



TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED
METTUR THERMAL POWER STATION - I

SPECIFICATION FOR Design, Supply, Erection, testing and Commissioning of 30KWp ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1 – 1 No., 10 KWp OFF Grid Solar roof mounted power project at of top of New IB/MTPS1- 1 No., 3 KWp OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1 –3ITEMS

SPECIFICATION FOR
PROCUREMENT / ~~WORKS CONTRACT~~ / ~~SERVICE CONTRACT~~
THROUGH E-TENDERING

(Through NIC Platform)

SPECIFICATION NO.CE/MTPS-I/SE/P&A/MM/AEE-1/O.T. No.: 563 /2022-23

DUE ON.29.12.2022

OPEN TENDER / TWO PART SYSTEM

OFFICE OF THE CHIEF ENGINEER
METTUR THERMAL POWER STATION - I
METTUR DAM - 636 406
TAMIL NADU.

Service Provider: The Tamil Nadu Government e-Procurement System
Website for online bid submission: <https://tntenders.gov.in/nicgep/app>

INSTRUCTION TO BIDDERS FOR SUBMISSION OF ONLINE BIDS IN E-TENDER

1.0 The bidding under this contract is electronic bid submission through website <https://tntenders.gov.in/nicgep/app> only. Detailed guidelines for viewing bids and submission of online bids are given on the website. Any citizens or prospective bidders can logon to this website and view the invitation for Bids and can view the details of works for which bids are invited.

2.0 Registration:

2.1 The prospective bidders can submit bids online, however, the bidders are required to have enrolment/registration in the website by clicking on the link "Online bidder enrolment" which is free of charge.

2.2 As part of the enrolment process, the bidders are required to choose a unique username and assign a password for their accounts.

2.3 Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These details would be used for any communication from the e-Portal.

2.4 Upon enrolment, the bidders are required to **register their valid Digital Signature Certificate (DSC)** (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.

2.5 Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.

2.6 Bidder then can login to the site through the secured login by entering their user ID / password and the password of the DSC / e-Token.

3.0 Contact persons:

For queries related to registration and online bidding (NIC):

e-mail : support.etender@nic.in

Contact No.: 044 – 24466495

24902580 Extn.: 332

24917850

4.0 System Requirement:

- i. Operating System: Windows XP-SP3 & above
- ii. Internet browser: IE7 and above.
- iii. Signing type: Digital Signature (class III)
- iv. JRE 7 update 79 (Preferred file- Windows X-86 Offline) and above to be downloaded and installed in the system.

To enable ALL active X controls and disable 'use pop up blocker' under Tools→Internet Options→ custom level. For detailed guidance about browser and Java configuration the bidders are advised to go through the video guide available under "Bidders Manual Kit" at

["https://www.tntenders.gov.in/nicgep/app?page=BiddersManualKit&service=page"](https://www.tntenders.gov.in/nicgep/app?page=BiddersManualKit&service=page)

5.0 Searching for Tender Document:

- 5.0 There are various search options built in the Website, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc.
- 5.1 Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the Tamil Nadu Govt. e-Procurement Portal, to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 5.2 The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

6.0 Preparation Of Bids:

- 6.1 Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 6.2 Bidders are requested to go through the NIT and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 6.3 Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document and generally, they can be in PDF / XLS / RAR / DWF / JPG formats. **Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.** Since the uploaded documents shall be downloaded for evaluation of bid, bidders are advised to upload clear scanned copies. **One hard copy of the electronically submitted bid documents except the price schedule shall have to be submitted upon intimation by TANGEDCO after opening of the e-tender.**
- 6.4 To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My space or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.
- 6.5 The completed bid comprising scanned copy of the proof for the payment of EMD or exemption from payment of EMD and necessary technical and commercial documents should be uploaded on the website along with signed and scanned copies of requisite certificates as are mentioned in the different sections in the tender document.

7.0 Electronic Submission Of Bids:

The bidder shall submit online the requirements under qualification criteria and Technical Documents required and Price Schedule/BOQ. All the documents are required to be signed digitally by the bidder. After electronic online bid submission, the system generates a unique bid reference number which is time stamped. This shall be treated as acknowledgement of bid submission.

- 7.1 Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 7.2 The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 7.3 Bidder has to select the payment option as "offline" to pay the EMD amount through RTGS/NEFT or by way of account transfer as applicable and enter details of the instrument.
- 7.4 The scanned copy of payment made through RTGS/NEFT or by way of Account Transfer towards EMD amount has to be uploaded. TANGEDCO shall not be responsible for any delay in uploading the proof of EMD by any mode.
- 7.5 A BOQ format for the price bid has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the BOQ format provided and no other format is acceptable. Bidders are required to download the BOQ file, open it and complete the coloured (Unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the file name. If the BOQ file is found to be modified by the bidder, the bid will be rejected.
- 7.6 The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.**
- 7.7 All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers' public keys.
- 7.8 The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 7.9 Upon the successful and timely submission of bids, (i.e. after clicking "Freeze Bid submission" in the portal) the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 7.10 Department or Service Provider is not responsible for any failure such as a bad internet connection or power failure outside of their control. The bidder is responsible to ensure they have sufficient time to submit an electronic bid prior to closing date and time including the payment of any fees including the Bid security and getting e-receipt. In case of a failure in the system within the control of the service provider that may affect a bidding process, the contracting authority on his sole discretion will postpone the

closing time at least 24 hours from the time of system recovery to allow bidders sufficient time to submit their bids.

7.11 The TANGEDCO may, at its discretion, extend the deadline for the submission of bids by amending the bidding document, in which case all rights and obligations of TANGEDCO and bidders subject to the previous deadline shall thereafter be subject to the deadline extended.

8.0 Late Bid:

The Electronic bidding system would not allow any late submission of bids after due date and time as per server time.

9.0 Modification and withdrawal of bids:

9.1 Bidders may modify their bids online before the deadline for submission of bids.

9.2 In case a bidder intends to modify his bid online before the deadline, the bidder need not make any additional payment towards the cost of bid processing. For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. Modification and consequential re-submission of bids is allowed any number of times. The last modified bid submitted by the bidder within the bid submission time shall be considered as the bid. For this purpose, modification/withdrawal by other means will not be accepted. The bidder may withdraw his bid by uploading his request before the deadline for submission of bids, however, if the bid is withdrawn, the re-submission of the bid is not allowed.

9.3 No bid may be modified after the deadline for submission of Bids.

10.0 ASSISTANCE TO BIDDERS:

10.1 Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

10.2 Any queries relating to the process of online bid submission or queries in general may be directed to the 24x7 Central Public Procurement Portal Helpdesk.

It may be noted by the bidders that NIC is only a service provider for conducting the online bidding process against this tender and shall not be a party to any contract between TANGEDCO and the successful bidder(s) subsequent to the bidding process.

TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED

1	Tender Specification No.	CE/ MTPS-I/SE/P&A/MM/AEE 1/ O.T. No.: 563 / 2022-23.									
2	Name of Work	Design, Supply, Erection, testing and Commissioning of 30 KW ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1 – 1 No., 10 KW OFF Grid Solar roof mounted power project at roof top of New IB/MTPS1- 1 No., 3 KW OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1 -3 items									
3	Quantity	3 items									
4	Method of Tender	E-Tender System (Online submission of Part-I – Techno Commercial Bid and Part-II – Price Bid, through Website: https://www.tntenders.gov.in/nicgep/app of NIC.									
5	a) Earnest Money Deposit (EMD)	<p>Rs.23,550/- (Rupees twenty three thousand five hundred and fifty only) to TANGEDCO account in the form of NEFT/RTGS or by way of Account Transfer.</p> <table border="1"> <tr> <td>Account No</td> <td>:</td> <td>550518752</td> </tr> <tr> <td>Bank Name</td> <td>:</td> <td>Indian Bank Mettur Dam - 636401</td> </tr> <tr> <td>IFSC Code</td> <td>:</td> <td>IDIB 000M034</td> </tr> </table> <p align="center">(Or)</p> <p>For the exemption from payment of EMD in respect of Micro & small Enterprises located within the state of Tamil Nadu, Undertaking as per Annexure – III should be furnished along with a copy of Udyam Registration certificate or any other valid registration certificate / proof as notified by the Government of India in respect of the items manufactured by them or valid TANGEDCO's Permanent EMD certificate as specified under Section – I.</p>	Account No	:	550518752	Bank Name	:	Indian Bank Mettur Dam - 636401	IFSC Code	:	IDIB 000M034
Account No	:	550518752									
Bank Name	:	Indian Bank Mettur Dam - 636401									
IFSC Code	:	IDIB 000M034									
6	URL for online bid submission for e-tender	https://www.tntenders.gov.in/nicgep/app									
7	Last date for submission of EMD	<p>28.12.2022 before 12.00 Hr.</p> <p>(The EMD amount has to be received in TNEB /TANGEDCO Account through e payment, by 2 hours before closing time of tender)</p>									
8	Date of closing of online e-tender for submission of Techno Commercial Bid & Price Bid.	28.12.2022 up to 14.00 Hrs.									
9	Date & time of opening of tender electronically	29.12.2022 @ 14:30 Hrs.									
10	Specification at website	The tender specification will be placed at the following web sites.									

		<p>The prospective bidders may download the same.</p> <table border="1"> <tr> <td>TANGEDCO</td> <td>www.tangedco.gov.in</td> </tr> <tr> <td>NIC</td> <td>https://tntenders.gov.in/nicgep/app</td> </tr> </table> <p>The prospective bidders may download the same at free of cost</p>	TANGEDCO	www.tangedco.gov.in	NIC	https://tntenders.gov.in/nicgep/app
TANGEDCO	www.tangedco.gov.in					
NIC	https://tntenders.gov.in/nicgep/app					
11	Documents to be uploaded by the Tenderers during e-submission	<p>E – Receipt / Evidence for EMD exemption in respect of Micro & small Enterprises located within the state of Tamil Nadu (Udyam Registration certificate or any other valid registration certificate / proof as notified by the Government of India in respect of the items manufactured by them or valid TANGEDCO's Permanent EMD certificate), Schedules B to G, Annexures and other documents whichever is applicable.</p> <p>Prices should be quoted online as per Schedule 'A' only. BOQ documents whichever is applicable.</p>				
12	Clarification to be sought for from	<p>The Superintending Engineer, Purchase & Administration, Mettur Thermal Power Station – I, Mettur Dam – 636406</p>				
13	Place at which tenders will be opened	<p>Office of the Executive Engineer, Material Management, Mettur Thermal Power Station – I, Mettur Dam – 636406.</p>				

Remarks: If the due date for opening the tenders happens to be declared holiday, then the tender will be opened on the next working day, for which no prior intimation will be given.

SD/---
CHIEF ENGINEER/MTPS-I(fac)

ANNEXURE – I – Technical specification

SPECIFICATION No. CE / MTPS-I / SE/P&A / MM / AEE.1 / O.T NO. 563 / 2022-23

Sub:- MTPS I – MM – EM-II Division – E-tender for Design, Supply, Erection, testing and Commissioning of 30 KWp ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1 – 1 No., 10 KWp OFF Grid Solar roof mounted power project at roof top of New IB/MTPS1- 1 No., 3KWp OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1 to the Mettur Thermal Power Station-I – Reg.

Please quote your lowest price for supply of the following materials as per the specification furnished hereunder.

Sl.No.	Description of Article	Qty.
1	Design, Supply, Erection, Testing, & Commissioning of 30 KWp ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1	1 No.
2	Design, Supply, Erection, Testing, & Commissioning of 10 KWp OFF Grid Solar roof mounted power project at roof top of New IB/MTPS1 – 1 No.	1 No.
3	Design, Supply, Erection, Testing, & Commissioning of 3 KWp OFF Grid Solar roof mounted power project at roof top Quarters/MTPS1 – 1 No.	1 No.

Delivery period : Supply, Erection & Commissioning within 3 months from the date of receipt of PO .

Test certificate : Test Certificates / Reports from IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard for quoted components shall be furnished. Type Test Certificates / reports shall be provided for the solar modules and solar grid tied inverters up to 25 KW to provide evidence of compliance with standards as specified above. TANGEDCO reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.

SD/----

CHIEF ENGINEER/MTPS-I.(fac)

Copy to the Superintending Engineer/ES/MTPS-I.

Copy to the Executive Engineer/EM-II/MTPS-I. w.r. to the Indent No.: 20/08.02.2021

To check the material specification & quantity and deviation if any shall be intimated immediately].

Technical specification

Sl. No	Description of Work
1)	<p>Design, Supply, Erection, testing and commissioning of 30 KWp On Grid Solar PV panel at roof top of Central Office/MTPS1 under turnkey basis.(EPC Contract)</p> <p>Civil Jobs:</p> <ul style="list-style-type: none"> • Construction of Civil foundation (300*300*300) for Module Mounting Structure • Excavation of earth pit. •All necessary civil works <p>Mechanical Jobs:</p> <ul style="list-style-type: none"> • Supply & Fixing of Hot Dip Galvanized Module Mounting Structure. • Supply & Fixing of SPV Modules over Structure. • Installation of Grid Tie Inverter • Supply & Installation of ACDB with metering Panel. • Supply of Maintenance free earth electrode with chamber. • Module Cleaning system. <p>Electrical Jobs:</p> <ul style="list-style-type: none"> • Termination of cable between SPV module & Inverter. • Termination of cable between inverter & LT Panel • Laying of Earth Strip with earth rod. • UV Protected cable ties & supply. • Laying & Termination of shielded cable. • Laying & termination of communication cable • Installation & Commissioning of Complete Solar PV System • CIEG Approval for 30Kw System. <p>(The above project includes Solar PV panels, Inverters, ACDB, DCDB, AC/DC cables, mounting structures, etc., as per annexure-1)</p> <p>This price includes AMC for the first 3 years.</p>
Sl. No	Description of Work
2)	<p>Design, Supply, Erection, testing and commissioning of 10 KWp Off Grid Solar PV panel at roof top of New IB/MTPS1 under turnkey basis.(EPC Contract)</p> <p>Civil Jobs:</p> <ul style="list-style-type: none"> • Construction of Civil foundation (300*300*300) for Module Mounting Structure • Excavation of earth pit. •All necessary civil works. <p>Mechanical Jobs:</p>

- Supply & Fixing of Hot Dip Galvanized Module Mounting Structure.
- Supply & Fixing of SPV Modules over structure
- Installation of Grid Tie Inverter.
- Supply & Installation of ACDB with metering panel.
- Supply of Maintenance free earth electrode with chamber.
- Module Cleaning system.

