

Tourism Corporation of Gujarat Ltd., Gandhinagar



E-TENDER DOCUMENTS

SECTION 1.0- TECHNICAL BID (Online and also submission in Envelope- A)

Project Name: Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

Estimated Project Cost: Rs. 5.00 Cr. (Approx.)

Tourism Corporation of Gujarat Ltd.
Nigam Bhavan, Sector 16,
Nr. GH 4 ½ Bus Stand,
Gandhinagar
Ph. No. 079-23245119-20
Fax No. 079-23245121

PROCEDURE FOR SELECTION OF CONTRACTOR

A two stage selection Procedure to be adopted:

Stage 1: Firms/Bidders are requested to submit technical (in hard copy) and financial bids in electronic format ONLINE on nprocure.com only and shall be short listed on the basis of qualification.

Stage 2 :Firms/Bidders short listed on the basis of technical bids in stage 1 shall be intimated in writing/telephonic to remain present at the time of opening the financial bids shall be informed to the qualified bidders only and shall be opened in Project & Engineering Branch of Tourism Corporation of Gujarat Limited, Gandhinagar.

Sr.No.	Tender Schedule	Date	Time
1	Online Downloading Start Date	13.08.2019	3.00 P.M.
2	Pre-Bid Meeting Date	23.08.2019	3.00 P.M.
3	Online Downloading End Date	04.09.2019	3.00 P.M.
4	Last Date of Physical Submission in TCGL Office	06.09.2019	3.00 P.M.
5	Bid Opening in TCGL Office	06.09.2019	4.00 P.M.

The technical bid shall be evaluated first and successful bidders/applicants shall be short listed.

The “Financial Bids “shall only open and evaluated only in respect of the short listed bidders.

ENVELOPE – A: - “TECHNICAL BID” Shall Contain Following:

On line submission as well as Hard copy of all the documents shall be sealed in one envelope and needs to submit @ Tourism Corporation of Gujarat Limited, Nigam Bhavan, Sector-16, Gandhinagar on or before opening of Technical Bid i.e. 06.09.2019 at 3.00 PM in sector -16 TCGL offices, Gandhinagar. (Evaluation of the bidders would be done on only submitted Hard Copy and Soft Copy only.)

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

Envelope A:

Sr. No.	Tender Fee	EMD
1	6,000/-	5,00,000/-

Envelope B:**I) Section 1.00 'Technical bid' (To be submitted Online as well as Hard Copy)**

complete in all respect as per instruction of Bidders and all mandatory documents as per PQ Format and detail filed by contractor in given format will decided for PQ Evaluation.

- 2) Bid Document with signature & date of signature for hard copy only.
- 3) Covering letter stating matter pertaining the bid. However, conditional bid will not be entertained.

II) Section:2: - "FINANCIAL BID" Shall contain Following: (Only on-line submission)

- 1) Completely filled rates of quantities mention in financial bid.
- 2) Digital Signatures for Section 2.00 "Price Bid".
- 3) Hard copy should not be submitted for Financial Bid.

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

MEMORANDUM

General description of work: Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System/Solar Parking/Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

(1)	Estimated Cost		Rs 5,00,00,000/- (Approx.)
(2)	Earnest Money	1%	Rs. 5,00,000/-
(3)	Tender Fee		Rs. 6000/-
(4)	Validity period of tender offered		120 days from the last date of online submission of tender
(5)	Security Deposit (For Executing Agency)		
	(i) In the form of FDR	5%	For the Work Order Amt. for each categories
	(i i) To deducted from each bills (Retention Money) (will Refunded after 5 years)	5%	For the deducted from each running bill
	Total		
(6)	Time allowed for completion of the work from the date of written order to commence the work		-
(7)	Other details -		
	(i) Mode of quoting rates in Schedule of items to be carried out		In figures as well as in works Item rate to be quoted for each item
	(i i) Tender Inviting Authority		Managing Director, (TCGL), Sector-16, Gandhinagar
	(i ii) Tender Opening Authority		Managing Director, (TCGL), Sector-16, Gandhinagar

Security Deposit: It will be released after successfully completed of the work.

Retention Money: 5 % Deduction amount which will be release after **5 year**. this tender be accepted, I/We here by agree to a bid by and fulfill all terms and conditions referred to above and in default thereof to forfeit and pay to the owner or his authorized nominee such sums of money as are stipulated in conditions contained in Tender document.

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

If I/ We fail to commence the work as specified, or I/We fail to deposit the amount for security deposit then, I/ We agree that the said owner or his successors without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money in full otherwise they said earnest money shall be retained by owner towards the security deposit. The owner shall also be at liberty to cancel the notice of acceptance of tender if I/We fail to deposit the said amounts as per contract or to execute an agreement or to start work as stipulated in the tender documents.

Date _____ day of _____-2019

Witness:

Name in Block Letters:

Address:

Signature of Tendered [s] with the seal of the firm

CONTRACT DATA

Important contract data is summarized as under;

1	NAME OF WORK	:	Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System and Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat
2	SOURCE OF FUNDS	:	Government of Gujarat
3	AREA / DISTRICT COVERED UNDER THE BID	:	Various Locations in Gujarat
4	TYPE OF WORK	:	Different Types of Permanent Installation and Comprehensive Operation and Maintenance of 5 Yrs.
5	PROJECT IMPLEMENTATION PERIOD	:	-
6	DEFECT LIABILITY PERIOD	:	5 Years after date of completion as per certificate issued by the Zonal Engineer/ Executive Engineer of Tourism Corporation of Gujarat Limited, Gandhinagar/ Local Authority/ Trust. Defect Liability with material if any parts defuse or breaking it will be change by contractor in his defect liability period
7	COMMUNICATION FOR SITE	:	Tourism Corporation of Gujarat Ltd. Nigam Bhavan, Sector 16, Nr. GH 4 ½ Bus Stand, Gandhinagar
8	PLACE OF OPENING OF BIDS	:	Tourism Corporation of Gujarat Limited, Sector-16, Gandhinagar
9	VALUE OF RA BILL	:	Running Bill Amt.
10	MARKET RATE PERCENTAGE ADDITION TO COVER OVERHEADS AND PROFIT IN CASE OF EXTRA ITEMS.	:	15 % PERCENTAGE.

