan of NTPC against equipment & items covered in Serial No-15 for our approval.

1. SCOPE OF WORK

1.1 Determination of optimal grid connected roof-top Solar PV power plants capacity on all the Buildings listed above.

1.2 Complete design, engineering, manufacture, inspection, supply, transportation, storage, insurance, civil work, erection, testing and commissioning of the grid connected rooftop Solar PV plants including all auxiliaries. The scope of work shall also include O&M for 5 years.

1.3 All materials, manpower, scaffolding materials, machinery tools and tackles, transportation & loading/unloading, packaging and unpacking, safe storage etc. shall be provided by Contractor. Scope shall cover all type of transportation of materials inside the working site and man power etc. required to execute and complete the work. The contractor shall also provide all required safety PPEs to all its workers that would be mobilized for installation purpose and has to adhere to all safety regulations strictly. Moreover, the area at which the work is executed shall be cleaned properly and cleared off all debris to the satisfaction of NTPC representative post completion of erection activities.

1.4 Suitable arrangement for metering of output from each solar PV feeder.

1.5 Termination of the solar PV feeder at owners# LT switchgear panels or lighting panels.

1.6 As per connectivity regulation for renewable energy plants notified by CEA, measurement of Total Harmonics Distortion, DC injection and Flicker at point of connection is to be done annually. Contractor shall arrange, on its own, one set of necessary measuring instruments on returnable basis and carry out these tests at least once during the O&M period.

1.7 Providing a suitable Solar PV module cleaning & water washing system. Bidder shall also provide for water connection from the nearest service water line with necessary pumping arrangement and provide adequate number of water taps with isolating valves depending on the roof area.

1.8 The successful bidder on award of contract shall warrant the faithful performance of all equipment of the plant as per Clause 13 (A) of technical specifications.

1.9 Take suitable action to prevent modules getting defaced due painting and other ongoing activities at being undertaken at height.

1.10 Facilitating statutory approvals related to the installation including CEIG clearance, if applicable, and associated incidental/ logistical expenses.

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1.11 Facilitate in the submission of application for getting Approval and clearances required from Government departments, wherever applicable

1.12 Bidder to dispose of the packing material, surplus items, unused materials, waste etc. generated during EPC at location(s) identified by NTPC.

2. TECHNICAL SPECIFICATIONS

Solar PV system shall consist of following equipment/components.

I. Solar PV crystalline modules

II. Module Mounting Structures (MMS) and Civil Structures

III. String Monitoring Units

IV. PCU / String Inverter

V. Transformers (it is required only if there is substantial and frequent difference in voltage between output of inverter and the bus voltage of the feeder to which the solar PV system shall be connected)

VI. Cables

VII. Suitable metering arrangement 0.5 class MFM/meter or meter as per specification

VIII. Earthing and lightning protections

IX. Conduits, pipes and accessories

X. Suitable ACB's/MCCB or LBS and ACDB's.

3. SOLAR PHOTO-VOLTAIC (PV) MODULES

3.1 The Solar PV modules must conform to the latest edition of IEC 61215 / IS14286 for Crystalline Silicon Terrestrial PV Modules design qualification and type approval.

3.2 The capacity of each of the solar module shall not be less than 200 Wp and no negative tolerance from quoted power rating on solar module shall be allowed.

3.3 Module should have visual distinct identification mark based on the measured output in a band of maximum 3 Wp. The glass used for making module shall be minimum 3.2mm thickness. Each string shall have identical Wp rating Solar PV modules. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 - requirements for testing for safety qualification or Equivalent IS. Module should also comply to IEC-61701 for salt mist testing. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 - requirements for testing for safety qualification or Equivalent IS. Module should also comply to IEC-61701 for salt mist testing.

The offered Solar PV module design series as per type certificate must have been in successful operation for at least six months as on date of submission of Techno Commercial Bid.

Each PV module used must have a Radio Frequency Identification Tag (RFID) capable of withstanding harsh environmental conditions carrying technical details of the Module.

4. MODULE MOUNTING STRUCTURE (MMS)

4.1 Solar PV Module shall be suitably inclined to receive optimum insolation at the site. To accommodate more capacity and maximizing generation output, the angle inclination may be optimized to achieve the best performance requirements. However, the overall layout of solar PV modules shall provide for minimum 1200 mm wide clear pathway along the roof parapet for facilitating easy access and movement of maintenance personnel with equipment. Inter row gap should be at least 1000 mm.

4.2 Module Mounting Structures must be suitable to mount the Solar PV Modules on the roof top, at an angle of tilt with the horizontal in accordance with the latitude of the place of installation preferably with a Fixed Tilt angle.

4.3 The Module Mounting Structure support and fixation arrangement shall be designed in such a way that it does not damage or deteriorate the strength, durability and performance of the roof including water proofing carried out on the roof.

4.4 Type of mounting arrangement shall be selected depending on the load bearing capacity of roof and applicable wind load at the roof level. For wind data, refer Wind Data as given in Annexure A.

4.5 Roof of Main power house and Permanent Store Building consist of Metal Deck sheet with 40mm concrete cover over it.

4.6 The bidder therefore, shall provide module mounting arrangement with self-standing holding-down blocks/skids to be positively located right above the purlins of these buildings. Indicative support arrangement detail of solar panels on roofs with metal deck shuttering & on roofs with RCC slab are attached as Annexure-B. In case offered support structure is of MS type then, the frames and the complete leg assemblies of the array structures shall be Hot Dip Galvanized. Thickness of galvanization will be IS-4759 or relevant standard. In case offered support structure is of Aluminium Alloy necessary protection shall be provided anodization. The grade of anodic coating shall be C25 as per IS: 1868.

4.7 Module Mounting Structures shall be designed to withstand the extreme weather conditions in the area. The risk coefficient factor (K1) shall be taken as 1.05. The terrain factor (K2) and topography factor (K3) shall be as per IS 875.

4.8 All fasteners including Nut & Bolts shall be of Stainless steel - SS 304. Other hardware will have to be adequately protected against all climatic condition.

4.9 The complete MMS, suitable supporting base/foundation and connections shall be designed & submitted for NTPC approval before start of manufacture / fabrication of MMS.

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4.10 The construction methodology shall also be submitted for NTPC approval before start of works.

5. CABLES AND CONNECTIONS

5.1 The cables used in the system should be ISI marked PVC or XLPE insulated FRLS Copper/aluminium conductor. Cables of various sizes as per load requirement for connecting all the modules / arrays to Junction Boxes and from Junction Boxes to DC distribution box and from DC distribution box to inverter. Cables shall be armoured type if laid in switchyard area or directly buried.

5.2 Cables for use at the DC-side of PV system shall meet the requirements of TUV standard 2 PfG 1190/5.18 or EN-50618 or other equivalent standard.

5.3 Suitable rigid conduits shall be provided for cables connecting Solar PV array with Inverter. All cable entry to and from Inverter must be able to prevent access of rodents, termites and other insects into the Inverter.

5.4 The permissible voltage drop from the Solar PV Module to the Inverter shall not be more than 2% of peak power voltage of source.

5.5 All electronic connections of inverter should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed.

5.6 Extensive wiring and terminations (connection points) for all Solar PV components is needed along with electrical connection to grid injection point.

5.7 Bidder can use existing cable tray and trestle subject to NTPC approval, wherever cable tray is not available or suitable for placement of additional cables, the bidder shall provide cable trays.

6. PCU / STRING INVERTOR

PCU/ String Inverter of minimum 90% of Solar Field name plate capacity should be provided to convert DC power produced by Solar PV modules to AC power. The PCU / String Inverter should be grid interactive and the output should be compatible with the grid frequency. Typical technical features of the PCU / String Inverter shall be as follows:

6.1 PCU / String Inverter shall be transformer less design with minimum euro efficiency of 97%.

6.2 PCU / String Inverter shall have MPPT features and may be selected in a way to keep string voltage within MPPT range under all temperature conditions from 10 deg to 50deg ambient.

6.3 The String Inverter shall be suitable for parallel operation with Total Harmonics Distortion of current less than 4% at 50% load.

6.4 PCU / String shall be capable of operation at at design ambient temperature of at least 50 deg C without any deration.

6.5 PCU / String Inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.

6.6 Built-in meter at PCU / String Inverter and data logger to monitor plant performance through external computer shall be provided. Customized solar monitoring solutions available with Inverter manufacturer shall be preferred.

6.7 The PCU / String Inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC61683 and IEC 60068.

6.8 The PCU / String Inverters should comply with IEC-61727 or IEC-62116 or equivalent standard for grid connectivity.

6.9 The protection class of electronics components of string inverter should be IP 65(for outdoor) and balance of system of string inverter shall be IP 54 (indoor). For other components i.e. ACDB, DCDB etc, the specification in the relevant clauses of the document shall prevail. The PCU / String Inverters should be tested from NABL/BIS accredited testing-calibration laboratories or MNRE approved test centre or international testing laboratories such as TUV, Intertek, UL etc.

6.10 For all buildings, only String Inverters may be specified. All PCU / String Inverters should be 3-phase inverters

6.11 In case combiner box is used, the enclosure shall be Flammability Fire Retardant, Halogen free and UV resistant with IP 55 class or better.