Electrical Jobs:

- Termination of cable between SPV module & Inverter.
 - Termination of cable between inverter & LT Panel
- Laying of Earth Strip with earth rod.
- UV Protected cable ties & supply.
- Laying & Termination of shielded cable.
- Laying & termination of communication cable
- Supply and termination of 12V 120AH Battery.
- Installation & Commissioning of Complete Solar PV System.

(The above project includes Solar PV panels, Inverters,DCDB, battery,change over, AC/DC cables, mounting structures, etc., **as per annexure-2**)

This price includes AMC for the first 3 years.

3) Design, Supply, Erection, testing and commissioning of **3 KWp Off Grid** Solar PV panel at roof top of Chief Engineer residential Board Quarters/MTPS1 under turnkey basis.(EPC Contract)

Civil Jobs:

- Construction of Civil foundation (300*300*300) for Module Mounting Structure.
- Excavation of earth pit.
- All necessary civil works.

Mechanical Jobs:

- Supply & Fixing of Hot Dip Galvanized Module Mounting Structure.
- Supply & Fixing of SPV Modules over structure
- Installation of Grid Tie Inverter.
- Supply & Installation of ACDB with metering panel.
- Supply of Maintenance free earth electrode with chamber.
- Module Cleaning system.

Electrical Jobs:

- Termination of cable between SPV module & Inverter.
- Termination of cable between inverter & LT Panel.
- Laying of Earth Strip with earth rod.
- UV Protected cable ties & supply.
- Laying & Termination of shielded cable.
- Laying & termination of communication cable.
- Supply and termination of 12V 120AH Battery.
- Installation & Commissioning of Complete Solar PV System.

(The above project includes Solar PV panels, Inverters,DCDB, battery,change over,AC/DC cables, mounting structures, etc., **as per annexure-3**)

This price includes AMC for the first 3 years.

**Annexure – 1
(30KWp ON Grid Solar Panel at Central office/MTPS1)**

Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
	Major Equipment		
1)	Solar pv modules - SBB Polycrystalline not less than 335 Wp with 10 years manufacturer warranty	90 Nos.	ORB/Renewsys/Equivalent Indian make
2)	Solar String Inverter – 30 KW, 50 Hz, 415 V rated with 5 years manufacturer warranty and DC/AC ratio of 1:1	1 No.	Growatt/Havells/Any Indian make
	Solar panel mounting Structures		
3)	MMS-HDGI (Hot dipped Galvanised Iron) with 150 Kmph wind speed with minimum section thickness of 2mm and 80 microns, SS 304 fasteners, PCC pedestal 300x300x300 M25 grade civil pedestal mounting.	30 Kwp	JSW/Jindal/TATA steels
	Cable and Accessories		
4)	DC Cable - 1C x 4 sq.mm Annealed tinned copper conductor EBXL XLPO 120 degree insulated & sheathed, 1.1 KV DC solar, class 5 - Red/black	500 mtrs	Siechem/Polycab
5)	AC Cable - 4C x 16 sq.mm Annealed plain copper conductor XLPE insulated & unarmored PVC sheathed 1.1 KV power cable.	3 mtrs	Havells/Polycab
6)	AC cable - 4C x 50 sq.mm Annealed plain Aluminum conductor XLPE insulated & armored PVC sheathed 1.1 KV power cable	75 mtrs	Havells/Polycab
7)	Earthing cable - 1C x 16 Sq.mm plain copper conductor PVC insulated & unsheathed cable 1.1 KV class 5 - Green	50 mtrs	Havells/Polycab
8)	Ring type 16 Sq.mm Copper lugs	15 Nos.	Comet/Hex
9)	Ring type 25 Sq.mm Aluminium lugs	3 Nos.	Comet/Hex
10)	Ring type 50 Sq.mm Aluminium lugs	8 Nos	Comet/Hex
11)	Connectors male & female – MC4	20 pair	Elcom
12)	UV cable ties - 300 mm	5 Nos.	Polycab/Equivalent UV protected
	AC/HT Equipments		
13)	Main ACDB - 60 microns powder coated 2 mm thickness indoor type (1 in 1 out) 4 pole, 63 Amps MCCB 50KA,1 sec, disconnecter switch 415V, 50 HZ, SPD - type 2	1 No.	

Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
14)	DCDB - 4 in 4 out DCDB with 12A fuse and SPD	1 No.	
	Earthing system & Accessories		
15)	Lightening Arrestor - Multi spike 2 mtr height	1 No.	Excel earthing
16)	Earthing Kit -17.2 mm Dia,copper bonded (250 microns) 3 mtr long, UL listed (Chemical earthing with clamp) with accessories	6 Nos.	Excel earthing
17)	Earth Strip - 25 x 3 mm GI strip with nut & bolt and insulators	150 mtrs	Standard
	Conduit & Accessories		
18)	2" UV protected black colour – 3 mtr length	50 Nos.	Standard
19)	2" UV protected black colour T connector	25 Nos.	Standard
20)	Numbering Ferrules and Aluminium cable Tags brother tap R,Y,B I,P,N,S 0 to 9	1 packet	Polycab
	Miscellaneous		
21)	Sand bucket with sand	1 set	Standard
22)	Fire Extinguisher	1 No.	Standard
23)	PU Foam cartridge	2 Nos.	Standard
24)	Cable tray - 150 x 75 mm with cover, clamp & mounting clamp.	3 mtrs	Standard
25)	CEIG Approval	1 No.	
26)	Module cleaning system – 1" PVC pipe for module cleaning including valves & flexible hose for complete power plant area	1 lot	
	Others		
27)	Plant Nomenclature as per site requirement	1 No.	
28)	Transportation	1 No.	
29)	Installation & commissioning as per site requirement	30 Kwp	
30)	Bi Directional meter at main incomer	1 No.	
31)	AMC	3 years	

Annexure – 2
(10 KWp OFF Grid Solar Panel at New IB/MTPS1)

Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
	Major Equipment		
1	Solar pv modules - SBB Polycrystalline not less than 335 Wp with 10 years manufacturer warranty	30 Nos.	ORB/Renewsys/Equivalent Indian make
2	Solar Inverter - OFF Grid PCU – 10 KW, 50 Hz, 415 V rated with 120V DC rating	1 No.	Glowpower/Havells/Powerone
	Solar panel mounting Structures		
3	MMS -HDGI (Hot dipped Galvanised Iron) with 150 Kmph wind speed with minimum section thickness of 2mm and 80 microns, SS 304 fasteners, PCC pedestal 300x300x300 M25 grade civil pedestal mounting.	10 Kwp	JSW/Jindal/TATA steels
	Cable and Accessories		
4	Battery -12V, 120Ah, tubular solar battery	10 Nos.	Exide
5	DC Cable - 1C x 4 sq.mm Annealed tinned copper conductor EBXL XLPO 120 degree insulated & sheathed, 1.1 KV DC solar, class 5 - Red/black	150 mtrs	Siechem/Polycab
6	DC Cable - 1C x 6 sq.mm Annealed tinned copper conductor EBXL XLPO 120 degree insulated & sheathed, 1.1 KV DC solar, class 5 - Red/black	200 mtrs	Siechem/Polycab
7	AC Cable - 4C x 16 sq.mm Annealed plain copper conductor XLPE insulated & unarmored PVC sheathed 1.1 KV power cable.	10 mtrs	Havells/Polycab
8	Earthing cable - 1C x 16 Sq.mm plain copper conductor PVC insulated & unsheathed cable 1.1 KV class 5 - Green	50 mtrs	Havells/Polycab
9	Ring type 16 Sq.mm Copper lugs	15 Nos.	Comet/Hex
10	Connectors male & female – MC4	10 pair	Elcom
11	UV cable ties - 300 mm	3 Nos.	Polycab/Equivalent UV protected
	AC/HT Equipments		
12	DCDB - 4 in 1 out DCDB with 12A fuse and SPD	1 No.	

13	Change Over – 63A, MCCB, 50 KA, 1 sec, solar to EB change over with metal enclosure	1 No.	
Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
	Earthing system & Accessories		
14	Lightening Arrestor - Multi spike 2 mtr height	1 No.	Excel earthing
15	Earthing Kit -17.2 mm Dia,copper bonded (250 microns) 3 mtr long, UL listed (Chemical earthing with clamp) with accessories	6 Nos.	Excel earthing
16	Earth Strip - 25 x 3 mm GI strip with nut & bolt and insulators	150 mtrs	Standard
	Conduit & Accessories		
17	2" UV protected black colour – 3 mtr length	30 Nos.	Standard
18	2" UV protected black colour T connector	20 Nos.	Standard
19	Numbering Ferrules and Aluminium cable Tags brother tap R,Y,B I,P,N,S 0 to 9	1 packet	Polycab
	Miscellaneous		
20	Sand bucket with sand	1 set	Standard
21	Fire Extinguisher	1 No.	Standard
22	PU Foam cartridge	2 Nos.	Standard
23	Module cleaning system – 1" PVC pipe for module cleaning including valves & flexible hose for complete power plant area	1 lot	
	Others		
24	Plant Nomenclature as per site requirement	1 No.	
25	Transportation	1 No.	
26	Installation & commissioning as per site requirement	10 Kwp	
27	AMC	3 years	

Annexure – 3
(3 KWp OFF Grid Solar Panel at Chief Engineer residential Board Quarters/MTPS1)

Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
	Major Equipment		
1	Solar pv modules - SBB Polycrystalline not less than 335 Wp with 10 years manufacturer warranty	09 Nos.	ORB/Renewsys/Equivalent Indian make
2	Solar Inverter - OFF Grid PCU – 3 KW, 50 Hz, 415 V rated with 120V DC rating	1 No.	Glowpower/Havells/Powerone
	Solar panel mounting Structures		
3	MMS -HDGI (Hot dipped Galvanised Iron) with 150 Kmph wind speed with minimum section thickness of 2mm and 80 microns, SS 304 fasteners, PCC pedestal 300x300x300 M25 grade civil pedestal mounting.	3 Kwp	JSW/Jindal/TATA steels
	Cable and Accessories		
4	Battery -12V, 120Ah, tubular solar battery	4 Nos.	Exide
5	DC Cable - 1C x 4 sq.mm Annealed tinned copper conductor EBXL XLPO 120 degree insulated & sheathed, 1.1 KV DC solar, class 5 - Red/black	60 mtrs	Siechem/Polycab
6	AC Cable - 3C x 6 sq.mm Annealed plain copper conductor XLPE insulated & unarmored PVC sheathed 1.1 KV power cable.	10 mtrs	Havells/Polycab
7	Earthing cable - 1C x 6 Sq.mm plain copper conductor PVC insulated & unsheathed cable 1.1 KV class 5 - Green	50 mtrs	Havells/Polycab
8	Ring type 6 Sq.mm Copper lugs	15 Nos.	Comet/Hex
9	Connectors male & female – MC4	5 pair	Elcom
10	UV cable ties - 300 mm	1 No.	Polycab/Equivalent UV protected
	AC/HT Equipments		
11	DCDB - 1 in 1 out DCDB with 12A fuse and SPD	1 No.	
12	Change Over – 2 pole 16A MCB, 50KA, 1 sec, solar to EB change over with metal enclosure	1 No.	

Sl.No.	Technical Specification	Quantity	Supplier/make/manufacturer
	Earthing system & Accessories		
13	Lightening Arrestor - Multi spike 2 mtr height	1 No.	Excel earthing
14	Earthing Kit -17.2 mm Dia,copper bonded (250 microns) 3 mtr long, UL listed (Chemical earthing with clamp) with accessories	4 Nos.	Excel earthing
15	Earth Strip - 25 x 3 mm GI strip with nut & bolt and insulators	60 mtrs	Standard
	Conduit & Accessories		
16	2" UV protected black colour – 3 mtr length	15 Nos.	Standard
17	2" UV protected black colour T connector	10 Nos.	Standard
18	Numbering Ferrules and Aluminium cable Tags brother tap R,Y,B I,P,N,S 0 to 9	1 packet	Polycab
	Miscellaneous		
19	Sand bucket with sand	1 set	Standard
20	Fire Extinguisher	1 No.	Standard
21	PU Foam catridge	2 Nos.	Standard
22	Module cleaning system – 1" PVC pipe for module cleaning including valves & flexible hose for complete power plant area	1 lot	
	Others		
23	Plant Nomenclature as per site requirement	1 No.	
24	Transportation	1 No.	
25	Installation & commissioning as per site requirement	3 Kwp	
26	AMC	3 years	

ANNEXURE – IV DETAILED SCOPE OF WORK

1. SCOPE :

Design, Supply, Erection, testing, commissioning and 3 years Maintenance of 30 KW ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1, 10 KW OFF Grid Solar roof mounted power project at roof top of New IB/MTPS1 and 03 KW OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1 complete with all Mountings and Accessories Under Turnkey basis (EPC Contract).

2. GENERAL REQUIREMENTS:

The Solar PV Power plant shall have capacity of **30KWp, 10 KWp and 3 KWp**. The power plants shall provide the following general requirements.

The plant should have the Capacity Utilization Factor (CUF) of not less than 19% as per the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations 2012. Supply of adequate capacity of SPV modules, inverters, Battery etc., to ensure maximum generation.

The power plant has to operate in parallel with the grid system which is an infinite electrical system. Any faults not taken care will result in damage of SPV power plant, thus the Solar Power Plant has to protect its equipment against any possible fault or other disturbances from the Grid.