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

11	AUTHORITY COMPETENT TO DECIDE IF ANY OTHER CAUSE OF DELAY BEYOND CONTRACTOR'S CONTROL.	:	Tourism Corporation of Gujarat Limited, Gandhinagar.
12	AUTHORITY FOR APPOINTING ARBITRATOR.	:	Tourism Corporation of Gujarat Limited, Gandhinagar
13	PENALTY FOR DELAYED	:	0.05% of contract value per day but maximum up to 5% of contract value
14	PERIOD OF GENERAL DEFECTS LIABILITY PERIOD and Comprehensive O&M for Five Years	:	5 years Defect Liability Period and Operation & Maintenance from the date of completion of the project
26	Contact Person	:	Tourism Corporation of Gujarat Limited, Sector-16, Gandhinagar. Contact No: 079-23245119

Release of SD: After successful completion of work and releasing the final bill than it should be returned.

Release of Retention Money @5% of the total:

After Successful Completion of 5 years. The Retention Money time is being started after completion Certificate to be issued by the Executive Engineer/Zonal Engineer/Local Authority Satisfactory Certificate.

Sign of Contractor

Sign of Employer

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

1.0 e Tendering (Online Tendering) Instruction to Bidders

1.	Down loading of Tender Documents
1.1	Bid document will be available on web site up to date shown in the tender Advertisement.
1.2	Bidders who wishes to participate in this tender will have to get themselves registered on web site www.nprocure.com or www.gujarattourism.com (For Reference Only)
2.	Digital Certificate
2.1.	Bidders who wish to participate in on line tenders will have to procure / shall have legally valid digital Certificate as per Information Technology act 2000 using which they can sign their electronic bids. Bidders can procure the same from any of the license certifying Authority of India or can contact (n) code solutions- a division of GNFC Ltd, who are licensed certifying Authority by Govt. Of India
2.2	All bids shall be digitally signed, for details regarding digital signature certificate and related training involved the below mentioned address shall be contacted
2.3.	(n) Code Solution-A division of GNFC Ltd., (n) procure cell, 403, GNFC Info tower, S. G. Road, Bodakdev, Ahmedabad- 380 054 Tel: +91 79 26854511/12/13 (Ext. 501,512, 516,517,525) Fax: +91 79 26857321 E-mail: nprocure@ncode.in
2.4.	Bidders who already have a valid Digital certificate need not procure a new digital certificate
3.	On line Submission of Technical and Price Bid
3.1	Bidders can prepare and edit their offers number of times before tender submission date and time. After tender submission date and time, Bidders cannot edit their offer submitted in any case. No written or online request in this regard shall be granted.
3.2	Bidders shall submit their offer, i.e. Technical bid as well as Price bid in Electronic format on above mentioned website and date shown in the tender details after Digitally signing the same. Physical submission of PRICE BID will disqualify the Bidders.
3.3.	Offers submitted without digitally signed will not be accepted.
3.4.	Offers only in physical form will not be accepted in any case.
4.	Contacting Officer
4.1.	Further details / clarification , if any required, will be available from Zonal Engineer, Tourism Corporation of Gujarat Ltd., First Floor, Nigam Bhavan, Sector -16 Gandhinagar, Gujarat, India
5.0	General Instructions:
5.1	The fees paid for on line tender document will not be refunded under any circumstances

5.2	EMD in the form specified in tender document only shall be accepted
5.3	Tenders without Tender document fees, earnest money deposit (EMD) and which do not fulfil all or any of the condition or submitted in complete in any respect will be rejected.
5.4	Bidders approved either by the Central/ State Govt. or Central / State Govt. undertaking is not exempted by this Agency for paying EMD , SD etc.
5.5	Conditional tender shall not be accepted.
5.6	The Internet site address for E-Tender is www.nprocure.com
5.7	The TCGL reserves the right to reject any or all the tenders or split the work between more than one Bidders without assigning any reason thereof.
5.8	The attachments to the tender document shall be duly filed and page numbered, with an index, specifying the document attached and its page number(s). Extra/ additional information not asked in the tender may not be attached in the tender.

2.0 CHECK LIST

To ensure that your offer submitted to TCGL is complete in all respects, please go through the following checklist and tick mark for the enclosures attached with your offer:

Sr. No.	Description	Attached	Page No. If
1	General Information about the bidder as per Annexure - 1		
2	Earnest Money Deposit in the prescribed form		
3	Tender Document Fee in the prescribed form		
4	The original document duly signed and sealed on every page, as a confirmation of acceptance of the terms and conditions of the document		
5	A copy GST Number, Permanent Account Number (PAN)		
6	A copy of EPF registration number and latest challan		
7	Relevant IEC certificates for SPV panels, Inverters and all the other machineries valid upto 31st March, 2018		
8	Details of similar work done in last three years along with copies of the orders and certificates from the customers, as per the Offer Evaluation Criteria and as per Annexure – 2 of the tender document		
9	Details of Technical staff available (Brief Bio-data of key Personnel be given) as per Annexure – 3 of the tender document		
10	Name and address of dealers/distributors/ service stations in Gujarat along with copy of agreements		

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

11	Declaration of the Bidders about any relatives working with TCGL as per Annexure – 4 of the tender document		
12	Deviation, if any, from the specifications, terms and conditions etc. (Annexure – 5)		
13	List of Plant and Machinery (Annexure – 6)		
14	For Turnover of company for last 3 years 2016-17, 2017-18 and 2018-19 practicing CA/CS certificate attached.		
15	SPV instruction manual copy		
16	All the pages of tender documents/ attachments numbered and entire document spiral bound.		