6.12 PCU / String Inverter shall have provision of taking auxiliary power supply from its own output terminals.

7. TRANSFORMER

Isolation/Step up/step-down Transformer shall be converter duty suitable for solar inverter application., the transformer shall be dry type of suitable voltage rating, 50 Hz shall be provided along with all protections, switchgears, circuit breakers, cables etc. and required civil work. The rating and vector group shall be as per inverter manufacturer recommendation.

If the output of the inverter matches to the switchgear voltage and suitable for directly connection to grid without galvanic isolation, the requirement of transformer may still be included for all buildings.

Dry Type Transformer shall be constructed in accordance to IS:2026, IS:11171, Indian Electricity Act 2003, BEE Guideline & CEA notifications and equivalent to any other transformer rating and all related technical parameters including tap changer (if applicable) shall be as per system requirement/SLD and relevant standards. It shall be suitable for continuous indoor/outdoor duty application. Transformer shall be complete & functional in all respect. The other important construction particulars shall be as below.

7.1 The transformers shall be housed in a metal protective housing, having a degree of protection of IP-42. The enclosure shall be provided with suitable hardware (as required).

7.2 The conductors shall be of electrolytic grade copper free from scales & burrs.

7.3 Dry Type Transformer windings shall be of class F insulation or better.

7.4 The core shall be constructed from non-ageing, cold rolled, grain oriented silicon steel laminations.

7.5 The maximum losses for dry type transformer shall not be more than the values specified in latest energy conservation

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building code (ECBC) of BEE.

7.6 The fittings/accessories including protection/monitoring device generally required for satisfactory operation of the transformer, are to be provided.

7.7 Suitable rain shed arrangement shall be provided to keep transformer under that arrangement

7.8 Painting shall be as per employer's requirement (will be finalized during detailed engineering)

7.9 Type and routine test shall be conducted as per IS11171

7.10 In case the bidder/contractor has conducted such specified type test(s) within last ten years as on the date of bid opening, he may submit the type test reports to the owner for waiver of conductance of such type test(s). These reports should be for the test conducted on the equipment similar to those proposed to be supplied under this contract and test(s) should have been either conducted at an independent laboratory or should have been witnessed by client.

In case the bidder is not able to submit report of the type test(s) conducted within last ten years from the date of bid opening, or in case the type test report(s) are not found to be meeting the specification requirements the bidder shall conduct all such tests under this contract at no additional cost to the employer and submit the test reports.

8. INTEGRATION OF SOLAR PV POWER WITH GRID

8.1 In case of grid failure or low/ high voltage, Solar PV system shall be disconnected from the grid. Once the grid is energized / normalized, the Solar PV system shall again be automatically re-synchronized and load requirement would be met to the extent of availability of power.

The power evacuation voltage shall be at 415 V, 3-phase 4-wire system or 230V, single phase 2-wire system depending on availability of LP/spare feeder.

8.2 For all buildings contractor have to provide 0.5 class MFM with CT and circuit breaker.

All switchboard frames and load bearing members shall be fabricated using suitable mild steel structural sections or pressed and shaped cold-rolled sheet steel of thickness 2.0mm. Frames shall be enclosed in cold-rolled sheet steel of thickness 1.6 mm. Doors and covers shall also be of cold rolled sheet steel of thickness 1.6 mm. Stiffeners shall be provided wherever necessary. The gland plate thickness shall be 3.0 mm for hot / cold-rolled sheet steel and 4.0 mm for non-magnetic material.

8.3 NTPC shall provide spare solar feeder at the nearest available MCC or LP and the termination at the solar feeder lies in the scope of the bidder. The location of the solar feeder shall be decided during the detailed engineering. Refer Annexure-C for evacuation details.

8.4 The system should be provided with all necessary protections like Earthing, Lightning & Surge and Grid Islanding in accordance with the latest codes & standards and best industry practices.

8.5 Metallic frame of all electrical equipment shall be earthed by two separate and distinct connections to earthing system, each of 100% capacity

8.6 Protection shall comply as per CEA's Technical standard for connectivity of the distributed generation resources, Regulation 2013.

9. DATA MONITORING:

Bidder has to aggregate Data as specified in Clause 9.1 from each Inverter to a Single PC .

The plant monitoring shall have following,

9.1 Measurement of Solar PV parameters at PCU / String Inverter level: PCU / String Inverter shall have provision of measuring and displaying actual value of AC & DC Voltage, AC & DC Current, and AC Power & Energy Generated by the Solar PV system. These PCU /String Inverter parameters shall have provision of data logging through Mod Bus (RS-485) protocol.

9.2 Solar Irradiance: An integrating Pyranometer (Class II or better) shall be provided, with the sensor mounted on a Horizontal plane at a shadow free suitable location near solar arrays.

10. CLEANING & WATER WASHING ARRANGEMENT FOR SOLAR PV PANELS

An appropriate Solar PV Module cleaning & water washing system complete GI pipes, valves, hose pipes, wipers, mops etc. shall be provided for regular cleaning and water washing of the rooftop Solar PV modules. Minimum two sets of Microfibre based cleaning tool is to be provided for each rooftop location. The system shall be specifically designed to take care of the harsh & dusty environment of thermal power plants. Drainage for this system shall be arranged by the bidder. Clean water shall be made available at the nearest point from where bidder to make necessary pumping & treatment, if required, and piping arrangements for water washing of PV modules.

11. BALANCE OF SYSTEM (BOS) ITEMS/ COMPONENTS

The BOS items / components of the Solar PV plant(s)/ system(s) deployed must conform to the latest edition of IEC/equivalent BIS Standards.

12. COMMISSIONING OF ROOFTOP SOLAR PV

Individual solar rooftop location is deemed to be commissioned after the completion of all the facilities (COF) pertaining to scope of work of that rooftop location.

13. WARRANTY OF ROOFTOP SOLAR PV

(A) Solar PV modules used in plant(s)/ system(s) must be warranted for their output peak watt capacity, which should not be

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less than 90% at the end of 10 years and 80% at the end of 25years.

All the mechanical mounting system and structures along with PCU / String Inverters of the Solar PV plant must be warranted against any manufacturing, design and installation defects for a minimum period of one year from COF of plant.

14. PERFORMANCE GUARANTEE TEST FOR ROOFTOP SOLAR PV

The performance Guarantee (PG) Test shall be carried out after successful commissioning of all solar rooftop locations. PG Test shall be carried out on any rooftop location by measuring Performance Ratio (PR) and comparing to the Guaranteed PR. The test shall be repeated for

each location having inverter of having different make or type of control. In case there are more than one rooftop having similar inverter, the test rooftop shall be decided based on mutual consent. The mathematical formula for calculating PR is given below:

$$PR (\%) = AC \text{ Yield}(KWh) \times 100 / \text{Installed Capacity}(kWp) \times \text{Global Inclined Insolation}(kWh/m^2)$$

For measuring Global Inclined Insolation (GII), another pyranometer shall be installed at the plane of the module as per specification 9.2.

Bidder also to install Single Quadrant type of 0.2s accuracy energy meter. This meter shall have a provision of storing 15 min Net MWhr in a register for minimum 40 days and Cumulative Net MWH at every midnight for 10 days.

Both the additional supplied items i.e. pyranometer and energy meter shall be returnable basis and free of cost. The PR measured on site will be compared with the Guaranteed PR as indicated below:

Month	Guaranteed PR
January	81.97%
February	80.64%
March	80.01%
April	79.03%
May	78.30%
June	77.74%
July	77.76%
August	77.38%
September	77.77%
October	78.55%
November	80.07%
December	81.30%
Average(PR Yearly)	79.20%

Yearly solar Insolation of the site=1673 kWhr/ m² (as per Meteonorm)

Measuring instruments to record on site data will include a pair of pyranometers (horizontal and inclined with sensitivity of 7#V/(W/m²), temperature sensor, signal converter.

The contractor will be responsible to conduct the PG test only after achieving the physical completion and synchronization of the plant and complying the relevant requirements from utility.

The PG test will be conducted for durations in which irradiance level is greater than 750W/m² and the test will continue until a total horizontal radiation of 5 kWh/m² has been achieved. The data will be recorded at 15 minute intervals for validating the PR values guaranteed by the contractor against the value mentioned in the above for that month. In case of destruction due to any component failure, entire test will be repeated.

The PR values shall be computed based on actual energy exported to the grid at the output of isolation/step-up/step-down transformer as per SLD as shown in Annexure-C.

If failed to achieve the guaranteed performance levels, the contractor will at its own cost rectify all the defects identified during the test and take necessary steps/efforts to pass the PR test within the stipulated time span. Subsequent to rectification the PR will be restarted.

During PG test, if there is a grid outage, those time slots will not be considered

If the values are again below the guaranteed performance levels, contractor will be liable to pay Liquidated Damages (LD) to NTPC. The LD against failure of PG test shall be limited to 15% of the contract value.

15. QUALITY REQUIREMENTS FOR ROOFTOP SOLAR PV

This is indicative List of tests/ checks. The manufacturer is to furnish a detailed quality Plan indicating the practice & procedure along-with the relevant supporting documents.