All the materials shall be as per standard SPV plant requirements and may adhere to the necessary safety standards and environmental requirements.

A grid-tied Solar Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structures, Solar Grid Inverter (SGI), Batteries, control and protection devices, circuit breakers, interconnection cables and switches.

Components and parts used in the SPV power plants shall confirm to the BIS or IEC or other international specifications, wherever such specifications are available and applicable.

The supplier should be registered with TEDA.

3. Quality and Workmanship:

Solar PV modules are designed to last 25 years or more. It is therefore essential that all system components and parts, including the mounting structures, cables, junction boxes, distribution boxes and other parts also have a life cycle of at least 25 years. Therefore all works shall be undertaken with the highest levels of quality and workmanship. During inspection, TANGEDCO and its representatives will pay special attention to neatness of work execution and conformity with quality and safety norms.

Non compliant works will have to be redone at the cost of the Installer.

4. System Configurations:

Name of the Beneficiary	TANGEDCO, MTPS1
System capacity	30 kWp, 10 kWp and 3 kWp
Total power output of Panels	Should not be less than 30 kWp, 10 kWp and 3 kWp
Type of PV module	Indigenous Crystalline module
Minimum rated power of each module	335Wp and above
Solar Grid Inverter minimum KVA	Minimum KVA is as per the respective required capacity

5. Specifications of Solar PV Modules :

Solar PV modules should be of the crystalline silicon type, manufactured in India specifications of the solar PV modules are given below:

Type	Poly Crystalline silicon
Origin	Manufactured in India
Efficiency	$\geq 13\%$
Fill factor	$\geq 70\%$
warranty	Panel output (Wp) capacity to be $\geq 90\%$ at the end of 12 years and $\geq 80\%$ of at the end of 25years
Module frame	Non-corrosive and electrolytically compatible with the mounting structure material
Termination box	Thermo-plastic, IP 65, UV resistant
Blocking diodes	Schottky type
Module minimum rated power	The nominal power of a single PV module shall not be less than 335Wp .
RF Identification tag data	a) Name of the manufacturer of PV Module b) Name of the Manufacturer of Solar cells c) Month and year of manufacture (separately for solar cells and module) d) Country of origin (separately for solar cells and module) e) I-V curve for the module f) W_m , I_m , V_m and FF for the module g) Unique Serial No and Model No of the module h) Date and year of obtaining IEC PV module qualification certificate i) Name of the test lab issuing IEC certificate j) Other relevant information on traceability of solar cells and module as per ISO 9000 standard.
Power output rating	To be given for standard test conditions (STC). IV curve of the sample module shall be submitted
Compliance with standards and codes	IEC 61215 / IS 14286 IEC 61730 Part 1 and 2

The PV System shall support Remote Monitoring of important Parameters. The system shall be designed such that personnel without any background knowledge in Microprocessor-based Technology are able to operate the System. The operator interface shall be such that operating personnel shall be able to operate the system easily after having received some basic training.

- a) The Manufacturer shall arrange Certification on Qualification of PV Modules.
- b) The SPV Cells shall be manufactured using unique highly efficient diffusion process or any other technology, so as to ensure uniform diffusion profiler to achieve close spread and higher efficiency for each cell.
- c) The PV Modules shall be made of light weight cells, resistant to abrasion, hail impact, rain, water and environmental pollution. The PV Modules shall be provided with antireflection coating and Back Surface Field (BSF) structure to increase conversion efficiency.
- d) The PV Module shall use lead wire with weather proof connector for output terminal.
- e) The terminal box on the module should have a provision for opening for replacing the cable, if required.

6. Solar PV Mounting Structure :

The PV modules shall be mounted on fixed metallic structures having adequate strength and as per specifications given below which can withstand the load of the modules and high wind velocities. The array structure will be made of hot dip galvanized steel or aluminium. The Civil, Fabrication works required for the successful Installation and Commissioning of complete system shall also be in scope of Supplier.

7. Detailed specifications for the mounting structure are given below :

Wind velocity withstanding capacity	150 Km/hr
Structure material	Hot dip galvanized steel with a minimum galvanization thickness of 80 microns and the structural patterns shall be made before galvanizing.
Bolts, nuts, panel mounting clamps, fasteners (with spring washers)	Stainless steel SS 304
Mounting arrangement for RCC flat roofs	The structure has to be securely anchored to the supporting surface. Concrete foundations of appropriate weight and depth for structures mounted directly on the ground. Bolted with anchor bolts of appropriate strength for structures mounted on RCC surfaces.
Installation	The structures shall be designed for simple mechanical on-site installation. There shall be no requirement of welding or complex machinery at the installation site
Minimum distance between roof edge and mounting structure	0.6 m
Access for panel cleaning and maintenance	Provisions to be made for module cleaning system. All solar panels must be accessible from the top for cleaning and from the bottom for access to the module junction box.
Panel tilt angle	North – south orientation with a fixed tilt angle of 11 – 13 degrees (depending on location), south facing

8. Solar Array Fuse :

The cables from the array strings to the solar grid inverters shall be provided with DC fuse protection. Fuses shall have a voltage rating and current rating as required. The fuse shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

9. Solar Inverter for ON Grid Solar system :

The solar grid inverter converts the DC power of the solar PV modules to grid-compatible AC power. The detailed specifications of the solar grid inverter are given below.

Total output power (AC)	To match solar PV plant capacity while achieving optimum system efficiency
Input DC voltage range	As required for the solar grid inverter DC input.
Maximum power point (MPPT) tracking	Shall be incorporated
Number of independent MPPT inputs	1 or more
Operation AC voltage	For above 4kWp - Three phase 415V (+ 12.5%, -20%)

Operating Frequency range	47.5 – 52.5 Hz
Nominal frequency	50 Hz
Power factor of the inverter	>0.98 at nominal power
Total harmonic distortion	Less than 3%
Built-in Protection	<ul style="list-style-type: none"> • AC high / low voltage; AC high /low Frequency • The PCU must automatically synchronize with the grid and should shutdown in case of faults and very low power generation, and wake-up automatically from shutdown state. • In all faulty conditions the system should get isolated from grid and should start working when the grid is healthy. • Phase sequence reversal should be automatically detected and system should continue to work. • Anti- Island Protection: When the grid fails the system should stop operation and it get isolated from the grid within a cycle before getting any damage to the system.
Anti-islanding protection	As per VDE 0126-1-1 / IEC 60255.5 / IEC 60255.27 / IEC 62116
Operating ambient temperature range	-10 °C - +60 °C
Humidity	0 – 95% Rh
Inverter efficiency	>=98%
Inverter weighted efficiency	>=94%
Protection degree	IP 65 for outdoor mounting, IP 54 for indoor mounting
Communication interface	RS 485 / RS 232 / RJ45
Safety compliance	IEC 62109-1, IEC 62109-2
Environmental Testing	IEC 60068-2 (1,2,14,30)
Efficiency Measurement Procedure	IS/IEC 61683
Cooling	Convection
Display type	LCD for data display. LCD / LED for status display
Display parameters to include	Output power (W), cumulative energy (Wh), DC voltage (V), DC current (A), AC voltage (V), AC frequency (Hz), AC current (A), cumulative hours of operation (h).

Vendor is required to optimize generation of electricity in terms of kWh generated with available Solar Radiation at the site (may be obtained through use of efficient electronics, lower cable losses, maximization of power transfer from PV Modules to Converter and the Grid etc).

- a) In a grid interactive system AC power shall be fed to the grid at three phase, 3 wire 415V AC bus which is normally energized from 11KV/415V Distribution transformer KVA capacity feeds load of lighting, ceiling fans, Air conditioners etc., Power

generated from the solar system during the daytime is utilized fully by powering to the grid as long as grid is available.

- b) The output of the inverter must synchronize automatically its AC output to the exact AC voltage and frequency of the grid.
- c) Inverter shall continuously monitor the condition of the grid and in the event of grid failure, the inverter automatically switches to off-grid supply within a cycle. The solar system is resynchronized with the grid within two minutes after the restoration of grid.
- d) Grid voltage shall also be continuously monitored and in the event of voltage going below a preset value and above a preset value, the solar system shall be disconnected from the grid within the set time.
- e) Metal Oxide Varistors (MOVs) of required rating shall also be provided on DC and AC side of the inverter.
- f) The rating of inverter control unit shall be such that to operate the PV system to its maximum power output.
- g) The inverter shall be a true sine wave inverter for a grid interactive PV system.
- h) Following shall also be displayed Protective function limits (AC over voltage, AC under voltage, Over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay over frequency, ground fault delay, PV starting delay, PV stopping delay.)
- i) Nuts & bolts and the inverter enclosure shall have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- j) All doors, covers, panels and cable exit shall be gasketed or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks.
- k) Operation Mode :
 - Night or Sleep Mode: where the Inverter is almost completely turned off, with just the timer and control system still in operation, losses shall be less than 2 W per 5 kW
 - Standby Mode: where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10 W).
 - The control system continuously adjusts the voltage of the generator to ensure the delivery of the power available. The power conditioner shall automatically reenter standby mode as input power reduces below the standby mode threshold. Front panel shall provide display of status of the inverter.

10. Battery for OFF Grid Solar system :

- i) Type - Solar tubular battery
- ii) Battery should have a minimum rating @ 7.2 Vah/Wp at C/10 rate of discharge. The voltage of battery may be selected according to the PCU design.
- iii) The capacity of battery bank is 120V-120 Ah for 10 kW Plant, 48V-120 Ah for 03 kW Plant, and for individual battery is 12V/120 Ah
- iv) 75 % of the rated capacity of the battery should be between fully charged & load cut off conditions. • Battery should conform to the latest BIS/ International standards. A copy of the relevant test certificate for the battery should be furnished.

- v) The battery should be warranted for minimum 5 years
- vi) The battery should be installed inside the premises of consumers on a Battery rack of acid resistant material to bear the required battery load. The non-reactive acid proof mat should be provided around the floor space of battery bank
- vii) The capacity of battery bank should be for 6 hr backup (i.e., 7.2 Vah/Wp). The voltage of battery may be selected according to the PCU design.
- viii) The batteries should conform to IS 1651 / IS 13369/ International standards. Capacity of the battery bank shall not be less than as specified above at C10 rate.
- ix) The battery should be installed inside the premises of the consumers on a Battery rack of acid resistance materials to bear the required battery load.

11. PCU/ INVERTER for OFF Grid solar system :

The power conditioner unit/ central inverter should be provided to convert DC power produced by SPV modules, in to AC power. The power conditioning unit/inverter should be Off-Grid type. Typical technical features of the inverter shall be as follows:

Power conditioning unit with inbuilt charge controller of capacity & ratings as specified in the below for various capacity of Solar Power Plants should convert DC power in to AC power, must confirm to standards IEC 61683.

a) The PCU will have the following features:

- i) MOSFET / IGBT based MPPT charging
- ii) Wide input voltage range
- iii) Output voltage 230 V+ 2% of modified/ pure sine wave for single phase PCU & 440 V + 2% for three phase PCU, iv) Output frequency : 50 Hz+0.5 Hz
- v) Capacity of PCU/ Inverter is specified at 0.8 lagging power factor
- vi) THD : less than 3% , vii) Efficiency : >85% for 5 KW &> 90 % for 10 KW capacity of PCU at full load, viii) Ambient Temp 50 degree Celsius (max.) ix) Operating humidity 95% maximum

b) Protections: -

- i) Over voltage (automatic shut down) , ii) Under voltage (automatic shut down)
- iii) Overload, iv) Short circuit (circuit breaker & electronics protection against sustained fault)
- v) Over Temperature, vi) Battery, PV reverse polarity

c) Indicators

- i) Array on, ii) MPPT charger on, iii) Battery connected, charging, iv) Inverter ON
- v) Load on solar/ battery, vi) Grid charger on, viii) Grid on

d) Display Parameters

- i) Charging current, ii) Charging voltage, iii) Voltage of PV panels, iv) Output voltage
- v) Grid voltage, vi) Inverter loading (kW) & Energy Generation (kWh), vii) Output frequency

e) Cooling:

- i) Air Cooled
- ii) When battery bank is fully charged, the PCU should have the feature to feed the power generated from solar to load and draw the additional power from main supply to meet the load requirements in the case load is more than solar energy produced.
- iii) The PCU/ inverters should be tested from the MNRE approved test center's / NABL /BIS accredited testing- calibration laboratories.
- iv) In case of imported power conditioning units, these should be approved by international test

houses

12. DC Combiner Box :

A DC Combiner Box shall be used to combine the DC cables of the solar module arrays with MCCB (for both positive & negative) protection for the outgoing DC cable(s) to the DC Distribution Box.

13. DC Distribution Box :

A DC distribution box shall be mounted close to the solar grid inverter. The DC distribution box shall be of the thermo-plastic IP65 DIN-rail mounting type and shall comprise the following components and cable terminations:

- Incoming positive and negative DC cables from the DC Combiner Box;
- DC circuit breaker, 2 pole (the cables from the DC Combiner Box will be connected to this circuit breaker on the incoming side);
- DC surge protection device (SPD), class 2 as per IEC 60364-5-53;
- Outgoing positive and negative DC cables to the solar grid inverter.

As an alternative to the DC circuit breaker a DC isolator may be used inside the DC Distribution Box or in a separate external thermoplastic IP 65 enclosure adjacent to the DC Distribution Box. If a DC isolator is used instead of a DC circuit breaker, a DC fuse shall be installed inside the DC Distribution Box to protect the DC cable that runs from the DC Distribution Box to the Solar Grid Inverter.

14. AC Distribution Box:

An AC distribution box shall be mounted close to the solar grid inverter. The AC distribution box shall be of the thermo plastic IP65 DIN rail mounting type and shall comprise the following components and cable terminations:

- Incoming 5-core (three-phase) cable from the solar grid inverter.
- AC circuit breaker, 4-pole.
- AC surge protection device (SPD), class 2 as per IEC 60364-5-53
- Outgoing cable to the building electrical distribution board
- Connection to the Building Electrical System.