Sr. No.	Description
1	<p>Earnest Money Deposit</p> <p>Earnest Money Deposit of Rs.submitted in the form of Demand Draft/ Banker's Cheque, drawn on _____ Bank, _____ Branch, bearing DD/BC No. _____ dated _____ is attached herewith.</p>
2	<p>Tender Document Fee</p> <p>Tender Document Fee of Rs.submitted in the form of Demand Draft/ Banker's Cheque, drawn on _____ Bank, _____ Branch, bearing DD/BC No. _____ dated _____ is attached herewith.</p>

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

List of Tentative Locations for installation of Solar Rooftop PV System:

Sr. No.	Location Details	Tentative Load (In KW)
1	Dinosaur Museum at Balasinor	50 KW
2	State Institute of Hotel Management at Sidhhpur	200 KW
3	Parking Place at Saputara	25 KW
4	Karli Bridge Riverfront at Porbandar	100 KW
5	Dormitory Building at Umiya Mata Complex, Unja	50 KW
6	Bindu Sarovar at Sidhhpur	25 KW
7	Dharmshala Building at Devmogra	30 KW
8	Dandi Heritage Corridor – 14 Different Places (From Aslali to Dandi)	1 KW to 5 KW
9	Dhela Somnath at Rajkot	10 KW
10	Gopnath Mahadev Atithi Gruh and Mandir at Bhavnagar	15 KW
11	New Constructed Building Museum Parking at Rajkot	10 KW
12	Rameshwar Temple at Surat	25 KW
13	Shanavaky Hanuman Temple at Gir Gadhda	20 KW
14	Chehar Mata Temple, Vadodara	30 KW
15	Gujarat Vidhyapith Campus, Ahmedabad	30 KW

Note: This is tentative initial locations for Installations. Other locations should be incorporated as per requirements of TCGL/Trust/Local Authorities.

List of Tentative Locations for installation of Solar Parking:

Sr. No.	Location Details	Tentative Load (In KW)
1	Dinosaur Museum at Balasinor	5 KW
2	State Institute of Hotel Management at Sidhhpur	50 KW
3	Parking Place at Saputara	15 KW
4	Karli Bridge Riverfront at Porbandar	50 KW
5	Dormitory Building at Umiya Mata Complex, Unja	25 KW
6	Bindu Sarovar at Sidhhpur	25 KW
7	Tourist facilities at Devmogra	30 KW
8	Dandi Heritage Corridor – 14 Different Places (From Aslali to Dandi)	1 KW to 3 KW
9	Dhela Somnath Parking at Rajkot	10 KW
10	Gopnath Mahadev Parisar at Bhavnagar	15 KW
11	New Constructed Building Museum Parking at Rajkot	10 KW
12	Rameshwar Temple Parking at Surat	25 KW
13	Shanavaky Hanuman Temple Parking at Gir Gadhda	15 KW
14	Chehar Mata Temple Parking, Vadodara	20 KW
15	Tent City (1 & 2) at Kevdiya	15 KW
16	Tent City at Dhordo Kutch	50 KW

Note: This is tentative initial locations for Installations. Other locations should be incorporated as per requirements of TCGL/Trust/Local Authorities.

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

List of Tentative Locations for installation of Smart Solar Benches:

Sr. No.	Location Details
1	Dinosaur Museum at Balasinor
2	State Institute of Hotel Management at Sidhhpur
3	Karli Bridge Riverfront at Porbandar
4	Umiya Mata Complex, Unja
5	Bindu Sarovar at Sidhhpur
6	Tourist facilities at Devmogra
7	Dandi Heritage Corridor – 14 Different Places (From Aslali to Dandi)
8	Kaba Gandhi no Delo at Rajkot
	Rastriya Shala at Rajkot
9	Dhela Somnath at Rajkot
10	Gopnath Mahadev Parisar at Bhavnagar
11	Rajkot Museum
12	Rameshwar Temple at Surat
13	Shanavaky Hanuman Temple at Gir Gadhda
14	Chehar Mata Temple, Vadodara
15	Tent City (1 & 2) at Kevdiya
16	Tent City at Dhordo Kutch
17	Sharmistha Lake at Vadnagar
18	Tourism Toran Hotels
19	Gujarat Vidhyapith Campus, Ahmedabad

Note: This is tentative initial locations for Installations. Other locations should be incorporated as per requirements of TCGL/Trust/Local Authorities.

Annexure 1: GENERAL INFORMATION ABOUT THE BIDDERS

1.	Name of the Company	
2.	Postal Address	
3.	Telephone nos. Fax no.	
4.	e-mail address and URL	
5.	Type of Company Attach Proof of Company Registration along with a copy of partnership deed/ article of association and memorandum of undertaking	Proprietorship/ Partnership/ Private Limited/ Public Limited (Pl. tick appropriately)
6.	Name and designation of the representative of the Bidders to whom all reference shall be made to expedite technical co-ordination.	
7.	Entrepreneur Memorandum Part 2 registration with DIC/ NSIC registration no./CSPO registration no./ DGS&D registration no.	
8.	EPF registration number	
9.	Factory Address	
10.	Factory Telephone/Fax no.	
11.	Factory e-mail address	
12.	Floor area of the factory	
13.	Manufacturing facilities (a list of machinery be attached as per annexure - VI)	
14.	Details of technical staff available. Please furnish information as per enclosed Annexure-3.	
15.	Details of workmen on muster roll Skilled/ unskilled. (attach copy of muster roll)	
16.	List of components manufactured by the company at their factory	SPV panel/ Inverter (Pl. tick appropriately)
17.	List of Component sourced from outside/other agencies.	
18.	Has the company/firm to pay arrear of	

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

	income tax? If yes upto what amount.	
19.	Turnover of company for last 3 years 2016-17, 2017-18, 2018-19. Please attach participating CA/ CS Certificate.	2016-17 Rs.- 2017-18 Rs.- 2018-19 Rs. -
20.	Has any Govt. Dept. / Under- taking ever debarred the company/ firm from executing any work?	

It is certified that the information provided above is true to the best of my knowledge and belief. If any information found to be concealed, suppressed or incorrect at later date, our tender shall be liable to rejected and our company debarred from executing any business with TCGL.

Date:

Sign. and Stamp of the Bidders

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

3.0 INSTRUCTIONS TO THE BIDDERS

A.1 Online offer shall be submitted complete in all respects with all schedules, documents etc. of the tender document. Physical offers shall be received in TCGL office upto the date and time as mentioned in the tender form.