1. PCU

A) Incoming Quality Checks on bought out items

B) In-process quality checks,

C) Routine tests as per following on the assembled PCU:

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- 1) Test to demonstrate automatic / manual synchronization and connection to utility service
- 2) Functional check on all protections
- 3) Check on accuracy of all parameters measured by PCU
- 4) Test to demonstrate operation of start-up, stable operation of the PCU, disconnection and shutdown controls and response to other control signals
- D) Following sample tests on one sample of PCU:
 1. Heat run test including measurement of phase currents, efficiencies, harmonic content and power factor at four points preferably 25, 50, 75 and 100% of the rated nominal power.

2. SPV module

SPV modules quality plan should include the following:

- A) Incoming Quality Checks on bought out items (listed in third party test reports of relevant standard)
- B) In-process quality checks
- C) Sample tests as per following:
 - 1) SPV modules to be checked visually for following defects: (sampling as per General Inspection Level II and AQL 1.5% as per IS 2500 Part 1)
 - a) Scratches on the frame and/or glass
 - b) Excessive or uneven glue marks on glass or frame
 - c) Inconsistent cell colors
 - d) Completeness of module in all respects
 - 2) Performance of SPV module at STC (sampling as per General Inspection Level II and AQL 1.5% as per IS 2500 Part 1)
 - 3) IR-HV-IR test (sampling as per Special Inspection Level S-3 and AQL 1.5% as per IS 2500 Part 1)
 - 4) Robustness of terminations on 1 sample per offered lot
 - 5) Mechanical load test on 1 sample per offered lot

Notes: 1) This is an indicative List of test/checks. The manufacturer is to furnish a detailed. Quality Plan indicating his practice and procedure along with relevant supporting documents during QP finalization for all item.

2) All major Bought out Items will be subject to NTPC approval.

ANNEXURE-A**Wind Data****CRITERIA FOR WIND RESISTANT DESIGN OF STRUCTURES AND EQUIPMENT**

All structures shall be designed for wind forces in accordance with IS:875 (Part-3) and as specified in this document. Site specific information is given below.

Along wind forces shall generally be computed by the Peak (i.e. 3 second gust) Wind Speed method as defined in the standard. Along wind forces on slender and wind sensitive structures and structural elements shall also be computed, for dynamic effects, using the Gust Factor or Gust Effectiveness Factor Method as defined in the standard. The structures shall be designed for the higher of the forces obtained from Gust Factor method and the Peak Wind Speed method.

Analysis for dynamic effects of wind must be undertaken for any structure which has a height to minimum lateral dimension ratio greater than "5" and/or if the fundamental frequency of the structure is less than 1 Hz. Susceptibility of structures to across-wind forces, galloping, flutter, ovaling etc. should be examined and designed/detailed accordingly following the recommendations of IS:875(Part-3) and other relevant Indian standards.

It should be estimated if size and relative position of other structures are likely to enhance the wind loading on the structure under consideration. Enhancement factor, if necessary, shall suitably be estimated and applied to the wind loading to account for the interference effects.

No reduction in wind forces shall be considered due to parapet walls.

An increase in allowable stresses of structural material should not be considered during design analysis.

The Module Mounting structure and its foundation system design shall include at least the MMS Structural system design (structural members, bolts, base plates, anchors dead loads required etc.), check for uplifting of MMS structure, toppling of structure during wind loads and safety of supporting slab for downward reaction passing on the structure.

Damping in Structures

The damping factor (as a percentage of critical damping) to be adopted shall not be more than as indicated below for:

- a) Welded steel structures : 1.0%
- b) Bolted steel structures : 2.0%
- c) Reinforced concrete structures :1.6%
- d) Steel stacks :As per IS:6533&CICIND Model Code whichever is more critical

SITE SPECIFIC DESIGN PARAMETERS

The various design parameters, as defined in IS: 875 (Part-3), to be adopted for the project site shall be as follows:

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- a) The basic wind speed "Vb" at ten metres above the mean ground level
: As per IS-875 (part-3)
- b) The risk coefficient "K1": 1.05
- c) Category of terrain: Category-II

TERMS AND CONDITIONS**A) Contract Period:**

- a. Time for Completion: 06 Months from Date of Start of Contract for supply, installation and commissioning of the system
- b. Time for Completion (O&M period): 05 Years from the date of successful commissioning and completion of facilities.

B) Payment Terms:**1) Supply Component**

- a) As per section-VII of Tender Documents.

2) E&C Component

- a) As per section-VII of Tender Documents.

3) O&M component-As per section-VII of Tender Documents.**4) Payment of Amount linked to Safety Aspects/ compliance to Safety Rules**

I. The amount linked to Safety Aspects/ compliance to Safety Rules shall be paid in two parts, viz,

- A) 10% amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and

B) 90% amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in Safety Rules of NTPC.

C) LD (Liquidated Damage):

1) Commissioning: LD @ Rs 39.2 per day per KWp shall be levied for any delay from the scheduled date of commissioning, subject to maximum of 5% of total cost of plant.

2) PG TEST: The LD applicable against PG Test is detailed at point no. 14 (PERFORMANCE GUARANTEE TEST FOR ROOFTOP SOLAR PV)

D) Contract Performance Bank Guarantee' (CPG):

a. The bidder shall submit a Contract Performance Bank Guarantee (PBG) amounting to 3% of contract value on award of work with validity period upto 120 days beyond the scheduled defect liability period.

b. In case of extension of the contract period for Supply, Installation & Commissioning portion of the contract, beyond 03 (three) months of the original completion period, the validity period of Additional BG shall be extended accordingly. The Additional BG shall be submitted within 15 days of issue of Purchase order (PO) along with the Purchase Order (PO) acceptance copy against contract performance for incorporation in the PO, failing which NTPC is at liberty to take action as per provision of the contract.

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NIT No.: 9900236202/035/1041**SERVICE SPECIFICATION**

S.No.	Service Code	Service Text
Service Long Text		
10.10		Supply of materials for 60KWP solar PV
10.20		Supply of materials for 50KWP solar PV
10.30		Supply of materials for 45KWP solar PV

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NIT No.: 9900236202/035/1041**SERVICE SPECIFICATION**

S.No.	Service Code	Service Text
Service Long Text		
20.10		E&C of 60KWP rooftop solar PV system
20.20		E&C of 50KWp rooftop solar PV system
20.30		E&C of 45KWp rooftop solar PV system

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NIT No.: 9900236202/035/1041**SERVICE SPECIFICATION**

S.No.	Service Code	Service Text
Service Long Text		
30.10		Compliance of safety aspects

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NIT No.: 9900236202/035/1041**SERVICE SPECIFICATION**

S.No.	Service Code	Service Text
Service Long Text		
40.10		O&M for 5 years

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NIT No.: 9900236202/035/1041**ANNEXURE****VENDORS LIST**

S.No.	Collective No. / RFQ No.	Vendor Details
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NTPC Limited

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NIT No.: 9900236202/035/1041**List of Documents**

Please note that below documents are needed to be provided along with Invoice.

S.No.	Document Description
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RQP ENDORSED FOR PR NO 400045197 VIDE DOC NO:- NTPC/SIPAT/FQA/ELE/RQP-88 DATED 24.09.2021

ITEM : SPV MODULE		STANDARD QUALITY PLAN				CONFORMING TO CODE:		QIP NO. : 0000-999-QOE - S - 58		APPROVED BY:	
COMPARISON TO CODE:		IS/IEC/NTPC TECHNICAL SPECIFICATION		REV. NO: 01 DATE: 26.07.2021		REVIEWED BY		ANKIT GUPTA		DMR PANDA	
VALID UPTO: 25.07.2024		REFERENCE DOCUMENT		ACCEPTANCE NORMS		FORMAT OF RECORD		SAVITA CHOUBEY		GM (RE QA)	
QUANTUM OF CHECK		TYPE OF CHECK		CLASS		CHARACTERISTICS		COMPARISON TO CODE:		REMARKS	
M		C/N		4.		3.		7.		11.	
1.		6.		5.		8.		9.		10.	
1.00	Raw Material/Bought out Item-										
1.01	SOLAR CELLS	a.	Make, type, rating	Critical	Visual	100%	100%	Critical Component list in type test report	Provisions in type test report	Inspection Report	P
		b.	Cracks or Chips,	Major	Visual	AQL	AQL	Mnfr std.	Mnfr std.	Inspection Report	P
		c.	Cell Sorting	Major	Electrical	Mnfr std.	Mnfr std.	Mnfr std.	Mnfr std.	Inspection Report/suppliers TC/COC	P
		d.	Power Output	Major	Electrical	AQL	AQL	Mnfr std.	Mnfr std.	Inspection Report	P
1.02	FRONT GLASS	a.	Packing, Make and type	Critical	Visual	100%	100%	Critical Component list in type test report	Provisions in type test report	Inspection Report	P
		b.	Dimension	Major	Measurement	5 nos / PO lot	5 nos / PO lot	Mnfr std.	Mnfr std.	Inspection Report	P
		c.	Chips, Scratches	Major	Visual	5 nos / PO lot	5 nos / PO lot	Mnfr std.	No chips or scratches	Inspection Report	P
		d.	Light Transmittance	Major	Optical	Mnfr std.	Mnfr std.	Mnfr std.	>93%	Supplier TC	V
		e.	Fragmentation test (Tempering quality)	Major	Mechanical	Mnfr std.	Mnfr std.	EN 12150	No. of fragments > 40 per 25 sqcm	Supplier TC	V
		f.	Iron Content	Major	Chemical	Mnfr std.	Mnfr std.	Mnfr std.	< 0.01%	Supplier TC	V
1.03	FAST CURE EVA SHEET	a.	Make and type	Critical	Visual	100%	100%	Critical Component list in type test report	Provisions in type test report	Inspection Report	P
		b.	Visual and dimension	Major	Visual / Dimension	One roll / lot	One roll / lot	Mnfr std.	Mnfr std.	Inspection Report	P

LEGEND:

D: Records, identified with "tick" (✓) shall be essentially included by main contractor in QA documentation.
M: Manufacturer / Sub-supplier C: Main Contractor, N: NTPC P: Perform W: Witness and V: Verification. Mnfr std.: Manufacturer Standard, TC: Test Certificate, COC: Certificate of Conformance
CHP: Customer hold point by NTPC shall be identified under agency column "N" as "W".