The AC output of the solar grid inverter shall be connected to the changeover switch panel in the building electrical system as per site condition. The connection to the electrical system of the building shall be done under the scope of contractor.

15. Cables :

Power Cables of adequate rating shall be required for interconnection of Modules/panels within array.

- All cables shall be supplied conforming to IEC 60227/ IS 694 & IEC 60502/ IS 1554.
Voltage rating: 1,100V AC, 1,500V DC.

DC Cable: 1C X 4 mm², 1C x 6 Sq.mm Annealed Tinned Copper Conductor, EBXL XLPO 120° Insulated & Sheathed, 1.1kV DC Solar, Class 5- Red/Black. **Multi-core cables shall not be used.**

AC Cable : 4C X 16 mm², 3C x 6 Sq.mm Annealed Plain Copper Conductor, XLPE Insulated & Unarmoured PVC Sheathed 1.1kV Power Cable.

AC Cable : 4C X 50 mm² Annealed Plain Aluminium Conductor, XLPE Insulated & armoured PVC Sheathed 1.1kV Power Cable.

Earth Cable : 1C X 16 mm², 1C x 6 Sq.mm Plain Copper Conductor, PVC Insulated & Un sheathed Cable 1.1kV,Class 5 -Green.

- For the DC cabling, Solar cables with multi stranded copper conductors XLPE or XLPO insulated and sheathed with the voltage rating of 1500 V DC or higher UV stabilized single core flexible copper cables shall be used. **Multi-core cables shall not be used.**
- For the AC cabling, PVC or XLPE insulated and PVC sheathed single or multi-core flexible copper cables shall be used. Outdoor AC cables shall have a UV-stabilised outer sheath.
- The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.
- The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.
- The DC cables from the SPV module array shall run through a UV stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm or through a High Density Poly Ethylene (HDPE) conduit. The conduits shall not run across the path way of the platform. Flexible corrugated PVC conduits shall not be used.
- Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.

All cables and conduit pipes shall be clamped to the roof top, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm

- **The minimum AC and DC cable size shall be as per the diagram enclosed.**

In three phase systems, the size of the neutral wire shall be equal to the size of the phase wires. The following colour coding shall be used for cable wires:

DC positive	: red (the outer PVC sheath can be black with a red line marking)
DC negative	: black
AC three phase	: Phases- red, yellow, blue
Neutral	: black
Earth wires	: green

Cables and conduits that have to pass through walls or ceilings shall be taken through a PVC pipe sleeve.

- Cable conductors shall be terminated with tinned copper end-ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.
- Cable lugs and end –ferrules for all cable conductor and wire terminations shall be crimped with crimping pliers and end-ferrule pliers.
- All cable ties shall be UV resistant.

16. Earthing :

- The PV module structure components shall be electrically interconnected and shall be grounded.
- Earthing shall be done in accordance with IS 3043-1986, provided that earthing conductors shall have a minimum size of 6.0 mm² copper, 10 mm² aluminium or 70 mm² hot dip galvanized steel. Unprotected aluminium or copper-clad aluminium conductors shall not be used for final underground connections to earth electrodes.
- A dedicated earth electrode must be used for the earthing of DC side and AC side separately.
- The earth electrodes shall have a precast concrete enclosure with a removable lid for inspection and maintenance. The entire earthing system shall comprise non-corrosive components.

17. Surge protection :

- Surge protection shall be provided on both the DC and the AC side of the solar system.
- The inverter shall not permit the surges transferred from A.C to D.C and vice versa by having suitable isolation mechanism . If the facility is not available internally, a suitable isolation transformer shall be additionally provided .
- The DC surge protection devices (SPDs) shall be installed in the DC distribution box adjacent to the solar grid inverter.
- The AC SPDs shall be installed in the AC distribution box adjacent to the solar grid inverter.
- The SPDs earthing terminal shall be connected to earth through the above mentioned dedicated earthing system. The SPDs shall be of type 2 as per IEC 60364-5-53

18. Lightning Protection :

Lightning protection as per IS 2309 "Protection of Buildings and Allied structures against Lightning – code of practice" (second revision)(1989) shall be provided.

19. Junction Boxes:

- Junction boxes and solar panel terminal boxes shall be of the thermo plastic type with IP 65 protection for outdoor use and IP 54 protection for indoor use.
- Cable terminations shall be taken through thermo-plastic cable glands. Cable ferrules shall be fitted at the cable termination points for identification.

20. Data Monitoring for ON Grid system :

- a) For online monitoring, a data logging system shall be provided and the same shall be fixed at a reachable height.
- b) Net / SIM based Data logging system shall be provided. The data storage facility has to be provided in the Inverter. The net charges will have to be borne by the installer till the completion of 3 year guarantee period.

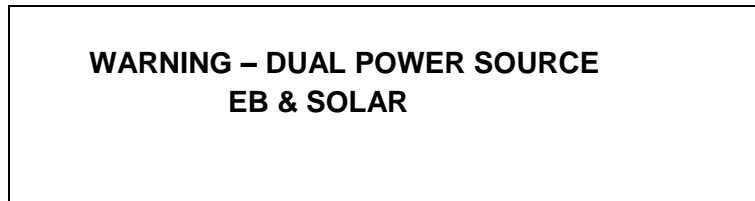
21. Tools, Tackles and Spares :

- The Installer shall keep ready stock of tools, tackles and essential spares that will be needed for the day-to-day maintenance of the solar PV system. This shall include but not be limited to, the following:
- Screw driver suitable for the junction boxes and combiner boxes; Screw driver and / or Allen key suitable for the connectors, power distribution blocks, circuit breaker terminals and surge arrester terminals.
- Spanners / box spanners suitable for the removal of solar PV modules from the solar PV module support structure;
- Solar panel mounting clamps
- Cleaning tools for the cleaning of the solar PV modules, spare fuses

22. Caution Signs :

In addition to the standard caution and danger boards or labels as per Indian Electricity Rules, the AC distribution box near the solar grid inverter and the building distribution board to which the AC

output of the solar PV system is connected, shall be provided with a non-corrosive caution label with the following text:



- The size of the caution label shall be 105mm (width) x 20mm (height) with white letters on a red background.
- Caution labels as may be prescribed by TANGEDCO shall be fixed as per TANGEDCO specifications.

23. Metering for ON Grid system :

A suitable net meter of adequate capacity shall be fixed in the LT bus module. Net meter shall be supplied by TANGEDCO. The cabling /wiring up to meter location shall be done by the contractor. An isolation switch shall be erected near the meter for the purpose of safety/emergency need/maintenance. This shall be supplied by the contractor.

24. Documentation

i) The Installer shall supply the following documentation:

- a) System description with working principles.
- b) System single line diagram.
- c) Solar PV array lay-out.
- d) Routing diagram of cables and wires.
- e) Data sheets and user manuals of the solar PV panels and the solar grid inverter.
- f) A system operation and maintenance manual.
- g) Name, address, mobile number and email address of the service Centre to be contacted in case of failure or complaint.
- h) Warranty cards.
- i) Maintenance registers.

ii) Test Certificates and Reports to be Furnished :

Test Certificates / Reports from IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard for quoted components shall be furnished. Type Test Certificates / reports shall be provided for the solar modules and solar grid tied inverters up to 30kW to provide evidence of compliance with standards as specified above. TANGEDCO reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.

25. GENERAL CONDITONS :

All the fittings and accessories that might not have been mentioned specifically in the specification but are necessary for equipment's of the Plant, shall be deemed to be included in the specification and shall be supplied and furnished by the Contractor without any extra charge.

It shall be responsibility of the Bidder to ensure that all the works as per scope of the specification are completed for safe and efficient working of the system.

- a) The Bidder shall carry out all the necessary co-ordination with regard to subcontracted items. The Purchaser/MTPS-I will communicate only with the Bidder for all matter pertaining to this contract.

- b) It shall be responsibility of the Bidder to obtain all necessary Statutory and Regulatory clearances from the Competent Authorities.
- c) The Total Price Quoted for this contract shall be one lump sum all-inclusive basis and shall cover all items and service necessary for successful completion of the contract. Even if all components of a system included in this specification are not explicitly identified and /or listed herein, these shall be supplied under this contract to ensure completion of the system and facilitate proper operation and easy maintenance of the Plant.
- d) It shall be responsibility of the Bidder to co-ordinate along with required support with the Competent Authorities to obtain the Subsidy.
- e) The breakup of lump sum price shall also be given for clarity.
- f) Bidder should depute its representative to attend any sort of breakdown within 48 hours after registering the complaint.
- g) Bidder can contact Engineer In charge (Electrical) for further clarification required to quote for the requirements.
- h) If required Party can visit the site to study the probable location for Installation of the Plant to have more clarity to submit the Bid.

26. DELIVERY AND COMPLETION PERIOD :

The entire work comprising Design, Engineering, Manufacture, Inspection and Testing of Performance, at Manufacturer's and/or Bidder's works, Delivery to Site, Erection, Testing and Commissioning shall be carried out within the period of 3 Months from the issue of Work Order/Purchase Order.

SD/---
SE/P&A/MTPS-I

SECTION – I

EARNEST MONEY DEPOSIT

- 1) Tenderer should pay the specified amount towards Earnest Money Deposit as follows
: Earnest Money Deposit : Rs. 23,550 /- (Rupees Twenty three thousand five hundred and fifty only).
- 2) The Earnest Money Deposit specified above should be made through Electronic fund transfer mode in the form of NEFT/RTGS / Account transfer to TANGEDCO's Account as mentioned above in 5 (a) of Foreword for the above amount.

Scanned copy of the E-receipt duly reflecting the UTR Number must be uploaded. If the EMD amount is transferred from the bidder's account to TANGEDCO's account, then the details reflecting the debit amount from the bidder's account must be uploaded. The EMD amount has to be received in TNEB/TANGEDCO account **through e payment, 2 hours before closing time of tender**. **EMD amount received beyond tender closing time will be summarily rejected.**

- 2.1) In case the EMD remittance through same Bank, a copy of Bank account scroll of bidders duly exhibiting the transaction of EMD amount with details of name of the bank account number of the bidder, and IFSC Code shall be uploaded, so as to verify the credit of same in TANGEDCO bank account scroll for ensuring the EMD compliance of bidders.
- 3) The Tenderers who are having valid Permanent EMD with TANGEDCO for an amount as mentioned below are exempted from payment of Earnest Money Deposit and are eligible to participate in the tender.

PEMD Slab

For Tenders of value

- | | | |
|---------------------|---|---|
| a) Rs. 2,00,000/- | : | In case of all Iron and steel materials, main producers (Government of India Undertaking only) for procurement of Iron & Steel materials. |
| b) Rs.20,00,000/- | : | Not exceeding 10 Crores |
| c) Rs.40,00,000/- | : | Not exceeding 50 Crores |
| d) Rs.1,00,00,000/- | : | All tenders without any monetary limit |

If the Tenderer desires to become a Permanent E.M.D. holder, he is advised to deposit the required amount with the TANGEDCO as Permanent E.M.D. well in advance, obtain a certificate from the Financial Controller/Purchase and upload copy of the same along with the tender.

- 4) Proof for exemption from payment of Earnest Money Deposit towards the Earnest Money Deposit shall be furnished. The tenders received without Earnest Money Deposit / Proof for exemption will be rejected.
- 5) Any other mode of payment of EMD other than NEFT/RTGS/Account transfer to TANGEDCO's Account shall not be accepted towards EMD and the tenders shall be rejected if EMD is not paid in the prescribed manner.
- 6) The Earnest Money Deposit will be refunded to the unsuccessful tenderers on application after intimation of rejection of tender is sent. The amount will not carry any interest.
- 7) The EMD of successful tenderer will be adjusted towards SD.
- 8) The tenderers who are registered with DGS & D Rate Contract are not exempted from payment of EMD against this tender.
- 9) The EMD will not carry any interest.
- 10) **Having examined the tender specification together with the schedules attached, the bidder is deemed to accept to pay the amount equivalent to EMD, together with costs if**

any, in the events of non-fulfilment of the conditions stipulated in the tender specification i.e. in all cases where EMD paid will be forfeited. The GST applicable for the above shall also be paid to TANGEDCO by the bidder.

The Tenderer is deemed to accept to pay the amount equivalent to EMD immediately when a demand is raised by Board against the Tenderer without any demur in the event of the following.

1. If he withdraws his tender or backs out after acceptance of the tender or fails to remit the Security Deposit.
2. If he revises any of the terms quoted during the validity period.
3. If he violates any of the conditions of the tender specification.

Now the condition is such that if the Tenderer shall duly and faithfully observe and perform the terms and conditions specified in terms of the above, then the above condition shall be void. Otherwise the same shall remain in full force.

The Tenderer undertakes not to revoke this guarantee till the contract is completed under the terms of contract.

11) An undertaking shall be furnished by the successful bidders that they would pay a penalty an amount equivalent to Earnest money Deposit / Security Deposit or an amount equal to the actual loss incurred by the procuring entities whichever is less in the event of non-fulfillment or non-observance of any of the conditions stipulated in the contract.

12) EXEMPTION FOR PAYMENT OF EARNEST MONEY DEPOSIT :

a) i) Micro and Small Enterprises located within the State of Tamil Nadu are exempted from payment of Earnest Money Deposit against the production of a copy of 'Udyam Registration Certificate' or any other valid registration certificate / proof as notified by the Government of India in respect of the items manufactured by them for participation in the tenders floated by the Government Departments, State Public Sector Undertakings, Statutory Boards, Local Bodies, Co-operatives, Universities and Societies formed by the Government and whenever it is deemed necessary, the procuring entity may inspect the unit and satisfy themselves with regard to verifying the credentials of the applicants on the line of activity pursued by such manufacturers, quality and production capacity and other relevant factors.

ii) Departments of the Government of Tamil Nadu.

iii) Undertakings and Corporations owned by the Government of Tamil Nadu.

iv) Labour Contract Co-operative Societies.

b) Central and the State Government Departments/ Undertakings and Corporations other than those in Tamil Nadu shall have to pay Earnest Money Deposit.