A.2 TCGL reserves the rights to reject any or all the Offers or accept any Offer in total or in part or may divide the work among various Bidders, without assigning any reason thereof.

A.3 Tenders shall be accompanied with requisite Earnest Money Deposit (EMD). Any Tender not accompanied by adequate Earnest Money Deposit (EMD) shall be disqualified and no further consideration shall be given to such Tender. Bidders may note that no relaxation in this regard shall be made. Bidders having valid registration of Entrepreneur Memorandum Part 2 with DIC for the tendered item AND are having valid registration with CSPO/NSIC/DGS & D of Solar PV panels and/or Invertors will be exempted from depositing the EMD. NSIC/ Entrepreneur Memorandum Part 2 registration for other than above item will not be taken in to consideration and in such case; Bidders will be required to submit requisite EMD with their tender. All the provisions of Gujarat State Purchase Policy 2016 dated 03/06/2016 shall be strictly applicable in the tender.

A.4 Earnest Money Deposit (EMD) of unsuccessful Bidders shall be returned back upon finalization of tenders. Earnest Money Deposit of successful Bidder will be retained as Security Deposit.

A.5 If any information provided by the Bidders is found to be concealed, suppressed or incorrect at later date or during finalization of the tender or the Bidders withdraws their offer during finalization of the tender, the tender shall be liable to be rejected and company shall be debarred from executing any business with TCGL for the period of 3 years and the EMD of such Bidders shall be forfeited.

A.6 Validity of the offer shall be at least up to 120 days. Without this validity the Offers shall be rejected.

A.7 Before submission of the Offer, Bidders are required to make themselves fully conversant with the scope of the work, technical requirements and specifications, etc., so that no ambiguity arises on a later date in this respect.

A.8 All information in the Offer shall be in English. Information in any other language shall be accompanied by its translation in English. Failure to comply with this may disqualify the Bidders.

A.9 If the Bidders find discrepancies in or omissions from the specifications or other documents or if he is in doubt as to their meaning, he shall at once intimate TCGL and obtain clarification in writing within 10 days from the date of announcement of tender, prior to submitting his Offer. Any representation/ requests after 10 days from the date of announcement of tender shall not be entertained.

A.10 Any approach from the Bidders, his representative or his agent to influence the decision on the Offer, officially or otherwise, shall render the Offer liable to be summarily rejected.

A.11 Physical offer shall be submitted in sealed envelopes super scribed with as” Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System/Solar Parking/Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat”. All the papers of Tender documents duly signed shall be submitted in the envelope. Requisite Earnest Money Deposit and Tender Document Fee in the form of Demand payable at Gandhinagar shall be attached with this bid.

A.12 Erases and other changes shall be initialed by the person/persons signing the Offer.

A.13 Each page of the Offer document shall be signed and stamped by the Bidders as a token of acceptance to terms and conditions mentioned herein.

A.14 Offers of only those firms or individuals, who are themselves technically capable and sound for providing such services and who give satisfactory evidence of such experience shall only be considered.

A.15 The general technical requirements mentioned are mainly for the guidance of the Bidders. These requirements are not intended to preclude ingenuity of designs or other improvements. If the Bidders proposes any deviation from these requirements those shall be considered provided they are necessary either to improve the utility, performance and efficiency or to secure overall economy. The Bidders shall give a separate list containing points of deviations in his offer from the specifications asked for.

A.16 The Bidders shall declare the name of the employee of TCGL and his relationship with him in case any employee of TCGL is a relative of the Bidders.

A.17 In the event, the successful Bidders fails to accept the work order within specified time or withdraws his offer within the validity period or fails to accept the order for any reason whatsoever, then the earnest money deposited by the Bidders shall be forfeited by TCGL.

A.18 TCGL reserves the right to accept any offer based on its merits and TCGL is not bound to place the order with the party having submitted the lowest offer. Thus party merely on the ground that their financial offer is lowest, does not necessarily qualify them for receiving the order.

A.19 Only Notarized copies of documents will be submitted in support of claims made by the party and party shall bring the original copies of documents for verification by TCGL officials. Details of similar work done ONLY in last three years along with copies of the orders and certificates from the customers to be attached with the tender.

A.20 TCGL, at its discretion, may award the work to more than one party, if required.

4.0 GENERAL TERMS AND CONDITIONS

B-1 Under this tender, unless the context otherwise requires:-

TCGL shall mean the Director or his representative of Tourism Corporation of Gujarat Limited, First Floor, Nigam Bhavan, Sector - 16, Gandhinagar – 382 017, and shall include his successors and assignees.

The Bidders shall mean the Bidders/ Associate who's Offer shall be accepted by TCGL and shall include such Bidders/ Associate heirs, legal representatives, successors and assignees. Associate shall mean the business associate authorized and having valid agreement with Public Sector Enterprise having ten years experience in solar energy field with office in the State of Gujarat. The offer shall be considered on behalf of the Public Sector Enterprise and authority letter for submitting the tender shall be furnished. If the Public Sector Enterprise directly participates in the tender, Associate's offer shall not be considered. Consortium or Joint Venture is not allowed in this tender.

B-2 The Bidders shall be deemed to have carefully examined all the papers, drawings, etc. attached in the contract. If he has any doubt as to the meaning of any portion of any condition/ specification, etc. he shall before signing the contract submit the particulars thereof to TCGL in order that such doubts are removed.

B-3 The work, shall be completed within the completion period as mentioned in the work order, failing which penalty at the rate of 1 % per week or part of a week, subject to maximum of 10of order value shall be imposed as time is the essence of the contract. If the Bidders fails to complete the work within ten weeks after scheduled date, TCGL reserves the right to cancel the order. This excludes delay in the completion of the work due to unforeseen reasons beyond the control and without fault and negligence of the Bidders including (but not restricted to) act of God or public anomie action of Government in its sovereign capacity, floods, epidemics, strikes, lockouts, fires and accidents. In the event of any of the aforesaid contingencies TCGL may be promptly kept informed by the Bidders by Fax/Telex/Telegram followed by confirmation in writing with documentary proof within fifteen days of commencement and cessation of Force Majeure circumstances. Under such circumstances reasonable extension of time shall be granted by TCGL.