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

ITEM : SPV MODULE		STANDARD QUALITY PLAN					CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE - S - 58 REV. NO: 01 DATE : 26.07.2021 VALID UPTO: 25.07.2024		PREPARED BY: ANKIT GUPTA REVIEWED BY: SAVITA CHOUBEY SD/- RIO JHANIOR/DELHI/KOLKATA		APPROVED BY: DMR PANDA GM (RE QA)		
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY		REMARKS		
1.	2.	3.	4.	5.	M	C/N	6.	7.	8.	9.	D	M	C	N	
2.03	TABBING AND STRINGING OF SOLAR CELL	a. Visual/machine Check for Cell Crack during Tabbings & Stringing	Major	Visual	100%	100%	100%	Mnfr std	No cell breakages	-do-		P	V	-	11.
		b. Visual check for alignment of Tabs	Major	Visual	100%	100%	100%	Mnfr std	No significant misalignment of tabs, proper soldering	-do-		P	V	-	
		c. Solder Peel Off Test	Major	Measurement	At random	At random	At random	Mnfr std	>2N	-do-		P	V	-	
2.04	LAYUP	a. Visual check for misalignment of cell strings, external stray material	Major	Visual	100%	100%	100%	Mnfr std	No significant misalignment.	-do-		P	V	-	
2.05	LAMINATION	a. Check for Temperature, pressure & time setting	Major	Visual	100%	100%	100%	Mnfr std	Mnfr std	-do-		P	V	-	
		b. Visual check for air-bubbles, cell cracks, de-lamination	Major	Visual	100%	100%	100%	---	No external stray material, No air bubbles, cell cracks, delamination	-do-		P	V	-	
2.06	FRAMING & JUNCTION BOX FIXING	a. Check for warpages on the frames and gap between frame & gap between frame & glass after sealing	Major	Visual	100%	100%	100%	---	No warpage, No significant gap between frame & glass after sealing	-do-		P	V	-	
2.07	CELL CRACK	a. Visual check of module for Cell crack by Electro Luminescence Tester	Major	Visual	100%	100%	100%	---	No Cell Breakage	-do-		P	V	-	
2.08	RFID TAG	a. Visual Inspection	Major	Visual	100%	100%	100%	Mnfr std	NTPC Specification	-do-		P	V	V	
2.09	HV TEST	a. HV TEST for 5 sec	Major	Electrical	100%	100%	100%	Mnfr std	No arcing, no dielectric failure	-do-		P	V	V	

LEGEND:

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M: Manufacturer / Sub-supplier C: Main Contractor, N: NTPC P: Perform W: Witness and V: Verification. Mnfr std: Manufacturer Standard, TC: Test Certificate, COC: Certificate of Conformance

CHP: Customer hold Point by NTPC shall be identified under agency column "N" as 'W'.

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

ITEM : SPV MODULE		STANDARD QUALITY PLAN						Qp NO.: 0000-999-QOE - S - 58		APPROVED BY:		
		CONFORMING TO CODE:						REV. NO: 01 DATE : 26.07.2021		PREPARED BY:		
		IS/IEC/NTPC TECHNICAL SPECIFICATION						VALID UPTO: 25.07.2024		REVIEWED BY:		
										SAVITA CHOUBEY SD/- RIO JHAROR/DELHI/KOLKATA		
										DMR PANDA GM (RE QA)		
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		REMARKS	
					M	C/N			M	C	N	
3.00	FINAL TEST	3.	Major	Visual	100%	AQL	7.	8.	9.	10.	11.	
	a	Cell cracks, Inconsistence Cell Cover, air bubbles, de-lamination, faulty interconnection, cell touching one other/ overlapping, excess glue marks, scratches, frame problems (scratches, gap between frame & glass), rating sticker, incompleteness of Modules					NTPC specification, approved datasheet, approved drawing	No deviation from Column 3, however for Cell cracks, Inconsistence Cell Cover, excess glue marks, scratches, frame problems manufacturer standard to be followed	Final Inspection Report	P	W	AQL 1.5%, General Inspection Level II, (IS: 2500:2000 part I)
	b	Sun Simulator Calibration by Reference Modules before the testing of manufactured modules	Major	Electrical	\$	\$	Mnfr std	Calibration certificate done as per IEC 61215	Final Inspection Report/ Sun Simulator Calibration Reports	P	W	\$ 1 No./rating/day with Sun Simulator Calibration by Reference Modules before the testing of manufactured modules
	c	Electrical parameters of PV Module at Sun Simulator	Major	Electrical	AQL 1.5%, General Inspection Level II, (IS: 2500:2000 part I)	AQL@	Approved datasheet	Approved datasheet	Final Inspection Report	P	W	@ Sampling as per S-2 and AQL 1.5% as per IS 2500 (Part 1):2000
	d	HV Test	Major	Electrical	-do-	-do-	Mnfr std	No arcing, no dielectric failure	Final Inspection Report	P	W	-do-

LEGEND:

D: Records, identified with "tick" (✓) shall be essentially included by main contractor in QA documentation.

M: Manufacturer / Sub-supplier

C: Main Contractor, N: NTPC

P: Perform

W: Witness and V: Verification.

Mnfr std.: Manufacturer Standard, TC: Test Certificate, COC: Certificate of Conformance

CHP: Customer hold Point by NTPC shall be identified under agency column "N" as "W".

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

ITEM : SPV MODULE		STANDARD QUALITY PLAN				QIP NO.: 0000-999-QOE - S - 58		APPROVED BY:		
CONFORMING TO CODE:		IS/IEC/NTPC TECHNICAL SPECIFICATION		REV. NO: 01 DATE: 26.07.2021		ANKIT GUPTA		DNR PANDA		
				VALID UPTO: 25.07.2024		SAVITA CHOUBEY		GM (RE QA)		
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	REMARKS	
					M	C/N				
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	
	e	IR (Before & after HV) at Maximum System Voltage	Major	Electrical	-do-	Mnfr std	Measured insulation X the area of module >40MΩm²	Final Inspection Report	P W	11.
	f	Robustness of Termination Test	Major	Mechanical	1 Module per offered lot	NTPC specification and IEC 61215	IEC 61215	Final Inspection Report	P W	-do-
	g	Mechanical Load Test	Major	Mechanical	1 Module per offered lot	NTPC specification and IEC 61215	IEC 61215	Final Inspection Report	P W	
	h	EL Test - Electroluminescence Test to reveal defects and micro cracks in the inner structures of the solar cells	Major	Electrical	AQL	Mnfr std	Mnfr std	Final Inspection Report	P W	Sampling as per S-2 and AQL 1.5% as per IS 2500 (Part 1):2000

Note:

1. The Quantity to be offered for inspection per visit shall be 4 MW Minimum. However for spare supply/replacement lot incase overall quantity is below 1 MW, NTPC Witness shall be considered as Verification.
2. The type test reports of Module shall be reviewed and accepted by RE Engineering. However, Critical components of module shall be verified by Inspection meeting the approved datasheet.


LEGEND:


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M: Manufacturer / Sub-supplier C: Main Contractor, N: NTPC P: Perform W: Witness and V: Verification. Mnfr std.: Manufacturer Standard, TC: Test Certificate, COC: Certificate of Conformance
CHP: Customer hold Point by NTPC shall be identified under agency column "N" as "W".