Note : The SSI units located outside the State of Tamil Nadu are not eligible for exemption from payment of EMD in TANGEDCO tenders against Udyam Registration Certificate even though registered in Udyam Portal for tendered items.

13) DOCUMENTS TO BE UPLOADED AS A PROOF OF ELIGIBILITY FOR EXEMPTION FROM PAYMENT OF EARNEST MONEY DEPOSIT:

a) A copy of 'Udyam Registration Certificate' or any other valid registration certificate / proof as notified by the Government of India in respect of the items manufactured by them.

b) Those tenderers under exempted Category from payment of EMD shall upload an undertaking in lieu of EMD in a non-judicial Stamp paper of value not less than Rs.80/- (Rupees Eighty only) in the form as per Annexure - III.

c) The proof for Permanent EMD.

d) Certificate from Chartered Accountant for turn over value for the purpose of classification as per Notification No. S.O.2119 (E) dt 26.06.2020 of Government of India, Ministry of MSME.

e) Certificate from Chartered Accountant for investment value in Plant and Machinery for the purpose of classification as per Notification No.S.O.2119 (E) dt 26.06.2020 of Government of India, Ministry of MSME.

In the event of non-fulfillment or non-observance of any of the conditions stipulated in the contract consequent to such breach of contract to the effect to pay as penalty an amount equivalent to EMD. The State Government, Public Sector Undertakings who are exempted from payment of EMD / SD should also pay as penalty an amount equivalent to the amount fixed as Security Deposit in the event of non-fulfillment or non-observance of any of the conditions stipulated in the contract.

Note : PROCEDURE FOR REGISTRATION OF MICRO, SMALL & MEDIUM ENTERPRISES BY COMPOSITE CRITERIA IN UDYAM REGISTRATION & GUIDELINES

Government of India, Ministry of MSME, vide Notification No.S.O.2119(E) dated 26.06.2020 has notified certain composite criteria for classifying the enterprises as Micro, Small and Medium Enterprises and insisted Udyam registration in "Udyam Registration Portal" to obtain an e-certificate viz. Udyam Registration Certificate.

Composite Criteria: A composite criteria of investment in Plant and Machinery or equipments and turnover has been specified to classify an enterprises as Micro, Small and Medium.

The composite criteria stipulated in the said notification are to be complied by the micro and small industries for claiming EMD exemption and purchase preference in TANGEDCO's tenders floated from 01.07.2020 onwards.

Classification of Enterprises: An enterprise shall be classified as a micro, small or medium enterprises on the basis of the following criteria, namely:--

- (i) a micro enterprise, where the investment in plant and machinery or equipment does not exceed one crore rupees and turnover does not exceed five crore rupees
- (ii) a small enterprise, where the investment in plant and machinery or equipment does not exceed ten crore rupees and turnover does not exceed fifty crore rupees; and
- (iii) a medium enterprise, where the investment in plant and machinery or equipment does not exceed fifty crore rupees and turnover does not exceed two hundred and fifty crore rupees.

Calculation of Turnover:

In calculation of turnover of an enterprises, Exports of goods or services or both, shall be excluded while calculating the turnover of any enterprise whether micro, small or medium, for the purposes of classification.

The turnover value has to be certified by a Chartered Accountant whose turnover includes export proceeds, for ascertaining the turnover achieved on export of goods or services or both and included in the total turnover and same is to be uploaded in the bids in case the bidder claims EMD exemption.

Calculation of Investment:

The Plant and Machinery shall have the same meaning as assigned to the plant and machinery in the Income Tax Rules, 1962 framed under the Income Tax Act, 1961 and shall include all tangible assets (other than land and building, furniture and fittings). The cost of certain items specified in the Explanation I to sub-section (1) of section 7 of the Act shall be excluded from the calculation of the amount of investment in plant and machinery.

The investment value in Plant and Machinery for the purpose has to be certified by a Chartered accountant and the same is to be uploaded in the bid in case the bidder claims EMD exemption.

Registration of existing enterprises :

- i. All existing enterprises registered under EM-Part-II or UAM shall register again on the Udyam Registration portal on or after the 1st day of July, 2020.
- ii. All enterprises registered till 30th June, 2020, shall be re-classified in accordance with

the said notification.

iii. An enterprise registered with any other organisation under the Ministry of Micro, Small and Medium Enterprises shall register itself under Udyam Registration.

Updation and transition period in classification :

An enterprise having Udyam Registration Number shall update its information online in the Udyam Registration portal, including the details of the ITR and the GST Return for the previous financial year and such other additional information as may be required, on self declaration basis.

In case of an upward change in terms of investment in plant and machinery or equipment or turnover or both, and consequent re-classification, an enterprise will maintain its prevailing status till expiry of one year from the close of the year of registration.

In case of reverse-graduation of an enterprise, whether as a result of re-classification or due to actual changes in investment in plant and machinery or equipment or turnover or both, and whether the enterprise is registered under the Act or not, the enterprise will continue in its present category till the closure of the financial year and it will be given the benefit of the changed status only with effect from 1st April of the financial year following the year in which such change took place.

14) CONDITIONS FOR REJECTION OF BIDS OF EXEMPTION CATEGORIES :

- a) If the documentary evidences towards exemption from payment of EMD are not uploaded.
- b) If the tendered items/ services are not covered in the Registration Certificate uploaded as evidence for exemption from payment of EMD.
- c) If the undertaking is without signature of witnesses along with the details of their name and address.
- d) If not furnished the certificates from Chartered Accountant in support of investment held in plant and machinery or equipment and turnover value.
- e) If the documentary evidences produced for exemption from payment of EMD not attested by the Gazetted Officer/ Notary public.
- f) If the SSI units located outside the state of Tamil Nadu availed for EMD Exemption.
- g) If the proof of exemption of EMD with an Undertaking in lieu of EMD / proof for Permanent EMD not uploaded.

15) The following should be uploaded by the Vendor during submission of Techno-commercial bid for payment of EMD failing which the offer will be SUMMARILY REJECTED.

- i) The e-receipt of payment of EMD through NEFT/ RTGS/ Account Transfer
- ii) The proof of exemption of EMD for micro and Small Enterprises located within the State of Tamil Nadu with an Undertaking in lieu of EMD.
- iii) The proof for permanent EMD.
- iv) Certificates from Chartered Accountant in support of investment held in plant and machinery or equipment and turnover value for classification.

16) The Earnest Money Deposit made by Tenderer will be forfeited after e-tender opening if:

- (a) the firm withdraws the tender or backs out after acceptance.
- (b) the firm withdraws the tender before the expiry of validity period stipulated in the Specification or fails to remit the Security Deposit.
- (c) the firm violates any of the provisions of these regulations contained herein.
- (d) the firm revises any of the terms quoted during the validity period.
- (e) In the event of documents furnished with the offer / bid qualification requirements are found to be fraudulent / non – genuine / bogus or the documents contain false particulars, the EMD paid by the tenderers will be forfeited in addition to blacklisting them for future tenders/ contracts in TANGEDCO.

- (f) If the successful tenderer fails to execute the order placed on them to the satisfaction of TANGEDCO.
- (g) In case of tenderers participating on the strength of exemption categories, an amount equivalent to the EMD for this specification will stand forfeited in the event of such tenderer committing any one of the acts listed above.
- (h) In case of tenders participating on the strength of PEMD, an amount equivalent to the EMD for this specification will stand forfeited in the event of such tenderer committing any one of the acts listed above.

Sd/---

CHIEF ENGINEER / MTPS-I(fac)

SECTION – II

BID QUALIFICATION REQUIREMENTS (BQR)

The Bidder shall become eligible to bid on satisfying the following Bid Qualification Requirements and uploading of the required documentary evidences attested by a Gazetted officer / Notary Public.

1)The bidder should have erected 30KWp or above capacity Solar PV Panel plant at Roof top / ground mounting in EPC Contract in a single order value of more than Rs.5.88 lakhs within the past 10 years as on the date of tender opening in TNEB (TANGEDCO/TANTRANSCO) / State or Central Government organizations / Public Sector Undertaking / State Electricity Boards in India. The date of the purchase order will be reckoned for ascertaining the eligibility of the tender. The purchase order in complete shape should be scanned and uploaded during e-tender.

2)The bidder should have an annual turnover of more than Rs.5.88 lakhs in any one of the three financial years (2018-2019, 2019-20,2020-21).

3)The bidders should scan and upload any one of the following statement in support of annual turnover for all the three financial years .(2018-2019, 2019-20,2020-21)..

- i) Attested photo copies of Annual Audited balance sheet /profit & Loss statement duly certified by a Chartered Accountant (or)
- ii) Attested copy of turn over statement duly certified by a Chartered Accountant (or)
- iii) Attested copy of sales tax/ GST return filed by the bidder (or)
- iv) Attested copy of Income tax return filed by the bidder (or)
- v) Attested copy of Enlistment certificate issued by NSIC containing turnover details of the bidder as a proof of annual turnover.

4) Joint Venture/Consortium Agreement, Sub-contract will not be considered for BQR eligibility.

Note :- The documentary proof for the above BQR shall be scanned and uploaded, failing which their bid will be summarily rejected.

SD/----
CHIEF ENGINEER / MTPS-I(fac)

SECTION – III
INSTRUCTION TO TENDERERS

1.0) SCOPE OF SUPPLY:

- 1.1) The Scope of supply (described in Annexure – I) includes packing, forwarding, insurance and delivery of the materials detailed herein, at Central Stores / MTPS-I / Mettur Dam-6.
- 1.2) The quantity indicated in schedule of requirement is approximate. The quantity finally ordered may vary to the extent of 25% either way of the approximate quantity indicated in the Schedule of requirement.

2.0) SUBMISSION OF TENDER OFFER:

- 2.1) The tenderer is expected to examine all instructions, Schedules and Annexures detailed in the Specification and submit the Schedule of Prices and other required particulars in the Schedules and Annexures called for in this Specification, only as per the formats prescribed herein.
- 2.2) The Tender Offer consisting of Schedules – A to G, Annexure – I to VI should be filled up and signed by the Tenderer or any person holding Power of Attorney authorizing him to sign on behalf of the Tenderer before submission of the Tender. The date of signature should invariably be indicated.
- 2.3) In the event of tender being submitted by other than a firm, it must be signed by a partner (copy of partnership deed should be enclosed) and in the event of the absence of any Partner, it shall be signed on his behalf by a person holding a Power of Attorney authorising him to do so, Certified copies of which shall be enclosed.
- 2.4) Tender submitted on behalf of companies registered under the Indian Companies Act, shall be signed by person duly authorised to submit the tender on behalf of the company and shall be accompanied by certified true copies of the resolutions, extracts of the Articles of Association, special or general Power of Attorney etc to show clearly the title, authority and designation of persons signing the tender on behalf of the company.

3.0) MODIFICATIONS/CLARIFICATIONS TO TENDER DOCUMENTS:

- 3.1) At any time after the commencement of e-Tender and before the closing of the event, TANGEDCO may make any changes, modifications or amendments to the tender documents and same will be intimated to the concerned Vendors through corrigendum which can be downloaded from the Vendor login.
- 3.2) In case any tenderer asks for a clarification to the tender documents before 48 hours of opening of tenders, the Superintending Engineer / P&A / MTPS-I will clarify the same.
- 3.3) If any tenderer raises clarifications after the opening of the tender, the clarified reply issued by the Superintending Engineer / P&A / MTPS-I on the clarifications will be final and binding on the Tender.
- 3.4) All tender offers shall be prepared by typing or printing in the formats enclosed with this specification.
- 3.5) **All information in the tender offer shall be in ENGLISH only.** It shall not contain interlineations, erasures or overwritings except as necessary to correct errors made by the tenderer. Such erasures or other changes in the tender documents shall be attested by the persons signing the tender offer.

4.0) TENDER OPENING:

4.1) OPENING OF COMMERCIAL & TECHNICAL BIDS WITHOUT PRICE: (PART-I)

The Tender offers except price Bid will be **opened electronically at 14.30Hrs. on the date notified at the Office of Executive Engineer / MM / MTPS-I /MetturDam, through <https://www.tntenders.gov.in/> nicgep/app. in the presence of tenderer's authorized representative who may wish to be present on the date of opening.**

4.2) OPENING OF THE PRICE BIDS: (PART-II)

The date and time of opening of Price Bids shall be later notified through registered e-mail to the Bidders who fulfill the BQR criteria and whose bids are found to be commercially and technically acceptable.

4.3) If the due of the tender opening is declared as a holiday, the tender will be opened on the next working day at 14.30 hours.

5.0) INFORMATION REQUIRED AND CLARIFICATIONS:

5.1) In the process of examination, evaluation and comparison of tender offers, the TANGEDCO may at its discretion, ask the Tenderer for a clarification of his offers. All responses to requests for clarifications shall be in writing to the point only. No change in the price or substance of the offer shall be permitted.

5.2) The TANGEDCO will examine the tender offers to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and whether the offers are generally in order.

5.3) The Tender offers shall be deemed to be under consideration immediately after they are opened and until such time official intimation of award / rejection is made by the Tender Accepting Authority to the tenderers.

The Tenderers shall not make attempts to establish unsolicited and unauthorized contact with the Tender Inviting Authority, Tender Accepting Authority or Tender Scrutiny Committee after the opening of the tender and prior to the notification of the award and any attempt by any tenderers to bring to bear extraneous pressures on the Tender Accepting Authority shall be sufficient reason to disqualify the tenderer.

5.4) After acceptance of the tender by the Tender Accepting Authority, the details will be arranged to be published in the Tender Bulletin of Tamil Nadu Government.

5.5) Mere submission of any Tender offer connected with these documents and Specification shall not constitute any agreement. The tenderer shall have no cause of action or claim, against the TANGEDCO for rejection of his offer, except as mentioned in Clause – 8.5 & 8.6. The TANGEDCO shall always be at liberty to reject or accept any offer or offers at its sole discretion and any such action will not be called into question and the Tenderer shall have no claim in that regard against the TANGEDCO.