Application for such extension must be made before the due date of completion of work as per work order. In the event of termination of the work order, TCGL shall be at liberty to get the remaining part of the work done through any other agency/Bidders in the manner and on the

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

terms it thinks proper. If the cost of executing the work as aforesaid shall exceed the balance due to the Bidders, and the Bidders fails to make good the deficiency, TCGL may recover it from the Bidders in any lawful manner.

B-4 The Bidders shall have to comply with all rules, regulations, laws and bylaws enforced by local and State Govt. and also the organization in whose premises the work has to be done.

B-5 The Bidders shall not, without the consent in writing of TCGL, transfer, assign or sublet the work under this contract or any substantial part thereof to any other party.

B-6 If the Bidders neglects to execute the work with due diligence and expedition or refuses or neglect to comply with any reasonable orders within two days notice given in writing to the Bidders and if he fails to comply with the notice, then in such a case TCGL shall be at liberty to get the work or any part of it, executed through any other agency/Bidders in the manner and on the terms it thinks proper. If the cost of executing the work as aforesaid shall exceed the balance due to the Bidders, and the Bidders fails to make good the deficiency, TCGL may recover it from the Bidders in any lawful manner.

B-7 TCGL shall have at all reasonable time access to the works being carried out by the Bidders under this contract. All the works shall be carried out by the Bidders to the satisfaction of TCGL.

B-8 Any question, dispute or difference whatsoever arises between TCGL and Bidders, in connection with the work order, except as to matters, the decision for which has been specifically provided, either party may forthwith give to the other notice in writing of existence of such questions, dispute, difference and the same shall be referred to the sole arbitration of a person nominated by Director TCGL. This reference shall be governed by Indian Arbitration Act prevailing at the time of dispute and the rules made there under. The award in such arbitration shall be final and binding on all the parties. Work under the agreement shall continue during the arbitration proceedings unless the TCGL or the Arbitrator directs otherwise.

B-9 TCGL may at any time by notice in writing to the Bidders either stop the work altogether or reduce or cut it down. If the work is stopped altogether, the Bidders shall only be paid for work done and expenses legitimately incurred by him as on preparation of the execution of the work upto the date on which such notice is received by him. Such expenses shall be assessed by TCGL whose decision shall be final and binding on the Bidders. If the work is cut down the Bidders shall not be paid for the work as so cut down, but in neither case shall

be paid any compensation what so ever for the loss or profit which he might have made if he had been allowed to complete all the work included in the contract.

B-10 Prior to dispatch, the materials may be inspected and tested by TCGL at the Bidder's works. Bidders shall inform TCGL for such inspection at least 7 days in advance before the probable date of dispatch.

B-11 the system supplied or installed shall be guaranteed by the Bidders for a minimum period of five years in regard to quality of material, workmanship, performance, efficiency, installation, etc. Defects developed in the system within guarantee period, shall be rectified by the Bidders at his own expense promptly. In case the defects are not rectified within 2 days of the receipt of the complaint by the Bidders, TCGL shall have full liberty to remove such defect or undertake such repairs as may be necessary to restore the system in working condition. The expenditure so incurred by TCGL shall be deducted from Bidder's pending claims, security, etc. and if necessary may be recovered in other mode provided under the law. In the event of failure of the complete system, if necessary, the whole system shall be replaced by the Bidders promptly.

B-12 Notices, Statements and other communications sent by TCGL through registered post or telegram or telex or to the Bidders at his specified address shall be deemed to have been delivered to the Bidders.

B-13 the work shall be carried out by the Bidders with prior approval of TCGL. Work carried out without TCGL's approval shall not be accepted and the TCGL shall have right to reject it and to recover the cost as so incurred, from the Bidders.

B-14 All equipment/material shall be suitably packed for transport/carriage at site and outdoor storage during transit as per best industrial practices and appropriate standards. The Bidders shall be responsible for any damage to the equipment during transit due to improper or inadequate packing. The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbols i.e. 'FRAGILE, HANDLE WITH CARE' etc. The contents of each package shall bear marking that can be readily identified from the package list and packing shall provide complete protection from moisture, termites and mechanical shocks during shipment/transportation to site. Adequate protection must be provided for outdoor storage at site in tropical humid climate, wherever necessary proper arrangement for attaching signs for lifting shall be provided and all packages clearly marked with gross weight, signs showing 'UP' and 'DOWN' sides of boxes, contents of each package, order no. And date, name of the plant/equipments to which the material in the package forms the part of, and any handling and unpacking instructions considered necessary. The Bidders

without any extra cost shall supply any material found short inside intact packing case. The Bidders shall ascertain prior to shipment, from concerned authorities, the transport limitations like weight and maximum allowable package size for transportation. All packing cases and packing material shall become the property of the purchaser.

B-15 the Bidders shall provide one copy of the instruction manual and routine maintenance manual in Gujarati with each item supplied or installed. These manuals shall contain all the relevant details and drawings required for proper maintenance of the system supplied or installed.

B-16 The Bidders shall not display the photograph of the work and shall not take advantage through publicity of the work without written permission of TCGL.

B-17 The inspection as mentioned in clause No. B-10 by TCGL's representative shall not relieve the Bidders from full responsibility of completing the work confirming to the requirement of this contract.

B-18 Conditional tenders shall not be accepted.

SCOPE OF WORK: The work is to be carried out on ‘Turn Key Basis’ which includes survey, design, supply of SPV systems with all accessories and equipment, metering, installation, testing, commissioning and maintenance services for 5 years, of the TCGL identified sites with free replacement warranty on spare parts against manufacturing defects for five years. It also includes obtaining concern DISCOM and Chief Electrical Inspector (CEI) approvals. i.e.