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

6/6

NTPC RE QA


		ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)		STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/ IEC/ NTPC TECHNICAL SPECIFICATION						QP NO.: 0000-999-QOE – S- 59 REV. NO: 01 DATE: 18.08.2021		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE		APPROVED BY: DMR PANDA GM (RE QA)			
										VALID UPTO: 17.08.2024		FORMAT OF RECORD		AGENCY M C N		REMARKS	
SL NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS				
1.	2.	3.	4.	5.	M	C/N	6.	7.	8.	9.	D	10.	11.				
1.00 Raw Material/Bought out Item Checks-																	
1.01	Bus bar (Aluminium/ Copper)	a.	Dimensions	Major	Measurement	100%	100% / -	Mnfr. Std/ Approved Dwg	Mnfr. Std/ Approved Dwg	Inspection Report	P	V	-				
		b.	Surface defects	Major	Visual	100%	100% / -	IS 5082/IS 613	IS 5082/IS 613	Inspection Report	P	V	-				
		c.	Hardness	Major	Mechanical	Mnfr Std.	Mnfr Std.	IS 5082/IS 613/NTPC appd drg/ datasheet	IS 5082/IS 613/NTPC appd drg/ datasheet	Supplier TC	P	V	-				
		d.	Conductivity	Major	Electrical	Mnfr Std.	Mnfr Std.	IS 50852/IS 613/NTPC appd drg/ datasheet	IS 50852/IS 613/NTPC appd drg/ datasheet	Supplier TC	P	V	V				
1.02	Insulators	a.	Dimensions	Major	Visual	100%	100% / -	Mnfr. Std/ drg.	Mnfr. Std/ drg	Inspection Report	P	V	-				
		b.	Surface Finish & batch marking	Major	Visual	100%	100% / -	Mnfr. Std/ Dwg	Mnfr. Std/ Dwg	Inspection Report	P	V	-				
		c.	Canilever Strength	Major	Mechanical	Mnfr std.	Mnfr std.	Mnfr. Std/ Dwg/IS 9431	Mnfr. Std/ Dwg/IS 9431	Supplier TC	P	V	V				
		d.	HV Withstand	Major	Electrical	Mnfr std.	Mnfr std.	Mnfr. Std/ Dwg/IS 9431	Mnfr. Std/ Dwg/IS 9431	Supplier TC	P	V	V				
	e.	Comparative Tracking Index	Major	Electrical	Mnfr std.	Mnfr std.	IS 2824 / IEC 60112	>600 V	Supplier TC	P	V	V					
1.03	Reactor/Capacitor	a.	Make Check	Major	Visual	100%	100% / -	Agreed BOM	Agreed BOM	Inspection Report	P	V	-				
		b.	Rating plate Check	Major	Visual	100%	100% / -	Mnfr. Std/ drg.	Mnfr. Std/ drg.	Inspection Report	P	V	-				

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE – S- 59 REV. NO: 01 DATE: 18.08.2021		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE		APPROVED BY: DMR PANDA GM (RE QA)
				VALID UPTO: 17.08.2024				

SL NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	10.			11.
1.07	Electronic cards	a. Internal Quality checks by manufacturer	Major	Electrical	100%	100%	Manufacturer's procedure for testing of electronic cards	Manufacturer's procedure for testing of electronic cards	Inspection Report	P	V	V	
1.08	PCU Power Module	a. Quality checks	Major	Electrical	100%	100%	Manufacturer's procedure for testing of power module/NTPC Specification	Manufacturer's procedure for testing of power module/NTPC Specification	Suppliers TC	P	V	V	
2.00	In Process Checks												
2.01	Equipment Mounting	a. Verification of rating & make of all components as per BOM	Major	Visual	100%	100% / -	Agreed BOM / Approved Datasheet	Agreed BOM / Approved Datasheet	Production Inspection report	P	V	-	
2.02	Busbar Support Insulator Fixing	a. Checking of air gaps (clearances) and creepage distances	Major	Measurement	100%	100% / -	Approved drawing/ Manufacturer standard	Approved drawing/ Manufacturer standard	-do-	P	V	-	
2.03	Busbar Fixing	a. Checking of busbars/ Nut bolt tightness	Major	Torque wrench	100%	100% / -	-do-	-do-	-do-	P	V	-	Torque values to be furnished by the manufacturer
2.04	Cable Termination	a. Checking of Power cabling, control and logic wiring termination by pull check	Major	Mechanical	100%	100% / -	-do-	-do-	-do-	P	V	-	

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE - S- 59 REV. NO: 01 DATE: 18.08.2021		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE		APPROVED BY: DMR PANDA GM (RE QA)
				VALID UPTO: 17.08.2024				

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D	10.			11.
2.05	Final Assembly	a. Checking of Labels and Markings (Legends)	Major	Visual	100%	100% / -	Approved drawing/ datasheet/ Manufacturer standard	Approved drawing/ datasheet/ Manufacturer standard	Production Inspection report		P	V	-	
		b. Checking of doors & handle alignment	Major	Visual	100%	100% / -	Manufacturer standard	Manufacturer standard	-do-		P	V	-	
		c. Degree of protection check including gasket material & profile	Major	Visual	Mnfr Std.	Mnfr Std.	Approved drawing/ datasheet/ Manufacturer standard	Gasket material & profile as per type test reports	-do-		P	V	-	
		d. Functional checking of PCU	Major	Electrical	100%	100% / -	Approved Drawing/ Manufacturer standard	Approved Drawing/ Manufacturer standard	-do-		P	V	-	
		e. Uploading of Software to control board and checking of general parameter setting including protection settings	Major	Visual	100%	100%	Appd datasheet for software version / Appd drg / Mnfr standard	Appd datasheet for software version / Appd drg / Mnfr standard	Inspection report		P	W	V	
Type Test Clearance from NTPC Engineering as per specification requirements to be verified during final inspection														
3.00	Final Test	a. Dimensional check on Enclosure	Major	Measurement	100%	5% or 1 Panel whichever is higher	Appd GA Drawing	Appd GA Drawing	Inspection report		P	W	W	

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION	QP NO.: 0000-999-QOE – S- 59 REV. NO: 01 DATE: 18.08.2021 VALID UPTO: 17.08.2024		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE	APPROVED BY: DMR PANDA GM (RE QA)

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C / N			9.	D	M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D	10.			11.
	b.	Paint Shade, Paint Adhesion & Thickness Check	Major	Visual and Measurement	At random check as per Mnfr std	At random check as per Mnfr std	Appd G/A Drawing	Appd G/A Drawing	Inspection report		P	W	W	
	c.	Verification of rating & make of all components as Per BOM	Major	Visual	100%	5% or 1 Panel whichever is higher	Agreed BOM / Approved datasheet	Agreed BOM / Approved datasheet	Production Inspection report		P	W	W	
	d.	Degree of protection check including gasket material & profile	Major	Visual	At random check as per Mnfr std	At random check as per Mnfr std	Approved drawing/ datasheet/ Manufacturer standard	Gasket material & profile as per type text reports	-do-	✓	P	W	W	
	e.	Checking of doors, its handle alignment	Major	Visual	100%	5% or 1 Panel whichever is higher	Manufacturer drg/ standard	smooth operation of doors	-do-		P	W	W	
	f.	Uploading of Software to control board and checking of general parameter setting including protection settings	Major	Visual	100%	1 panel	Appd datasheet for software version / Appd drg/ Mnfr standard	Appd datasheet for software version / Appd drg/ Mnfr standard	Inspection report		P	W	W	

LEGEND: D: RECORDS, IDENTIFIED WITH “TICK” (✓) SHALL BE ESSENTIALLY INCLUDED BY MAIN CONTRACTOR IN DOCUMENTATION. M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. MNFR STD : MANUFACTURER STANDARD, TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN “N” AS “W”. FORMAT NO.: QS-01-QAI-P-07A/F3-R0 5/8 NTPC RE QA

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION	QP NO.: 0000-999-QOE – S- 59 REV. NO: 01 DATE: 18.08.2021		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE	APPROVED BY: DMR PANDA GM (RE QA)
			VALID UPTO: 17.08.2024			

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	10.			11.
		g. Control circuit functional check including operation of contactors, relays & circuit breaker	Major	Electrical	100%	1 panel	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		h. Display panel functionality including Digital Input/ Digital Output check	Major	visual	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		i. Checking direction of rotation & ON-OFF Control of the fans	Major	Electrical	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		j. Protection functions check (by simulation or direct method) abnormal voltage & frequency, DC ground fault, DC reverse polarity, AC & DC overvoltage	Major	Electrical	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		k. Calibration test (DC voltage, AC voltage & frequency)	Major	Electrical	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	

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FORMAT NO.: QS-01-QAI-P-07A/F3-R0	6/8
NTPC RE QA	

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE – S- 59 REV. NO: 01 DATE: 18.08.2021		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE		APPROVED BY: DMR PANDA GM (RE QA)
				VALID UPTO: 17.08.2024				

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	10.			11.
		l. Testing of wake-up/ auto start & stop with grid connectivity	Major	Electrical	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		m. Manual ON/OFF from PCU MMI with grid connectivity	Major	Electrical	100%	100% / 50%	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		n. Maximum power Point tracking test	Critical	Electrical	1 panel	1 panel	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		o. Heat run test along with Efficiency test including VDC, VAC, IAC, KWhr, KW, KVAR, KVARhr & harmonic content measurement at four points (25%, 50%, 75%, 100%)	Critical	Electrical	1 panel	1 panel	Manufacturer test procedure	Manufacturer test procedure	Inspection report	P	W	W	
		p. IR test on main & control circuit	Major	Electrical	100%	100% / 50%	Manufacturer test procedure (Mnfr to indicate the test voltage & duration)	Manufacturer test procedure (Mnfr to indicate the test voltage & duration)	Inspection report	P	W	W	