6.0 REJECTION OF TENDERS:

I. Tenders will be **SUMMARILY** rejected if

- a) The EMD requirements are not complied with.
- b) EMD exemption availed by the SSI units located outside the state of Tamil Nadu.
- c) Not accompanied by undertaking where EMD is exempted / proof for permanent EMD.

- d) Not satisfying any one of the Bid Qualification Requirement as stipulated in Section II.
- e) The tenderers should quote **minimum quantity of 10%** of tendered quantity. The offer of bidders who have quoted for lesser quantity than the minimum quantity prescribed shall be summarily rejected.

II. Tender is **LIABLE** to be rejected, if it is:

- a) not covering the entire scope of supply of materials.
- b) If the declaration as specified in Schedule – G is not signed and enclosed.
- c) With validity period less than that stipulated in this specification.
- d) Not in conformity with TANGEDCO's Commercial terms and Technical Specifications.
- e) If the bids are received through Consortium or Joint venture, the same will not be considered and the bids will be rejected.
- f) If the EMD Undertaking is not signed / authenticated in all pages of undertaking.
- g) Received from a tenderer who is directly or indirectly connected with Government service or Board Service or services of local authority.
- h) From any black listed Firm or Contractor.
- i) Received by Telex / Telegram / E-Mail/ Fax.
- j) From a tenderer whose past performance / Vendor rating is not satisfactory.
- k) Not containing all required particulars as per Schedule A to G.
- l) Documents furnished by the Tenderers along with their offer being found to be bogus or contain false particulars.
- m) Received after tender opening.
- n) Bidders not furnishing the consent for evaluation as per GST norms.
- o) Bidders not furnishing registration under GST.
- p) The bidder should have furnished End user / performance certificate for the above work / P.O.

7.0) PRICE :

- (i) The prices quoted shall be **firm on F.O.R. Destination giving breakup thereof for any levies, GST, P&F, Freight, Insurance etc. along with HSN code of materials.**
- (ii) The rates quoted should be furnished both in **figures** and as well as in **words**.
- (iii) The GST and other levies should be clearly furnished with percentage in the price. The Concessional GST if any should be mentioned.
- (iv) The Freight and Insurance charges, Packing & Forwarding charges should be shown separately. Packing & Forwarding, Freight and Insurance charges will be paid only at actuals on production of voucher and not on percentage basis.
- (v) Offers giving lumpsum price, without giving their breakup as per details required in the attached Price Schedule - A shall be liable for rejection.
- vi) Except Petrol, Diesel and Cement to the Board as per G.O. Ms. No. 31, Commercial Taxes (B2) dt.27.03.2002, if there is any refunds in GST it should be mentioned in detail.
- vii) DGS & D rates for the items mentioned in the enquiry may be furnished wherever applicable along with the copy of latest DGS & D rate contract for reference.

8.0) AMBIGUITIES IN CONDITIONS OF TENDERS:

- 8.1) In the case of ambiguous or contradictory terms / conditions mentioned in the bid, interpretation as may be advantageous to the purchaser may be taken without any reference to the Tenderer.
- 8.2) The tender offer shall contain full information asked for in the accompanying schedules and elsewhere in the specification.
- 8.3) Tenderers shall bear all costs associated with the participation in the e-Tender and the purchaser will in no case be responsible or liable for these costs.
- 8.4) No offer shall be withdrawn by the Tenderer in the interval between the deadline for submission and the expiry of the period of validity specified / extended validity of the tender offer.

- 8.5) **DEVIATIONS** : Offers which conform to the Technical & Commercial specifications without deviations will be preferred. However the deviations, if any shall be indicated in the Schedules – B & C only. Any other deviations mentioned elsewhere other than the schedules – B & C of deviations will be ignored and it will be construed that the offer is as per specification.
- 8.6) The Offers of the Tenderers with Deviations in Commercial terms and Technical Terms of the Tender Document are liable for rejection.
- 8.7) No alternate offer will be accepted.
- 8.8) Board reserves the right not to accept the lowest or any tender.

9.0) DELIVERY: Supply, Installation & Commissioning : Within three months from the date of receipt of Order.

- 9.1) i) PLACE OF DELIVERY: **The Stores Controller / M.T.P.S-I / Mettur Dam-6.**
ii) The delivery period shall be as mentioned under Annexure – I of this specification.
iii) The offer from ready stock is preferable.
- 9.2) TANGEDCO reserves the right to cancel the quantities not supplied as per delivery schedule.
- 9.3) TANGEDCO also reserves the right to cancel the order if the delivery schedule is not kept up, without any further notice to the supplier.
- 9.4) To ensure sustained supply without any interruption, TANGEDCO reserves the right to place orders among more than one tenderer.
- 9.5) The TANGEDCO will be at liberty to cancel the order if the supply is not made as per the delivery schedule specified in the order, notwithstanding its right to claim liquidated damages for the belated supplies and the quantity outstanding to be supplied as on the date of cancellation. The defaulting contractors will be liable to pay to the TANGEDCO in addition to the liquidated damages for delay, the actual difference in price whenever the TANGEDCO orders the delayed quantity to be supplied / executed by other agencies at higher rate.
- 9.6) The actual date of receipt of each material with all accessories will be reckoned as the date of receipt at MTPS-1 Stores / Mettur Dam for the purpose of calculation of liquidated damages in respect of that material.
- 9.7) The delivery period will not normally be extended. Hence all efforts shall be taken to deliver the materials within the contractual delivery period.

10.0. PAYMENT TERMS:

10.1 Payments for the supplies will be made by Cheque on any one of the Nationalised Banks/Scheduled Banks approved by Reserve Bank of India, in Tamil Nadu. The bank charges involved in making the payment will be to the account of the supplier.

10.2 Payments will not be made for equipment's/materials damaged during transit. All defective materials shall be replaced by the supplier free of charge.
Payment for supplies against this order shall be made as follows against GST Invoice:-

1) for supply / erection / testing / commissioning of plant within the contractual period:

95% of the all inclusive price (including GST) of the Purchase order value will be paid within a period of 90 days after erection, testing and commissioning of plant and equipment at site and meeting the technical requirements of the tender specification and production of certificates / documents specified. In the event of TANGEDCO filing to keep the stipulated time frame for releasing payment, simple interest for the delayed payment shall be paid by TANGEDCO to the vendors at the SBI three months MCLR rate for the delayed period beyond 90 days.

Balance 5% payment will be released after completion of guarantee period (after 3 years).

2) for supply / erection / testing / commissioning of plant beyond the contractual period:

95% of the all inclusive price (including GST) of the Purchase order value will be paid within a period of 90 days after erection, testing and commissioning of plant and equipment at site and meeting the technical requirements of the tender specification and production of certificates / documents specified after deducting the appropriate amount of Liquidated damages. In the event of TANGEDCO filing to keep the stipulated time frame for releasing payment, simple interest for the delayed payment shall be paid by TANGEDCO to the vendors at the SBI three months MCLR rate for the delayed period beyond 90 days.

Recoveries on account of delayed erection, testing & commissioning, if any shall be made from the above said payments as per LD clause.

Balance 5% payment will be released after completion of guarantee period (after 3 years).

3) payment for operation & maintenance and comprehensive maintenance period:

The supplier shall provide comprehensive maintenance of the items for three years, which shall include preventive maintenance and corrective maintenance. The maintenance shall also include replacement of all parts/consumables.

4) In case of delay in supply, the materials will be accepted subject to the following conditions:

a) There should be no declining trend in prices.

b) Payment will be released as per the latest purchase order rates or lowest rates obtained during the recent tenders opened subject to levy of liquidated damage for the belated supplies.

c) TANGEDCO reserves the right to accept or reject the delayed supplies without assigning any reason therefore and take action as per the other terms and conditions of the Purchase order.

Note:- Payment will be made by cheque on any one of the commercial Bank or their branches in Tamil Nadu as may be decided by the Board from time to time. Exchange commission for issue of Draft will be to the account of the supplier.

10.3 The bills for payment will be passed only after the approval/acceptance of the following.

- 1) Security deposit cum Performance Guarantee for 5% of value of order.
- 2) Attested copy of IT PAN/ GST Registration certificate.
- 3) Guarantee & Test Certificates
- 4) Supply of manuals, Spares as stipulated in Section – VII Technical.

10.4 The Supplier should dispatch only after getting dispatch instruction from the consignee Superintending Engineer. If the supplier dispatches the materials without the prior approval of the purchaser, then the purchaser shall not be responsible for any demurrage of wharfage or both and only the supplier should bear any expenditure arising out of such unapproved dispatches.

11.0) SECURITY DEPOSIT / SECURITY DEPOSIT CUM PBG:

- 1) The successful tenderer will have to pay a **Security Deposit of 5% of the value of the contract** in the form of DD or Banker's Cheque payable at Mettur Dam and drawn in favour of SE/P&A/MTPS-I (or) Irrevocable Bank Guarantee (or) NEFT/RTGS (or) by the way of Account transfer to TANGEDCO's Account. You are requested to furnish immediately the E-payment receipt duly reflecting UTR number for having deposited the S.D. amount.
- 2) The combined Security Deposit cum Performance Bank Guarantee shall be in the form of Demand Draft / Banker's Cheque / Irrevocable Bank Guarantee / NEFT / RTGS / By the way of Account transfer to TANGEDCO's Account only in case P.O. value exceeds Rs.10 Lakhs.
- 3) The contract will become effective only if the S.D/S.D cum PBG is paid. The S.D. / S.D cum PBG shall be paid **within 30 days** from the date of receipt of the P.O. **In the event of failure to remit security deposit within the prescribed period, EMD shall be forfeited and order be cancelled.**
- 4) The Board reserves the right to cancel the P.O. on failure to furnish the S.D. / S.D cum PBG within the prescribed time limit with the forfeiture of E.M.D paid.
- 5) Failure to comply with the terms regarding S.D / S.D cum PBG set out in the contract order within the stipulated time by the successful tenderer will entail in the cancellation of the contract without any further reference to the supplier.
- 6) The S.D / S.D cum PBG will be refunded to the supplier after the expiry of the guarantee period ensuring that defects / damages during the guarantee period are rectified / replaced. If the purchaser incurs any loss or damages on account of breach of any of the clauses or any other amount arising out of the contract becomes payable by the supplier to the purchaser, then the purchaser will in addition to such other dues that he shall have under law, appropriate the whole or part of the security deposit and such amount that is appropriated will not be refunded to the supplier.
- 7) When there is delay in supply, the Bank guarantee towards combined Security Deposit cum Performance Guarantee shall be got extended suitably.
- 8) No tenderer is exempted from payment of combined Security Deposit cum Performance Guarantee.

12.0) LIQUIDATED DAMAGES:

- a) If the contractor fails to delivery the materials within the time specified in the Contract or any extension thereof, the purchaser shall recover from the contractor as Liquidated Damages a sum of half percent (0.5 percent) of the contract price of the delayed / undelivered materials for each completed week of delay. The total Liquidated Damages shall not exceed Ten percent (10 percent) of the contract price of the materials so delayed / undelivered. The date of receipt of materials at Stores will be reckoned as date of delivery for this purpose.
- b) **Liquidated damages** will also be recovered for the **quantity not supplied** as is done for the belated supply.
- c) If supplies to be rendered against this Purchase Order are made by the supplier

beyond the period of delivery stipulated in the Purchase Order and they are accepted by the Board such acceptance is without prejudice to the Board's rights to levy liquidated damages for the delay in supply.

- d) In respect of contracts where supply effected in part or works executed in part, could not be beneficially used by the TANGEDCO (due to such incomplete supply / execution), liquidated damages should be worked out on the basis of entire contract price only and not on the value of delayed portion.

13.0) GST TIN / IT PAN :

- 1) **The latest valid GST Registration details / TIN details** shall be enclosed along with the quotation.
- 2) The Xerox copy of PAN card issued by the IT department shall be enclosed along with the quotation.
- 3) Applicable GST@% with Input tax credit, HSN code No. etc., along with the proof shall be enclosed along with quotation.

14.0) VALIDITY :

14.1) The tender offer shall be kept valid for acceptance for period of **180 days** from the date of opening of offers. The offers with lower validity period are liable for rejection.

14.2) Further, the tenderer shall agree to extend the validity of the Bids without altering the substance and prices of their Bid for further periods, if any, required by the TANGEDCO.

15.0)SAMPLE: Not Necessary..

Samples are necessary before effecting the bulk supply. It will be tested for suitability. The materials will be rejected if it doesn't conform our specification, then the same has to be replaced at free of cost at own risk.

- 1) Samples are to be supplied wherever applicable. If the samples are not furnished within the stipulated period, the **EMD / 1% of P.O. value will be forfeited.**
- 2) The delivery period for sample supply and bulk supply should be specified in your offer.
1 no. sample for each item is to be supplied within 1 month from the date of receipt of the P.O. for approval. The sample will be approved within 15 days on its receipt. The bulk supply to be made only after the approval of sample.

16.0. INSPECTION: : NOT APPLICABLE

The materials covered in this order are subject to inspection in the presence of TANGEDCO Engineer at supplier's premises. The expenses connected with the deputation of such inspecting Engineers shall be borne by the Board. You shall provide necessary facilities for such inspection. You are requested to intimate the readiness of the materials for inspection at least 15 (Fifteen) days in advance for deputing our Engineer. Despatch Clearance will be given after inspection at your works. Inspection by Engineers shall not absolve you off the responsibility of supplying the materials conforming to the specification

17.0 TEST CERTIFICATE:

Test Certificates / Reports from IECQ / NABL accredited laboratory for relevant IEC / equivalent BIS standard for quoted components shall be furnished. Type Test Certificates / reports shall be provided for the solar modules and solar grid tied inverters up to 25 KW to provide evidence of compliance with standards as specified above. TANGEDCO reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.

18.0. **GUARANTEE:**

1. The entire works inclusive of the materials supplied by the supplier should be guaranteed for satisfactory operation at least for a period of 36 months from the date of commissioning and handing over of the plant to the TANGEDCO.