- a) Survey of identified sites/ prospective beneficiaries of TCGL.
- b) Preparation of Detailed Project Report (DPR) of the proposed Proposal of locations as given by TCGL.
- c) Obtaining No objection certificate/ net metering connectivity agreements from concerned DISCOM for grid connectivity and CEI’s approval.
- d) The work covers Design, supply, installation, commissioning and comprehensive maintenance for FIVE years, including grid connectivity charges, meter charges etc.
- e) Design, supply, civil work, erection, testing and commissioning of SPV grid connected Power Plant as per schedule given in the work order.
- f) Installation of solar meter and bi-directional meters along with second line of protection in the system such as no volt relay etc.
- g) Installation of Remote Monitoring facility along with necessary dongle etc. for the period of 5 years.
- h) Any Civil Works will be requirements at any sites of Gujarat related to Solar works, bidder should have executed without any extra cost.

2. **INDICATIVE TARGETS:** Tender is invited for Installation of Solar Photovoltaic System/ Smart Solar Parking/ Smart Solar Benches in the state of Gujarat under the TCGL Smart Tourist Destinations. The indicative quantities, could be increased or decreased as needed, are to be supplied, installed and commissioned, as per the below :

Minimum Requirements of above concept is tentative 1 MW (1000 KW) in various of Gujarat.

7.0 ELIGIBILITY:

- 7.1 Only those Bidders, who manufacture either solar PV modules or Inverter and having adequate facilities for testing (i.e. Sun simulator, digital DC power supply, solarimeter, multimeters etc.) of solar system would be allowed to supply the systems under the scheme. The Bidders shall submit the list and pictures of the manufacturing and testing facilities and submit an undertaking that if the details provided by the Bidders are in deviation with the provision of the scheme, it will call for disqualification. If considered necessary, a team of TCGL official may visit the facilities of the Bidders for verification. Companies which are

engaged only in assembly of solar PV systems with above mentioned bought out items will NOT be eligible for supply of systems under this scheme.

7.2 Bidder should have Electrical Contractor licensee with your own firm name.

7.3 It is mandatory to have valid IEC certificates for Solar panels, PCU as mentioned in the specifications, valid till 2020. Copies of such certificates shall be attached /uploaded with the tender. Tenders received without test certificates as above will be rejected out-right and no correspondence will be entertained in this regards.

7.4 The PV modules must be tested and approved by one of the IEC authorized test centers.

7.5 Test certificates for the Balance of System (BoS) items/ components can be from any of the NABL/ BIS Accredited Testing-Calibration Laboratories/ MNRE approved test centers.

7.6 The Bidder including registered MNRE Channel Partner for Grid Connected Solar PV systems shall have the following physical and financial strength for the respective system they are bidding for:

S.No	Item	Average Annual Financial Turnover during last three years, Rs. In Lakhs	Aggregate Experience of having successfully completed Grid/on-grid solar power project work during last 3 years, in nos./ kW	Work order & Certificate/s of the User Agency regarding past work done satisfactorily, to be submitted along with the tender (Only Government/ Semi. Govt.)
1	Grid connected SPV Rooftop systems	300	400 KW	Minimum single project of 200 KW working satisfactory, supported with photographs of the system installed.
2	Solar Parking Concept	50	25 KW	Minimum single project of 5 KW working satisfactory for one year, supported with photographs of the system installed.
3	Solar Benches Concept or any solar related works	10	5 KW	

Annexure 2: Details of similar work experience ONLY in last three years as per clause 5.6 (Information to be attached with the Technical Offer)

Year	Name of the company with full address, phone, fax and name of contact person	Work Description (Solar PV Rooftop System)	Ref. and Date of Order	Work order value, segregated year-wise only for past 3 yrs.	Details of order and its configuration (Quantity in Nos. and capacity in kwp)
2016-17					
2017-18					
2018-19					

- Copies of Work orders along with Work completion certificates shall be attached with this information.
- If necessary, separate sheet may be used to submit the information.

**Annexure 3: Details of Technical Staff available with the company for execution of work
(Information to be attached with the Technical Offer)**

Sr. No.	Name	Qualification	Additional Certification, if any	Total Experience, no. of yrs.	Remarks

Copies of Resumes and appropriate certifications shall be attached with this information.

If necessary, separate sheet may be used to submit the information.

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

Annexure 4: DECLARATION

(Strike off whichever is not applicable)

This is to declare that Mr. / Ms. _____, employee of TCGL at
 _____ (place), is related to our _____
 _____ (designation and name).

OR

This is to declare that none of the Proprietors/ Partners/ Directors are having any relatives employed or working with Gujarat Energy Development Agency at any of its offices or its parent Department i.e. Energy and Petrochemicals Dept., Govt. of Gujarat.

Date:

Sign. and Stamp of the Bidders

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

Annexure 5: DEVIATION SHEET

Any deviations offered from the terms and conditions of the Offer shall be clearly specified below in this sheet. If there are no deviations offered, it shall be clearly mentioned on this page.

Deviation offered to Chapter No, Clause No. of the tender document	Deviation offered

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

QUARTERLY MAINTENANCE & SERVICING REPORT FORMAT

DETAILS OF SOLAR PHOTOVOLTAIC SYSTEM/SOLAR PARKING/SOLAR BENCHES
INSTALLED at _____ of _____ kW

1.	Supplied by	: M/s.	
2.	Date of installation	:	
3.	Servicing period	: From	to
4.	Date of this Report	:	

USER PROFILE

Name and address of User:

TECHNICAL DETAILS

Module Capacity, make and serial number:

Battery Capacity, make and serial number:

CHECK OF THE PRODUCT:

1.	Cleaning of dust from SPV panel	
2.	Interconnection of Inverters etc.	
	Fuse of distribution boxes, switches	

DIFFICULTIES IN OPERATION/ PROBLEM FACED BY USER:

DIAGNOSIS DETAILS/ REPAIR ACTION:

7. IS THE SYSTEM WORKING SATISFACTORILY: YES / NO.

If 'NO', please give the reason & remedies.