LEGEND: D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY MAIN CONTRACTOR IN DOCUMENTATION. M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. MNFR STD : MANUFACTURER STANDARD, TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS 'W'.	
FORMAT NO.: QS-01-QAI-P-07A/F3-R0	7/8 NTPC RE QA

	ITEM: SOLAR POWER CONDITIONING UNIT (SOLAR INVERTER)	STANDARD QUALITY PLAN (SQP) CONFORMING TO CODE: IS/IEC/NTPC TECHNICAL SPECIFICATION	QP NO.: 0000-999-QOE – S- 59		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH SD- RIO BANGLORE	APPROVED BY: DMR PANDA GM (RE QA)
			REV. NO: 01	DATE: 18.08.2021		
			VALID UPTO: 17.08.2024			

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D	10.			11.
		q. HV test on main & control circuit	Major	Electrical	100%	100% / 50%	Manufacturer test procedure (Mnfr to indicate the test voltage & duration)	Manufacturer test procedure (Mnfr to indicate the test voltage & duration)	✓	Inspection report	P	W	W	
4.00	Packing-													
4.01		a. Corrugated box packing	Minor		100%	---	Manufacturer drg/ standard	Manufacturer drg/ standard			P			



Note:

1. Main Contractor to enclose BOM list along with coversheet of SQP.
2. Type Test Clearance from NTPC Engineering to be verified during final inspection.

LEGEND: D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY MAIN CONTRACTOR IN DOCUMENTATION. M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. MNFR STD : MANUFACTURER STANDARD, TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS 'W'.
FORMAT NO.: QS-01-QAI-P-07A/F3-R0
8/8
NTPC RE QA

ITEM: SOLAR PV DC CABLE		STANDARD QUALITY PLAN CONFORMING TO CODE: NTPC TECHNICAL SPECIFICATION				Q.P. NO.: 0000-999-QOE - S - 63 REV. NO: 01 DATE: 13.08.2021 VALID UPTO: 12.08.2024		PREPARED BY: ANKIT GUPTA REVIEWED BY: DURGESH DUYGCH		APPROVED BY: DMR PANDA GM RE-QA			
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C/N				M	C	N	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.			
1.0 Raw Material													
1.1	Conductor Copper	a Type/Grade	Major	Visual	1 Sample per lot	-	NTPC Specification / EN 50618:2014/ IS 17293:2020	Class 5 conductor as per EN / IEC 60228:2004, IS 8130:2013	Manufacturer Incoming Inspection report & supplier Test Cert.	P	-	-	
		b Diameter	Major	Measurement	-do-	-	-do-	-do-	-do-	P	-	-	
		c Tensile Strength	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	
		d Elongation	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	
		e Resistivity at 20 Deg C	Major	Electrical	-do-	-	-do-	-do-	-do-	P	-	-	
		f Surface Finish	Major	Visual	-do-	-	Manufacturer's Standard	Manufacturer's Standard	-do-	P	-	-	
1.2	Tin (For tinning of copper)	a Purity of Material	Major	Chemical	-do-	-	IS 26:1992	NTPC Specification, IS 26:1992	-do-	P	-	-	
1.3	Insulation	a Type/Grade	Major	Visual	1 Sample per lot	-	EN 50618:2014 /NTPC Approved Data sheet/ IS 17293:2020	EN 50618:2014 /NTPC Approved Data sheet/ IS 17293:2020	Supplier test certificate	P	-	-	
		b Tensile Strength	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	
		c Elongation at Break	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	
		d Hot set test	Major	Physical	-do-	-	-do-	-do-	Supplier test certificate	P	-	-	

LEGEND:
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M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION, MNFR STD: MANUFACTURER STANDARD, TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".
FORMAT NO.: QS-01-QAI-P-07A/F3-R0



	ITEM: SOLAR PV DC CABLE	STANDARD QUALITY PLAN CONFORMING TO CODE: NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE - S - 63 REV. NO: 01 DATE: 13.08.2021 VALID UPTO: 12.08.2024	PREPARED BY ANKIT GUPTA	APPROVED BY:  DMR PANDA GM RE-QA
				REVIEWED BY: DURGESH		
					SD/- RIO WR I / DELHI / KOLKATA	

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N			D		M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	10.				11.
		c Ageing Test	Major	Physical	-do-	-	-do-	-do-	-do-		P	-	-	
		f Insulation Resistance (VR)	Major	Electrical	-do-	-	-do-	-do-	-do-		P	-	-	
1.4	Sheath	a Type Grade	Major	Visual	1 Sample per lot	-	EN 50618:2014/IS 17293:2020	EN 50618:2014/IS 17293:2020	Supplier test certificate		P	-	-	
		b Tensile Strength	Major	Physical	-	-	-do-	-do-	-do-		P	-	-	
		c Elongation at Break	Major	Physical	-	-	-do-	-do-	-do-		P	-	-	
		d Hot set test	Major	Physical	-	-	-do-	-do-	-do-		P	-	-	
		e Ageing Test	Major	Physical	1 Sample Per lot	-	EN 50618:2014/IS 17293:2020	EN 50618:2014/IS 17293:2020	-do-		P	-	-	
		f Halogen Content	Major	Physical	-do-	-	-do-	-do-	-do-		P	-	-	
1.5	Spool-Wooden Drum used	a Surface finish & anti-termite treatment, if required	Minor	Visual	1 Sample per lot	-	Manufacturer's Standard	Manufacturer's Standard	Manufacturer incoming inspection report		P	-	-	
		b Construction	Minor	Visual	-do-	-	Manufacturer's Standard	Manufacturer's Standard	Manufacturer incoming inspection report		P	-	-	
		c Nail Protrusion	Minor	Visual	-do-	-	Manufacturer's Standard	Manufacturer's Standard	-		P	-	-	

LEGEND:

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 TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".


FORMAT NO.: QS-01-QA1-P-07A/F3-R0

	ITEM: SOLAR PV DC CABLE	STANDARD QUALITY PLAN CONFORMING TO CODE: NTPC TECHNICAL SPECIFICATION		QP NO.: 0000-999-QOE - S - 63 REV. NO: 01 DATE: 13.08.2021		PREPARED BY ANKIT GUPTA	APPROVED BY:  ANKIT GUPTA GM RE-QA
				VALID UPTO: 12.08.2024			
				REVIEWED BY: DURGESH DUGGHA SD/- RIO WR I / DELHI / KOLKATA			

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD			AGENCY			REMARKS
					M	C/N			9.	D	10.	M	C	N	
1.	2.	3.	4.	5.	6.		7.	8.	9.	D	10.			11.	
IN-PROCESS INSPECTION															
2.0	Wire Drawing-Tinning & Annealing		Major	Physical	1 Sample per lot	-	Manufacturer's Standard	Manufacturer's Standard	Manufacturer's incoming inspection report	P	-	-	-		
2.1		a Diameter	Major	Physical	-do-	-	EN/ IEC 60228 2004, IS 8130:2013	EN/ IEC 60228 2004, IS 8130:2013	-do-	P	-	-	-		
		b Annealing Test (Copper)	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	-		
		c Persulphate Test	Major	Chemical	-do-	-	Manufacturer's Standard	Manufacturer's Standard	-do-	P	-	-	-		
		d Surface finish	Major	Visual	-do-	-	-do-	-do-	-do-	P	-	-	-		
2.2	Stranding/Bunching		Major	Physical	1 Sample per lot	-	Class 5 as per EN/ IEC 60228 2004, IS 8130:2013, NTPC Approved Data sheet	Class 5 as per EN/ IEC 60228 2004, IS 8130:2013, NTPC Approved Data sheet	Manufacturer's incoming inspection report	P	-	-	-		
		a Number of Strands	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	-		
		b Conductor diameter	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	-		
		c Max DC Resistance at 20 Deg Co	Major	Electrical	-do-	-	-do-	-do-	-do-	P	-	-	-		
		d Lay length & Direction	Major	Visual	-do-	-	Manufacturer's Standard	Manufacturer's Standard	-do-	P	-	-	-		
		e Surface Finish	Major	Visual	-do-	-	-do-	-do-	-do-	P	-	-	-		
2.3	Insulation extrusion		Major	Physical	-do-	-	NTPC Approved Data sheet	NTPC Approved Data sheet	Manufacturer's incoming inspection report	P	-	-	-		
		a Thickness	Major	Physical	-do-	-	EN 50618:2014/ IS 17293:2020	EN 50618:2014/ IS 17293:2020	-do-	P	-	-	-		
		b Hot Set	Major	Physical	-do-	-	-do-	-do-	-do-	P	-	-	-		

LEGEND:
 D: RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY MAIN CONTRACTOR IN DOCUMENTATION.
 M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. **MNFR STD:** MANUFACTURER STANDARD.
 TC: CERTIFICATE OF CONFORMANCE **CHP:** CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