2. Any defects noticed during this period shall be rectified free of cost to the TANGEDCO immediately within 48 hours from the date of intimation of failure. Irrespective of number of failures and repairs, the suppliers are responsible for replacement of defective materials till the completion of guarantee period.

3.A written guarantee guaranteeing the TANGEDCO against defects in the materials supplied, either in materials or workmanship, should be furnished preferably along with the initial bill payment. The guarantee shall be operative for a period of Thirty six (36) months from the date of commissioning and handing over of the solar power plant to TANGECO.

4.Any defects or failure occurring within the guarantee period due to faulty design, poor workmanship and bad quality of raw materials used shall be rectified / replaced free of cost within 48 hours on receipt of intimation from the purchaser on such defects of failures. If, they are not rectified or replaced within this period the supplier shall pay the liquidated damages as per the liquidated damages clause in the LOA for the delay from the date of receipt of intimation for the defects of failures. Any expenditure incurred in the transportation of materials for rectification or replacement will be to the suppliers account.

5.The incidental expenses, transport and freight charges for the replacement of defective materials within guarantee period may also be borne by the supplier till such time it serves continuous period of 36 months.

6. The supplier shall guarantee among other things, the following

- i) Quality and strength of materials used.
- ii) Performance figures given by the suppliers in the schedule of Guaranteed particulars.
- iii) Safety and accident free operation of the plant.

7. In the event of any emergency where in the judgment of the Engineer, delay would causes serious loss or damages, repairs or adjustment may be made by the Engineer or a third party chosen by the Engineer without advance notice to the supplier and the cost of such work shall be paid by the supplier. In the event such action is taken by the Engineer, the supplier will be noticed promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the supplier of his liability under the terms and conditions of the Purchase order.

8. If it becomes necessary for the supplier to replace or renew any defective portions of the works the provision of this clause shall apply to portion of the works so replaced or renewed until the expiry of Thirty six (36) months/ or the periods as mentioned in guarantee clause, from the date of such replacement or renewal. If any defects are not remedied within a reasonable time, the Engineer may proceed to do the work at the supplier's risk and cost but without prejudice to any other rights, which the Owner may have against the supplier in respect of such defects.

9. The repaired or new parts will be furnished and erected free of cost by the supplier. If any repair is carried out on his behalf at the site, the supplier shall bear the cost of such repairs.

10. The cost of any special or general overhaul rendered necessary during the maintenance period due to defects in the equipment or defective work carried out by the supplier, the same shall be borne by the supplier.

11. The acceptance of the equipment by the Engineer shall in no way relieve the supplier of his obligations under this clause.

12. The provisions contained in this clause will not be applicable: a) If the owner has not used the equipment according to generally approved industrial practice and in accordance with the conditions of operations specified and in accordance with operating manuals, if any.

b) In case of normal wear and tear of the parts to be specified mentioned by the supplier in the offer.

The tenderer shall produce a guarantee certificate for the above supply, erection & commissioning in a Non-Judicial Stamp paper of value Rs.80/-. If any defect noticed in the workmanship / materials the same should be made good at free of cost.

19.0) GST:

- 19.1) (a) Any difference in duties due to coming over into different slab or due to statutory variation, if any, during the execution of the contract will have to be taken into account and the price shall be quoted accordingly by the tenderer. Any variation in GST shall not be admitted.
- b) In case of delayed delivery, the duty/tax prevailing on the date of despatch or the duty/tax on the last day of the contractual delivery period whichever is LESS will be admitted. For both the cases, the supplier shall furnish documentary evidence while submitting the bills for payment.
- c) The GST will be admitted on submission of evidence for having paid the GST either from Central Excise Authorities or from Chartered accountant.
- d) The GST particulars have to be mentioned while quoting the tender.
- e) The Successful tenderer will have to submit a declaration as per ANNEXURE – VI, in NJS paper of value not less than Rs.80/- for passing on the benefit of Input tax credit to TANGEDCO by the way of commensurate reduction in prices on any supply of goods.

19.2) GST FOR SERVICES:

i) In certain cases though the service for which tender has been floated may be liable for GST for services, but certain bidders may not quote GST for services, in their offer. In that circumstances TANGEDCO may presume that the bidder may be under threshold exemption limit or under any other exemption hence has not quoted GST for services. As such their offer may be evaluated without GST for services. However, in the event of placement of order, on the above bidder, an undertaking (as per Annexure V) shall be obtained to that effect that they have not quoted GST for services, in view of the fact that they are under the threshold exemption limit or any other exemption to be specified. They must also undertake that no claim towards GST for services, shall be made till completion of the contract in the event of crossing their exemption limit at a later stage and any GST for services, liability shall be discharged on their own Account to the GST for services, authorities concerned.

ii) Reimbursement of GST for services, if any has to be mentioned.

iii) GST for services, reverse charges if any has to be mentioned

20.0) EVALUATION:

The evaluation shall include GST applicable as a part of the price, as detailed below and Packing & Forwarding and Freight & Insurance charges.

In a tender where the tenderers are both from the State of Tamilnadu as well as from outside the State of Tamilnadu, the evaluation will be done based on the GST.

21.0) PRICE PREFERENCE:

No price preference shall be given for Domestic small scale Industrial units and for the Public Sector undertaking of State Government (Viz. Govt. of Tamil Nadu) during evaluation.

22.0) LOSS OR DAMAGE:

- i) You are responsible for the safe delivery of the equipments / materials at destination.
- ii) You are responsible to assess the damages or shortages that occurred in transit and to pursue the claims with the insurers / carriers.
- iii) External damages and or shortages that are prima facie the results or rough handling in transit or due to defective packing will be intimated within 21 days (3 weeks) of the receipt of the materials at site. Internal defects, damages or shortages of any integral parts, which cannot ordinarily be detected on a superficial visual examination, due to bad handling in transit or defective packing would be intimated within one month from the date of receipt of materials at site. In any case the defective parts should be replaced by you free of cost.
- iv) In the event of supplies being received damaged or short at the destination station, the cost of such materials, Railway freight, GST (If payable) and insurance premium and other charges payable thereof will be paid only proportionate to the value of the materials received in good conditions, unless the damaged goods or short supplies are made good free of cost by you.
- v) Any defect of manufacture discovered after the first and before second payment should be rectified free of charge and all defective materials replaced.

23.0) REPLACEMENT OF DEFECTIVE / DAMAGED MATERIALS:

- (i) Notwithstanding anything contained in the above liquidated damages clause, when the whole or part of the materials supplied by the supplier are found to be defective/damaged or are not in conformity with the specification or sample, such defects or damages in the materials supplied shall be rectified within two months from the date of intimation of defects/damages either at the point of destination or at the supplier's works, at the cost of supplier, against proper security and acknowledgement. In the alternative, the defective or damaged materials shall be replaced at free of cost within two months from the date of receipt of the intimation from the purchaser. If the Defects or Damages are not rectified or replaced within this period, the supplier shall pay a sum towards liquidated damages as per liquidated damages clause given above, for the delay in rectification / replacement of the defects or damages.
- (ii) If even after such rectification or replacement of the damaged or defective part, if the equipment/materials ordered is not giving the satisfactory performance as per the contract, then it will be open to the purchaser either to reject the goods or repudiate the entire contract and claim such loss sustained by the Board.
- (iii) "Notwithstanding any other remedies available, the Purchaser shall be entitled to dispose of the defective/damaged materials in 'as is where is condition' without further notice, if the contractor/supplier fails to rectify the defect and/or replace the damaged materials and/or fails to remove the defective/damaged materials within such period as may be notified by the Purchaser through notice and the sale proceeds of such disposal shall be appropriated towards the dues to the Board such as Liquidated Damages, ground rent, etc. as may be determined by the Purchaser".

24.0) FORCE MAJEURE:

If at any time during the continuance of this contract performance in whole or in part of any obligation under the contract shall be prevented or delayed by reasons of any war hostility Acts of Public, enemy acts or Civil commotion, strikes, lockouts, sabotages, fire, flood explosions, epidemics, quarantine restrictions, pandemic or other acts of God (hereinafter referred to as eventualities) then provided notice of the happening of any such eventuality is given by the supplier to the Board within 15 days from the date of occurrence thereof neither party shall eventually be entitled to terminate this contract nor shall have any claim for damages against the order in respect of such non-performance of delay in performance and deliveries under this contract shall be resumed as soon as practicable after such eventuality has come to an end or ceased to exist.

Provided that if the performance in whole or part by the supplier or any obligation under this contract is prevented or delayed by reasons of any eventuality for a period not exceeding 60 days, the Board may at its option terminate this contract by notice in writing. The Board will also be at liberty to cancel the order if the supply is not completed within the above accepted delivery period notwithstanding the liquidated damages applicable for the belated supplies.

25.0) JURISDICTION FOR LEGAL PROCEEDINGS:

No suit or any proceedings in regard to any matter arising in respect of this contract shall be instituted in any Court, save in the High Court, Chennai or District Court at Salem or sub-Court at Mettur Dam or at the District Munsif Court at Mettur Dam. It is agreed that no other court shall have jurisdiction to entertain any suit or proceedings even though part of the cause of action might arise within their jurisdiction. In case, any part of the cause of action arise within the jurisdiction of any other Courts in Tamil Nadu and rest within the jurisdiction of courts outside the state of Tamil Nadu, then it is agreed to between the parties that such suits or proceedings shall be instituted in a court within the State of Tamil Nadu and no other court outside the State of Tamil Nadu shall have jurisdiction even though any part of the cause of action might arise within the jurisdiction of such Courts.

The successful tenderer shall furnish an undertaking as per Schedule – F in a non- judicial stamp paper of Rs.80/- agreeing to the above condition.

26.0) DUES TO THE BOARD:

The Board is empowered :

- a) To recover any dues against this contract in the Bills/Security deposit/Earnest Money Deposit due to the suppliers either in this contract or any other contracts with Board.
- b) To recover any dues against any other contract of the suppliers with Board, with the available amount due to the suppliers against this contract.
- c) To recover the difference in cost of the item, between the price offered by the failed tenderer and the Prospective new tenderer becoming lowest bidder in a fresh P.O issued for the same item subsequently.

27.0) RIGHTS OF THE BOARD:

27.1) Notwithstanding anything contained in this Specification, the TANGEDCO reserves the rights:

- a) to vary the quantity finally ordered to the extent of 25% indicated in the Tender document.
- b) to split the Tendered Quantity and place orders on one or more than one firm as per the Tamil Nadu Transparency in Tender Rules 2000 since the tendered material is so vital in nature and the failure in supply would affect the public interest.
- c) to recover losses , if any, sustained by TANGEDCO, from the supplier who pleads his inability to supply and backs out of his obligation after award of contract. The security

deposit paid shall, be forfeited.

- d) to cancel the orders for not keeping up the delivery schedule.
- e) to vary the delivery period based on the requirement and contingencies at the time of placing the Rate contract.
- f) to accept the lowest eligible tender.
- g) to reject any or all the tenders or cancel without assigning any reasons therefor.
- h) to relax or waive or amend any of the conditions stipulated in the tender specification wherever deemed necessary in the best interest of the TANGEDCO.

27.2) The purchaser reserves the right to request for any additional information and also reserves the right to reject or accept the proposal of any tenderer, if in the opinion of the purchaser, the qualification data is incomplete or in the opinion of the TANGEDCO the bidder is found not qualified to satisfactorily perform the contract.

28.0) RESPONSIBILITY:

The Tenderer is responsible for delivery of the materials at the destination station in good condition. The tenderer shall include and provide for securely protecting and packing the materials as per relevant packing standards to avoid damages or loss in transit. All risks connected with the supply of these materials should be borne by the supplier.

29.0) FAILURE TO EXECUTE THE CONTRACT:

Contractors failing to execute the order placed on them to the satisfaction of the TANGEDCO under the terms and conditions set forth therein, will be liable to make good the loss sustained by the TANGEDCO, consequent to the placing of fresh orders elsewhere at higher rate, i.e. the difference between the price accepted in the contract already entered into and the price at which fresh orders have been placed. This is without prejudice to the imposition of penalty under the Liquidated Damages clause.

30.0) NON-ASSIGNMENT:

The supplier shall not assign or transfer the contract or any part thereof without the prior approval of the Purchaser.

31.0) EFFECTING OF RECOVERIES:

Any loss, arising due to non-fulfillment of this contract or any other contract, will be recovered from the Security Deposit held and / or any other amount due to the supplier from the TANGEDCO/TANTRANSCO from this Contract as well as from other contracts.

32.0) ARBITRATION ACT NOT TO APPLY:

The TANGEDCO will not accept any arbitration in case of disputes arising in any respect under this contract. Any dispute arising out of this contract shall not be subject to arbitration under the provisions of Arbitration and Conciliation Act 1996 in the event of any dispute between the parties.

33.0) QUANTITY ALLOCATION :

At the time of issuing indent for supply of materials, TANGEDCO reserves the right to allocate the quantity after ensuring the manufacturing capacity, ability of supply, quantity offered and past performance.

34.0) APPEAL:

Any tenderer aggrieved by the order of Tender Accepting Authority (Competent Authority), may prefer an appeal to the Govt. within 10 days from the date of receipt of order.

35.0) CAUTION:

1. Specific concurrence or otherwise to all the terms noted herein should be furnished in the tender. Failure to do so will be taken as concurrence to the terms.
2. In the event of the documents furnished with the offer being found to be bogus or the documents contain false particulars, the EMD paid by the tenderers will be forfeited or 1% of the P.O. value will be levied as penalty in addition to blacklisting them for future tenders/contracts in Tamilnadu Electricity Board Limited.
3. The Guidelines issued in Tamil Nadu Transparency in Tenders Act 1998 and Tamil Nadu Transparency in Tender Rules 2000 will be followed.