GENERATION READING IN GRID CONNECETD SYSTEM:

Meter reading of Solar Meter (in kWh):

Meter reading of Bi-directional Meter (in kWh):

Generation of electricity during is quarter (in kWh):

PERFFORMACE RATIO OF GRID CONNECTED SYSTEM

User Name & Signature

Date: (with rubber stamp)

Technician's Name & Signature (with rubber stamp)

30 | Page

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

FORMAT FOR WARRANTY CARD TO BE SUPPLIED WITH EACH SOLAR PV SYSTEM

13.0 Name & Address of
The Bidders/Bidders of the System

13.1 Name & Address of Purchasing Agency

13.2 Date of supply of the system

13.3 Details of PV Module (s) supplied in the
System Make (Name of the Bidders)
Model

Serial No(s)

Wattage of the PV Module (s) under STC

Warranty valid up to

5 Details of PCU/ Electronics & other BOS items/ cables.
System Make (Name of the Bidders)

Model Serial No(s)

Warranty valid up to

6 Designation & Address of the person to be
Contacted for claiming Warranty obligations.

(Signature)

Name & Designation

Name & Address of the Bidders/Bidders

(SEAL)

Place & Date:

(During the warranty period State Agencies/users reserves the right to cross check the performance of the systems with the minimum performance levels specified in the specifications).

Annexure 6: List of Plant and Machinery

(To be completely filled by the Bidders)

For manufacturing of Solar PV panels (as applicable)

S. No.	Name of equipment	Date of purchase	Date of calibration	Utility

For manufacturing of PCU (as applicable)

S. No.	Name of equipment	Date of purchase	Date of calibration	Utility

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

7.0 TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS FOR GRID CONNECTED SPV SYSTEMS

The proposed projects shall be commissioned as per the technical specifications given below. Any short comings will lead to cancelation of order in full or part as decided by TCGL. The specifications, in the GERC Regulation on Net Metering shall also be applicable.

1. DEFINITION

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables, solar meter, bi-directional energy meter and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and shall be designed with necessary features to supplement the grid power during daytime. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., shall confirm to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

- Solar PV system shall consist of following equipment/components.
- Solar PV modules consisting of required number of Crystalline PV modules.
- Grid interactive Power Conditioning Unit with Remote Monitoring System.
- Mounting structures.
- Junction Boxes.
- Earthing and lightening protections.
- IR/UV protected PVC Cables, pipes and accessories.
- Solar Meter and Bi-directional Energy Meter

a. SOLAR PHOTOVOLTAIC MODULES:

1.1.1 The PV modules used shall be **Made in India**, as per MNRE requirements. Necessary documents in this regards must be provided to TCGL.

1.1.2. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC61730 Part-2- requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

(a)For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701

- (b) The total solar PV array capacity shall not be less than allocated capacity (kWp) and shall comprise of solar crystalline modules of minimum 200 Wp and above wattage with module efficiency not less than 14%. Module capacity less than minimum 200 watts shall not be accepted
- c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
- d) PV modules must be tested and approved by one of the IEC authorized test centers.
- e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid.
- g) Other general requirement for the PV modules and sub systems shall be the following:
- I. The rated output power of any supplied module can have tolerance of +/-3%.
 - II. The peak-power point voltage and the peak-power point current of any supplied module and/or any module
 - String (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
 - III. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
 - IV. I-V curves at STC shall be provided by bidder.

1.1.3. Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).

- a) Name of the manufacturer of the PV module
- b) Name of the manufacturer of Solar Cells.
- c) Month & year of the manufacture (separate for solar cells and modules)
- d) Country of origin (separately for solar cells and module)
- e) I-V curve for the module Wattage, I_m , V_m and FF for the module
- f) Unique Serial No and Model No of the module
- g) Date and year of obtaining IEC PV module qualification certificate.
- h) Name of the test lab issuing IEC certificate.
 - i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

1.1.4. Warranties:

a) Material Warranty:

i. Material Warranty is defined as: The manufacturer shall warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer ("Customer")

ii. Defects and/or failures due to manufacturing

iii. Defects and/or failures due to quality of materials

iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option

b) Performance Warranty:

i. The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output.

2. ARRAY STRUCTURE

i. Hot dip galvanized MS mounting structures shall be used for mounting the modules/panels/arrays. Each structure shall have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

ii. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed in Gujarat (150 km/hr). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard. Suitable fastening arrangement such as grouting and calming shall be provided to secure the installation against the specific wind speed.

iii. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS4759, material thickness shall be minimum 2.5 mm.

iv. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.

v. The fasteners used shall be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels

- vi. Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- vii. The total load of the structure (when installed with PV modules) on the terrace shall be less than **60 kg/m²**.
- viii. The minimum clearance of the structure from the roof level shall be **150 mm**.

3. JUNCTION BOXES (JBs)

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber Gasket to prevent water entry. Single /double compression cable glands. Provision of earthings. It shall be placed at **5 feet** height or above for ease of accessibility.
Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

- ii. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification

4.DC DISTRIBUTION BOARD:

- a) DC Distribution panel to receive the DC output from the array field.
- b) DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

5. AC DISTRIBUTION PANEL BOARD:

- a) AC Distribution Panel Board (DPB) shall control the AC power from PCU/inverter, and shall have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- b) All switches and the circuit breakers, connectors shall conform to IEC60947, part I, II and III/ IS60947 part I, II and III.
- c) The changeover switches, cabling work shall be undertaken by the bidder as part of the project.
- d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air -insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz

- e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g) Shall conform to Indian Electricity Act and rules (till last amendment).
- h) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous Operation and satisfactory performance under the following supply conditions.

Variation in supply voltage: +/- 10 % Variation in supply frequency: +/- 3 Hz 6.