		ITEM: SOLAR PV DC CABLE		STANDARD QUALITY PLAN CONFORMING TO CODE: NTPC TECHNICAL SPECIFICATION				QP NO.: 0000-999-QOE - S - 63 REV. NO: 01 DATE: 13.08.2021 VALID UPTO: 12.08.2024		PREPARED BY ANKIT GUPTA		APPROVED BY: DMR PANDA GM RE-QA	
										REVIEWED BY: DURGESH		SD/- RIO WR I / DELHI / KOLKATA	
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
					M C/N				M	C	N		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.			11.	
		f	Major	Chemical	Sampling as per IS 7098 (Part 1)-1988/ IS 17293:2020	EN 50618:2014/ IEC-60332-1:2004/ IS 17293:2020	EN 50618:2014/ IEC-60332-1:2004/ IS 17293:2020	-do-	✓	P	W	W	
		g	Minor	Visual	-do-	EN 50618:2014/ NTPC Approved Data sheet/ IS 17293:2020	EN 50618:2014/ NTPC Approved Data sheet/ IS 17293:2020	-do-	✓	P	W	W	
		h	Major	Physical	One sample per size and type of offered lot	EN 50618:2014/ IS 17293:2020	EN 50618:2014/ IS 17293:2020	-do-	✓	P	V	V	
3.3	Packing & Marking												
	a	Cable and Sealing	Minor	Visual	Manufacturer's Standard	Manufacturer's Standard	Manufacturer's Standard	-do-		P	-	-	
	b	Length in meters	Major	Physical	-do-	-do-	-do-			P	-	-	
	c	Month & Year of manufacturer	Major	Visual	-do-	-do-	-do-			P	-	-	

Note:

- The Wooden drum shall be supplied, the drum shall carry manufacturers name, address, contract number, item number, type, size and length, gross weight on both side of the drum.
- IS 17293:2020 shall be followed in place of EN 50618:2014 and IS:7098 (Part 1)-1988 with respect to columns 6, 7 and 8 as applicable if this standard is called for in NTPC Technical specifications.

LEGEND:

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M: MANUFACTURER / SUB-SUPPLIER C: MAIN CONTRACTOR, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. MNFR STD: MANUFACTURER STANDARD.
TC: CERTIFICATE OF CONFORMANCE CHP: CUSTOMER HOLD POINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".

FORMAT NO.: QS-01-QAI-P-07A/F3-R0

S/N	COMPONENT & OPERATIONS	ITEM	String Monitoring Box / AJB	STANDARD QUALITY PLAN										QPN: 0000-999-QOE-S-57	REVIEWED BY D.K. Dutt	APPROVED BY V. Taha
				CONFORMING TO CODE :												
				IS / IEC / NTPC TECHNICAL SPECIFICATION												
				ACCEPTANCE NORMS												
1	2	3	4	5	6 M	6 C/N	7	8	9	10	11	12	13	14	15	
TYPE OF CHECK		CLASS		QUANTUM OF CHECK		REFERENCE DOCUMENT		FORMAT OF RECORD		AGENCY		REMARKS		APPROVED		
IS / IEC / NTPC		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
a) Dimensions Check		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
b) Make, Material type & grade check		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
c) Surface Defects Check		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
d) Visual check for completeness (door fitting, mounting brackets, door hinges & screws) etc.		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
e) Degree of Protection (IP) sealing arrangement check: a) Panel gasket profile & material check; b) door locking / closing arrangement		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
a) Dimension Check		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		
b) Material Grade & Conductivity Check		Major		5 No. Per offered lot		5 No. Per offered lot		Approved Dwg / Mfr. Stnd		Approved Dwg / Mfr. Stnd		Inspection report		Inspection report		

Raw Material/Bought out Item Checks-

Sl No	Component & Operations	Item	String Monitoring Box / AJB	STANDARD QUALITY PLAN	QPN: 0000-999-QOE-S-57	Reviewed By	Approved By
1.00	Raw Material/Bought out Item Checks-						
1.01	Enclosure	a) Dimensions Check	Major	Dimensional	5 No. Per offered lot	5 No. Per offered lot	Approved Dwg / Mfr. Stnd
		b) Make, Material type & grade check	Major	COC verification	5 No. Per offered lot	5 No. Per offered lot	Approved Dwg / Mfr. Stnd
		c) Surface Defects Check	Major	Visual	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Inspection report
		d) Visual check for completeness (door fitting, mounting brackets, door hinges & screws) etc.	Major	Visual	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Inspection report
		e) Degree of Protection (IP) sealing arrangement check: a) Panel gasket profile & material check; b) door locking / closing arrangement	Major	Visual	5 No. Per offered lot	5 No. Per offered lot	Type Test Reports & appd data sheet
1.03	Copper Bus Bar	a) Dimension Check	Major	Measure	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Approved Dwg / Mfr. Stnd
		b) Material Grade & Conductivity Check	Major	TC verification	5 No. Per offered lot	5 No. Per offered lot	Approved Dwg / Mfr. Stnd

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P: PERFORM W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS 'W'.
Format No.: QS-01-QAI-P-10/F3-R0
Engg. Div./QA&I

ITEM String Monitoring Box / AJB		STANDARD QUALITY PLAN										REVIEWED BY		APPROVED BY	
Sl No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS	Q.P. NO: 0000-999-QOE-S-57	Rev No: 0	Date: 04.02.2015	VALID UPTO: 03.02.2018	
				5	6 M	6 C/N	7	8	9	10	11				
1.05	String Monitoring Card/ Power Supply Card/ DC-DC Converter	a Make, Type, Model Check (CE / UL marked) b COC (Certificate of compliance) for electronic cards reg quality checks as per manufacturer std c Functional Test	Major	Visual	100%	same as 6 M	Approved Dwg /Mnfr std	Inspection report	P	(CE / UL marked)					
1.06	Switch Fuse Unit	a Make & rating check b Functional Test (on - off check)	Major	Visual	100%	same as 6 M	Approved Dwg /Mnfr std	Inspection report	P						
1.07	Fuses, Cable Glands, Terminal Blocks, Wires	a Make, Size/ Rating check	Major	Visual	IS 2500, GIL-II, AQL 1.0, NIP	same as 6 M	Approved Dwg /Mnfr std	Inspection report	P						
2.00	In Process Checks-														
2.01	Hole Marking & Drilling on Enclosure	a Marking & Drilling Accuracy Check	Major	Dimensional	100%	same as 6 M	Approved Dwg /Mnfr Std.	No wrong Marking & Drilling	P						

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Format No.: QS 01 QAI P-10/13-R0
Engg. Div./QA&I



STANDARD QUALITY PLAN									
Sl No	COMPONENT & OPERATIONS	ITEM String Monitoring Box / AJB		CONFORMING TO CODE :		IS / IEC / NTPC TECHNICAL SPECIFICATION		REFERENCE DOCUMENT	
		CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	6 M	6 C/N	7	8
1		3	4	5					
2.02	Cable Gland Mounting	a Size & Fitment check	Major	Visual	100%		same as 6 M	Approved Dwg./Mfr. Std.	Correct Gland part fitment
2.03	Component Mounting	a Make, Rating & Quantity as per BOM Check	Major	Visual	100%		same as 6 M	Approved BOM/Approved Dwg./Mfr. Std./QP	Approved BOM/Approved Dwg./Mfr. Std./QP
		b Placement of component Check	Major	Visual	100%		same as 6 M	Approved Dwg./Mfr. Std.	Correct placement of component as per
		c Component Mounting Check	Major	Visual	100%		same as 6 M	Approved Dwg./Mfr. Std.	No physical damage of mounted component
2.04	Wire Harnessing	a Wire Stripping Check	Major	Visual	100%		same as 6 M	Approved Dwg./Mfr. Std.	1) Proper stripping Tool 2) without damaging cable strands
		b Lugs Crimping tool check	Major	report verification	minfr std		same as 6 M	Lugs & lug crimping tool supplier recommendations	Tool calibration report
		c Lugs Crimping Check	Major	Manual pull test	100%		same as 6 M	Approved Dwg./Mfr. Std.	Inspection report
2.05	Wire Connection	a Wiring check	Major	Visual	100%		same as 6 M	Approved Dwg./Mfr. Std.	Inspection report
		b Connection Looseness Check	Major	Manual Pull Test	100%		same as 6 M	Approved Dwg./Mfr. Std.	Inspection report
		c Continuity Check	Major	Testing	100%		same as 6 M	Approved Dwg./Mfr. Std.	Inspection report

QP NO: 0000-999-QOE-S-57
 Rev No: 0
 Date: 04/02/2018
 VALID UPTO: 03/02/2018
 APPROVED BY:
 V. Talwar
 REMARKS:
 Raksha Singh
 AGENCY:
 A. M. Jais
 D:.....
 M C N
 9 10 11

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER: C: MAINS SUPPLIER, N: NTPC
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 Format No.: QS 01-QAI P-10/F3 R0
 Engg. Div./QA&I