36.0) QUANTITY VARIATION: Not Applicable

~~Variation in the quantity (+) or (-) 5% of the ordered quantity will be accepted for good & sufficient reasons.~~

37.0) SUPPLY AT LOWER RATES : Not Applicable

You shall accept for the condition that if the materials are supplied at lower rates to any other customer within the period of one year from the date of PO, then the lower rates shall necessarily be passed on to the board against this Purchase Order also.

38.0) VENDOR REGISTRATION : In TANGEDCO/TANTRANSCO, Vendor Registration has come into effect from 01.01.2021 as per TANGEDCO proceedings 311, dated 29.12.2020. The firms must register in the Online Vendor portal Website <http://exam.tnebnet.org/tnebvend> for Vendor Registration

39.0) GENERAL:

All rules and provisions related to GST will be applicable.

SD/--
Superintending Engineer / P&A / MTPS - I

SCHEDULE- A

PRICE BID

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM / AEE 1 / O.T. 563 / 2022-23

Name of work : Mettur TPS - I – MM- Design, Supply, Erection, testing and Commissioning of 30 KWp ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1 – 1 No., 10 Wp OFF Grid Solar roof mounted power project at of top of New IB/MTPS1- 1 No., 3KWp OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1 of MTPS-I-reg

S. No	Description	Quantity offered	Unit Price in Rupees					All inclusive Unit Price (3+4+5+6+7)
			Ex-Works price	Packing and Forwarding Charges	Freight charges	Insurance chaes	CGST/SGST/IGST	
			Nos	Rs. P	Rs. P	Rs. P	Rs. P	
1	2	3	4	5	6	7	8	
1.	Design, Supply, Erection, testing and commissioning of 30 KWp ON Grid Solar roof mounted power project at roof top of Central Office/MTPS1 – 1 No., 10 KWp OFF Grid Solar roof mounted power project at of top of New IB/MTPS1- 1 No., 3 KWp OFF Grid Solar roof mounted power project at roof top of Chief Engineer residential Board Quarters/MTPS1	3items (Each 1 No.)	TO BE QUOTED ON LINE					

NOTE 1 :	Rates quoted shall be both in Words & Figures
NOTE 2 :	In case of discrepancy between prices quoted in words and in figures, lower of the two will be taken for evaluation.
NOTE 3:	While quoting the rates the bidder shall indicate the HSN Code and Account Code, SAC code for all the tendered items as per GST Act.
NOTE 4:	The rates quoted for the above schedule shall be inclusive of all other general works, specified in the scope of work and special condition.

NOTE: Taxes and Duties will not be paid for Packing and Forwarding, freight, insurance charges, therefore, exworks price should not be inclusive of above charges.

SIGNATURE :
NAME :
DESIGNATION :
SEAL

SCHEDULE-B

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM / AEE 1 / **O.T. No. 563 / 2022-23**

SCHEDULE OF MATERIALS AND DELIVERY PERIOD

(To be filled in by the Tenderer)

Sl.No.	Description	Qty.	Delivery Period
			From the Date of Receipt of Purchase Order.

Company Seal:

Signature :

Designation :

Company :

Date :



SCHEDULE-C1

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM / AEE1 / O.T. 563 / 2022-23

DEVIATIONS FROM TECHNICAL SPECIFICATION

All technical deviations from the specification shall be filled in by the tenderer, clause wise, in the schedule.

Sl no	Section No	Clause No	Deviation

The tenderer hereby certifies that the above mentioned are the only deviations from the technical specification and the tender conforms to the specification in all other aspects.

COMPANY SEAL

SIGNATURE :
NAME :
DESIGNATION :
DATE :

SCHEDULE- C2

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM / AEE.1 / **O.T. No. 563 / 2022-23**

DEVIATIONS FROM COMMERCIAL TERMS

All deviations from the commercial terms shall be filled in by the tenderer, clause wise, in this schedule.

Sl no	Section No	Clause No	Deviation

The tenderer hereby certifies that the above mentioned are the only deviations from the commercial terms and the tender conforms to the specification in all other aspects.

COMPANY SEAL

SIGNATURE :
NAME :
DESIGNATION :
DATE :

SCHEDULE- D

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM / AEE.1 / **O.T. No. 563 / 2022-23**

**STATEMENT OF SUPPLY/ORDERS/EXECUTED/UNDER EXECUTION SO
FAR DURING THE PAST THREE YEARS AS ON THE TENDER OPENING**

Sl No	Name &Address of The Organisation including other State EBs	Name of the Work	PO No.and Date	Value of Order in Rs in Lakhs (*)	Scheduled Date of Completion of Order	Actual Date of Completion of Order

Note: 1) (*) Split up details such as price, may be enclosed separately.

2) Copies of orders received shall be enclosed.

COMPANY SEAL

SIGNATURE :
NAME :
DESIGNATION :
DATE :

SCHEDULE – E

SPECIFICATION NO: CE / MTPS-I / SE/P&A/MM/ AEE.1 / **O.T. No. 563 / 2022-23**

DECLARATION FORM
(To be signed by the tenderer)
Strike off, whichever is not applicable:

To
The Chief Engineer,
Mettur Thermal Power Station-I,
Metturdam - 636 406, Tamil Nadu

Dear Sir,

Having examined the above specification together with the accompanying schedules etc., we hereby offer to manufacture and supply the equipments/ materials covered in this Specification at the rates entered in the attached schedule of prices.

1. We hereby guarantee the particulars entered in the schedules attached to the Specification.
2. In accordance with the Security cum Performance guarantee clause-10.0, Section-V, of the specification, we agree to furnish security cum performance in the form of DD/Bankers Cheque/Bank Guarantee to the extent of 5% of the order value (All-inclusive price) of each and every indent issued during the contract period till the expiry of the Guarantee.
3. Our company is not a potentially Sick Industrial Company or a Sick Industrial Company in terms of Section- of Section- of the Sick Industrial Companies (Special Provisions) Act, 1985.

Yours faithfully,

PLACE	:	SIGNATURE	:
DATE	:	DESIGNATION	:
COMPANY SEAL	:	COMPANY	:

SCHEDULE – F

UNDERTAKING FOR PAYMENT OF DUES TO TNEB

THIS DEED OF UNDERTAKING EXECUTED AT MTPS-I/METTUR DAM ON THIS THE
BY Messers.

Hereinafter called the "TENDERER" (Which expression where the context so admits mean and include their agents, representatives, Successors – in – office and Assigns)

TO AND IN FAVOUR OF

THE TANGEDCO, a body corporate incorporated under companies Act, having its office at NPKRR Maaligai, 800, Anna Salai, Electricity Avenue, Chennai – 600 002, hereinafter called the "BOARD" (Which expression shall where the context so admits mean and include the successors in – office and assigns).

WHEREAS the Board has called for an undertaking from the Tenderer empowering the Board to recover the dues if any.

NOW THIS UNDERTAKING WITNESSETH that the Board is empowered to recover any dues against this contract in any bills / Security Deposit / E.M.D. due to the Tenderer either in this contract or any other contracts with the Board. Further, the Tenderer hereby authorizes the Board to recover, any dues against any other contract of the Tenderer with the Board with the available amount due to the Tenderer against this contract and to recover the difference in cost of the item, between the price offered by the failed tenderer and the prospectively new tenderer becoming lowest bidder in a fresh P.O issued for the same item subsequently

IN WITNESS WHERE OF Thiru. Acting for and behalf of the
Tenderer has signed this deed on the day, month and year herein before first mentioned.

SIGNATURE OF THE TENDERER

NAME :
DESIGNATION :
DATE :
COMPANY SEAL :

PART – I

SCHEDULE – G

SPECIFICATION NO.:- CE / MTPS-I / SE / P&A / MM /AEE1 / OT No.563 / 2022-23

DECLARATION FORM

TO
The Chief Engineer,
Mettur Thermal Power Station – I,
Mettur Dam – 636 406.

Dear Sir,

- 1) Having examined the above specification together with the accompany schedules etc., we hereby offer to supply the materials covered in this specification at the rates entered in the attached schedule of prices.
- 2) We hereby guarantee the particulars entered in the schedules attached to the specification.
- 3) In accordance with Security Deposit clause under Section – II of the specification, we agree to furnish security to the extent of 5% of the total value of the contract.
- 4) Our company is not a potentially Sick Industrial Company or a Sick Industrial Company in terms of Section – 23 of Section – 15 of the Sick Industrial Companies (Special Provisions) Act, 1985.

Yours faithfully,

PLACE :
DATE :
COMPANY SEAL :

SIGNATURE :
DESIGNATION :
COMPANY :

***NOTE : Bidder may strike out the para not applicable.**

ANNEXURE – II

CERTIFICATE

To
(Name and address of the selling Dealer)

.....
.....

TNGST NO.

It is hereby certified that the goods listed below are purchased by us for use in generation, transmission and distribution of electrical energy.

Sl. No.	Invoice No./ Date	Description of Goods	Qty.	Value (Rs.)

(Rupees only).

Place :

Date :

(SIGNATURE)

Name :

Status :

Seal of Office :

ANNEXURE – III
UNDERTAKING IN LIEU OF PAYMENT OF EMD

THIS DEED OF UNDERTAKING executed at on this the _____ day of 2022 By M/s _____ a company registered under companies Act, 1956, having its registered office at herein after called the Tenderer " TO AN IN FAVOUR OF M/s TANGEDCO" a body corporate constituted under the Electricity (Supply) Act, 1948, having its office at NPKRR MAALIGAI, Electricity Avenue, 144, Anna Salai, Chennai-600 002 represented by THE SUPERINTENDING ENGINEER/ PURCHASE & ADMINISTRATION/ METTUR THERMAL POWER STATION, METTUR DAM (herein after called the " BOARD") WHEREAS the contract is for the work of SPECIFICATION NO.:- CE / MTPS-I / SE / P&A / MM / AEE1 / OT No. 563 / 2022-23, Due on :

AND WHEREAS in accordance with clause 5 of the above said Tender specifications, the Tenderer has to furnish Earnest Money Deposit of Rs. _____ /- (Rupees..... Only)

AND WHEREAS the Tenderer has requested the board to accept an undertaking in lieu of payment in cash of the EMD.

AND WHEREAS the TANGEDCO has accepted the request of the Tenderer subject to his executing an undertaking to pay to the Board not exceeding Rs. _____ /- (Rupees..... only) representing the Earnest Money Deposit together with costs in case of non fulfillment of the conditions stipulated in the Tender specification or the conditions stipulated in the contract by the Tenderer.

IN CONSIDERATION of the TANGEDCO having agreed to accept an undertaking from the Tenderer in lieu of payment of Earnest Money Deposit in Cash, the Tenderer undertakes to pay the sum of Rs. _____ Only) immediately when a demand is raised by board against the Tenderer without any demur in the event of the following.

1. If he withdraws his tender or backs out after acceptance of the tender or fails to remit the Security Deposit.
2. If he revises any of the terms quoted during the validity period.
3. If he violates any of the conditions of the

Specification No.:- CE / MTPS-I / SE / P&A / MM / AEE1 / OT No. 563 / 2022-23,

Due on :

NOW THE CONDITION OF THE ABOVE WRITTEN UNDERTAKING IS such that if the Tenderer shall duly and faithfully observe and perform the terms and conditions specified in terms of the above, then the above written undertaking shall be void. Otherwise the same shall remain in full force.

The Tenderer undertakes not to revoke this guarantee till the contract is completed under the terms of contract.

The expression, " Tenderer" and " The TANGEDCO" herein before used shall include their respective successors and assigns in office.

IN WITNESS WHERE OF THIRU _____ for and on behalf of the Tenderer has signed this undertaking on the day, the month and year first above written.

IN THE PRESENCE OF WITNESSES.
(Signature of Witnesses)

1)

Signature with company seal

2)

***Note :-**

Tenderer should sign in all pages of Undertaking bond paper with your Company seal as per TANGEDCO Format.

ANNEXURE – IV

TENDER ACCEPTANCE LETTER
(To be given on Company Letter Head)

SPECIFICATION NO.:- CE / MTPS-I / SE / P&A / MM / AEE1 / OT No. 563 / 2022-23

To be signed with company seal on letter head and uploaded in the technical Bid

Date :

To,

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No.:----- Name of Tender/Work

Dear Sir,

1. I/We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely:

As per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents from page No.----- to -----(including all documents like annexure(s), schedule(s), etc.,) which form part of the contract agreement and I/We shall abide hereby the terms / conditions / clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organization too has also been taken into consideration, while submitting this acceptance letter.

4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s) corrigendum(s) in its totality / entirety.

5. In case any provisions of this tender are found violated, then your department/organization shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the bidder, with official Seal)

ANNEXURE – VI

**Declaration to be submitted by the bidders
in Non-judicial stamp paper of value not less than Rs.80/-**

SPECIFICATION NO.:- CE / MTPS-I / SE / P&A / MM / AEE1 / OT No. 563 / 2022-23

To

The Chief Engineer,
Mettur Thermal Power Station – I,
Mettur Dam – 636 406.

We hereby declare and confirm that we are registered vendor under GST Act having GSTIN _____ in State of _____. Our applicable GST _____ % for the above reference job is under code _____.

We hereby declare and confirm that we are unregistered vendor under GST Act being turnover is less than Rs. _____ Lakhs (being threshold limit) per annum. (For unregistered vendor, the vendor has to submit an affidavit in the enclosed format).

We hereby declare and confirm that we are registered vendor under **composite scheme** having GSTIN _____.

We are aware that as per sec 171 of CGST Act, any reduction in rate of tax on any supply of goods or services or the benefit of input tax credit should be passed on to TANGEDCO by way of commensurate reduction in prices and as such we hereby declare that we are extending Rs. _____ /- of _____ % as rebate in my awarded price against input tax credit benefit.

We hereby declare that we do not have any input tax credit benefit on account of GST applicable against this job. If it is established that we have availed input tax credit benefit against this job, the differential tax benefit will be returned to TANGEDCO failing which TANGEDCO may take appropriate action.

Signature of bidder with Company Seal.

***NOTE :**

- 1. Bidder may strike out the para not applicable.**
- 2. Correct GST@% with Input tax credit/HSN code of materials should be furnished.**