ITEM String Monitoring Box / AJB		STANDARD QUALITY PLAN									
CONFORMING TO CODE :		IS / IEC / NTPC TECHNICAL SPECIFICATION		REFERENCE DOCUMENT		ACCEPTANCE NORMS		FORMAT OF RECORD		AGENCY	
TYPE OF CHECK		QUANTITY OF CHECK		REFERENCE DOCUMENT		ACCEPTANCE NORMS		FORMAT OF RECORD		AGENCY	
CLASS		TYPE OF CHECK		QUANTITY OF CHECK		REFERENCE DOCUMENT		ACCEPTANCE NORMS		AGENCY	
3		4		5		6		7		8	
3		4		5		6		7		8	
3		4		5		6		7		8	
Type Test Clearance from NTPC Engineering as per specification requirements to be verified during inspection											
3.00	Final Test	a	Enclosure Dimensional Check	Major	Measurement	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Approved Dwg / Mfr. Stnd.	Approved Dwg.	Final Inspection Report	P W V
		b	Degree of Protection (IP) sealing arrangement check: a) Panel gasket profile & material check; b) door locking / closing arrangement; c) Paper Pull check (place a sheet of photocopy paper between closing surface then close/lock the box then pull paper: paper should not come out without being locked)	Major	Visual	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Type Test Reports & appd data sheet	Type Test Reports	Type Test Report	P W V
		c	Verification of Make & Rating of components as per BOM	Major	Visual	IS 2500, GIL-II, AQL 1.0, NIP	IS 2500, GIL-II, AQL 1.0, NIP	Approved BOM/Approved Dwg / Mfr. Stnd.	Approved BOM/Approved Dwg / Mfr. Stnd / QP	Final Inspection Report	P W V



LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (V) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/ SUB-SUPPLIER: C: MAIN SUPPLIER, N: NTPC
P: PERFORM W: WITNESS AND V: VERIFICATION. CHP: CUSTOMER HOLDPOINT BY NTPC SHALL BE IDENTIFIED UNDER AGENCY COLUMN "N" AS "W".
Format No.: QS 01-QAI P 10/F3-R0
Engg. Div./QA&I



ITEM String Monitoring Box / AJB		STANDARD QUALITY PLAN										REVIEWED BY		APPROVED BY				
S/No	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	CONFORMING TO CODE :		IS/IEC/NTPC TECHNICAL SPECIFICATION						Rev. No.: 0	Date: 04.02.2015	V. Tabbar	Raksha Singh	REMARKS	K.M. Jain	D.E.
				TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY									
		3	4	5	6 M	6 C/N	7	8	9	D	**	N	10					
1	2	d	Checking of Busbars Nut-Bolt tightness check	Major	Tightness	-do-	-do-	Approved Dwg./Mfr. Stnd	Approved Dwg./Mfr. Stnd	Final Inspection Report	P	W	V					
		e	Switch Fuse Unit Function Test (ON/OFF)	Major	Testing	-do-	-do-	functional check	functional check	Final Inspection report	P	W	V					
		f	Internal Wiring check for ferruling, termination & scheme verification	Major	Visual	-do-	-do-	Approved Dwg./Mfr. Stnd	Approved Dwg	Final Inspection report	P	W	V					
		g	Earthing point check	Major	continuity check	-do-	-do-	Approved Dwg./Mfr. Stnd	Approved Dwg./Mfr. Stnd	Final Inspection report	P	W	V					
		h	HV test and IR before & after HV Test	Major	Testing	-do-	-do-	500 V for IR & 2.5 KV for HV for power ckt	withstand HV & for IR. Insulation Value> 5Mohm	Final Inspection report	P	W	V					
		i	String Monitoring Card/ Power Supply card/ DC-DC Converter function check	Major	Testing	-do-	-do-	NTPC specification /Mfr. Stnd	NTPC specification /Mfr. Stnd	Final Inspection report	P	W	V					
		j	Communication Function Test	Major	Testing	-do-	-do-	NTPC specification /Mfr. Stnd	NTPC specification /Mfr. Stnd	Final Inspection report	P	W	V					

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Format No.: QS-01-QAI-P-10/F3-R0
Engg. Div./QA&I

PRE-CONTRACT INTEGRITY PACT

GENERAL

This pre-bid pre-contract agreement (hereinafter called the Integrity Pact) is made on day of the month of , between, ITI Limited, Naini Plant, Mirzapur Road Naini, Allahabad-211010, Uttar Pradesh, India, (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and

..... (*address of the Bidder*)
(hereinafter called the "BIDDER " which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to float a tender Ref.....
for supply, installation, integration and commissioning (~~striking off whichever is not applicable~~) at its premises as per the specification in the attachments (*name of the product*) and the BIDDER is willing to participate in Bid as per the terms and conditions mentioned thereon;

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership company (~~striking off whichever is not applicable~~), constituted in accordance with the relevant law in the matter and the BUYER is a PSU under the Department of Telecommunications, Ministry of Communications & IT, Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enable the BUYER to select a firm for supply, installation, integration and commissioning (~~striking off whichever is not applicable~~) at its premises as per the specification in the attachments (*name of the product*) through the tender in a transparent and corruption free manner, and

Enable the BIDDERS to abstain from bribing or Indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. Commitments of the BUYER

- 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, 'organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
- 1.2 The BUYER will during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
- 2 In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

3 Commitments of BIDDER

- 3.1 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

- a) The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organisation or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- b) The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or, execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.
- c) BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- d) BIDDERS shall disclose the payments to be made by them to agents/ brokers or any other intermediary, in connection with this bid/contract.
- e) The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacturer/ integrator and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such, intercession, facilitation or recommendation.
- f) The BIDDER either while presenting the bid or during pre-contract negotiations or before signing the contract, shall 'disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

- g) The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- h) The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- i) The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- j) The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- k) The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- l) If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender. The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.
- m) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

4 Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any 'corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5 Sanctions for Violations

- 5.1 Any breach of the aforesaid provisions by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

- a) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- b) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- c) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission.
- d) To recover all sums paid in violation of this Pact by the BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

- 5.2 The BUYER will be entitled to take all or any of the actions mentioned above, also on the Commission by the BIDDER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

- 5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

6 Independent Monitors

- 6.1 The BUYER appoints Independent Monitor (hereinafter referred to as Monitor) for this Pact in consultation with the Central Vigilance Commission.

- 6.2 The task of the Monitor shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 6.3 The Monitor shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 6.4 Both the parties accept that the Monitor have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 6.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 6.6 The BIDDER(s) accept(s) that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER with confidentiality.
- 6.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 6.8 The Monitor will submit a written report to the designated Authority of BUYER within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

7 Facilitation of Investigation

- 7.1 In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

8 Law and Place of Jurisdiction

- 8.1 This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

9 Other Legal Actions

9.1 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

10 Validity

10.1 The validity of this Integrity Pact shall be from date of its signing and extend up to the contract period with the BUYER in case a contract is signed. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

10.2 Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

11 The parties hereby sign this Integrity Pact.

BUYER

BIDDER

Name of the Officer.:

Designation :

ITI Limited

Nain Plant

Mirzapure Road

Naini,

Allahabad -211010

Uttar Pradesh

Place:

Allahabad

Place:

Date:

Witness:

1.

2.

1.

2.



ITI LIMITED
(A Government of India Undertaking)
MIRZAPUR ROAD, NAINI, PRAYAGRAJ - 211010 (U.P.)

EOI No.: ITI/NNI/TS/SOLAR/SPP/02; dated 03.06.2023

Scope of Work: SELECTION OF SUITABLE BUSINESS PARTNER FOR SURVEY, DESIGN, SUPPLY, INSTALLATION, TESTING, COMMISSIONING & AMC OF GRID CONNECTED SOLAR PHOTOVOLTAIC SYSTEMS (SPV MODULES & SOLAR INVERTERS ARE PROVIDED BY ITI LIMITED, NAINI AT SITES) AT DELHI PUBLIC SCHOOL, NTPC VINDHYACHAL, MADHYA PRADESH (CUMULATIVE CAPACITY: 150 KW AT 05 BUILDINGS) & AT NTPC BONGAIGAON, ASSAM (CUMULATIVE CAPACITY: 265 KW AT 05 BUILDINGS)

Name of the Firm				
Price/Financial Bid format				
S. No.	Description	Basic Price (Rs)	GST @18% (Rs)	Total offered Price by vendor (Inclusive Taxes) (Rs)
1	Detailed Scope of Work for 150 KW on grid Solar Power Plant at NTPC Vindhyachal, Madhya Pradesh (Except SPV Module & Solar Inverter)		0	0
2	Detailed Scope of Work for cumulative 265 KW on grid Solar Power Plant at NTPC Bongaigaon, Assam (Except SPV Module & Solar Inverter)		0	0
Total		0	0	0

Terms & Conditions:-

1. Currency of Purchase Order: ITI will place purchase order on bidder in INR only

2. Taxes: As applicable.

3. Financial Bid of the bidders shall be opened online.

4. The evaluation of Financial Bid shall be carried out based on the information furnished in the submitted Financial Bid.

5. The bidder with lowest offered price (in Total (Inclusive Taxes) (Rs)) on above financial bid format shall be declared as L1 bidder.

6. Other bidders may be given option to match L1 bidder margin in case L1 bidder refuses to do the above said work.

Note: Any deviation from above format shall be liable for rejection of the bid