PCU/ARRAY SIZE RATIO:

- a) The combined wattage of all inverters shall not be less than rated capacity of power plant under STC.
- b) Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

7. PCU/ Inverter:

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit. Inverter output shall be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

- Switching devices : IGBT/MOSFET
- Control : Microprocessor /DSP
- Nominal AC output voltage and frequency: 415V, 3 Phase, 50 Hz(In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.) or Single phase as per consumer requirements.
- Output frequency : 50 Hz
- Grid Frequency Synchronization range : + 3 Hz or more
- Ambient temperature considered : -20o C to 50o C
- Humidity : 95 % Non-condensing
- Protection of Enclosure : IP-20(Minimum) for indoor.
- IP-65(Minimum) for outdoor.
- Grid Frequency Tolerance range : + 3 or more o Grid Voltage tolerance : - 20% & + 15 %

- No-load losses : Less than 1% of rated power
- Inverter efficiency(minimum): >95%
- THD: < 3%
- PF : > 0.9

- a) Three phase PCU/ inverter shall be used with each power plant system.
- b) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- c) The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power; inverter shall have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.
- d) Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- e) The power conditioning units / inverters shall comply with applicable IEC/equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2(1, 2, 14, 30) /Equivalent BIS Std.
- f) The charge controller (if any) / MPPT units environmental testing shall qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS STD. The junction boxes/enclosures shall be IP 65(for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- g) The PCU/ inverters shall be tested from the MNRE approved test centres /NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these shall be approved by international test houses.

8. INTEGRATION OF PV POWER WITH GRID:

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the grid comes into service PV system shall again be synchronized with grid supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid power connection need to be provided, as per regulation.

18.1 DATA ACQUISITION SYSTEM / PLANT MONITORING

- i. Data Acquisition System shall be provided for each of the solar PV plant.
- ii. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner /TCGL location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the CP. Provision for interfacing these data on TCGL server and portal in future shall be kept.

10. METERING:

- a) The solar and bi-directional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy as per guidance of DISCOM.
- c) The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to TCGL before commissioning of SPV plant.
- d) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement. Second line of protection such as low volt relay shall be provided with the system as per GERC regulations.

11. POWER CONSUMPTION:

- 1. Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid at APPC.

12.PROTECTIONS:

The system shall be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

12.1. LIGHTNING PROTECTION:

The SPV power plants shall be provided with lightning & over voltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc the entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection shall be provided as per IEC62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

12.2. SURGE PROTECTION

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement)

12.3. EARTHING PROTECTION

- i. Each array structure of the PV yard shall be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts shall also be earthed inside the array field.

ii. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

GRID ISLANDING:

i. In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off immediately. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.” Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

ii. A manual disconnect 4pole isolation switch (RCCB) beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance.

13. CABLES:

Cables of appropriate size to be used in the system shall have the following characteristics:

i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards

ii. Temp. Range: -10°C to $+80^{\circ}\text{C}$.

iii. Voltage rating 660/1000V

iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation

v. Flexible

vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) shall be insulated with a special grade PVC compound formulated for outdoor use.

vii. Cable Routing/ Marking: All cable/wires are to be routed in a RPVC pipe/ GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.

- viii. The Cable shall be so selected that it shall be compatible up to the life of the solar PV panels i.e. 25 years.
- ix. The ratings given are approximate. All the cables required for the plant are to be provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons.
- x. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V,UV resistant for outdoor installation IS /IEC 69947.
- xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.
- ii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

14. CONNECTIVITY

The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the GERC regulation for Grid connectivity and norms of DISCOM and amended from time to time.

15. DRAWINGS & MANUALS:

- i. Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical datasheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- ii. Approved ISI and reputed makes for equipment be used.

16. CAPACITY OF SOLAR PV SYSTEM ON THE ROOFTOP

The Solar PV system on the rooftop of the selected buildings will be installed for PV capacity permissible by Discom as per regulation issued by GERC.

17. SAFETY MEASURES:

The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.

DISPLAY BOARD: A display board shall be installed in the village/ hamlet near community building, of min. size 4' x 3' on two poles. MS Sheet of board shall be of **minimum 22 SWG**. The text shall include GEDA address as well as Manufacturer's name and address, Phone, fax and mobile number for immediate contact in case of any failure of systems. The board shall be spray painted, with vinyl letter pasting.

DOCUMENTATION

Two sets of installation manual / user manual shall be supplied along with the each power plant. The manual shall include complete system details such as array lay out, schematic of the system, inverter details, working principle etc. Step by step maintenance and troubleshooting procedures shall be given in the manuals. **Module layout drawing has to be submitted to TCGL for each site. 7 nos. set of line diagram and licensed electrical contractors' certificate has to be submitted for each site.**

BILL OF MATERIAL

The Bidder shall provide the bill of material for grid connect SPV power plant mentioning the quantity of each of the item consisting in the system, along with the offer.

SHADOW ANALYSIS

The shadow analysis of each site has to be carried out by Bidder and shall be submitted to TCGL, after placement of work order.

The module mounting structure shall be made of **GI medium class pipe/ GI channel**. The grouting of the structure shall be done by PCC 1:2:3, which shall withstand the wind speed of 150 km/hr.

PERFORMANCE RATIO:

The Performance Ratio (PR) is a measure of the quality of a PV plant that is independent of location and insolation (power in solar radiation) and therefore often described as a quality factor. The PR is stated as percent and describes the relationship between the actual and theoretical energy outputs of the PV plant. It thus shows the proportion of the energy that is actually available for export to the grid after deduction of energy loss. The procedure for performance monitoring is based on the standard IEC 61724 – PV system performance monitoring: Guidelines for measurement, data exchange and analysis.

Calibrated pyranometer, temperature sensors, anemometer and wind vanes shall be installed by the bidder at the location of the PV power plant for measurement of PR at the time of Commissioning of system. The PR at the time of commissioning of the plant shall be measured in the form of POWER PR as the performance will be measured at the instant of commissioning. The PR shall be

calculated as the ratio of (a) Measured, actual power evacuated in the grid at the evacuation point at a particular instant and (b) calculated, Nominal Power Output of the plant at that instant. Wherein, the Nominal Power Output of the plant is calculated as the product of 'in-plane' solar insolation reading from the pyranometer (in kW/m²) and the net capacity of all the PV modules in (kW).

DOCUMENTATION FOR MNRE ONLINE SPIN PORTAL

The bidder shall be required to submit necessary documents as per MNRE online SPIN portal for all the installation done by the bidder.

Specifications for On Grid Solar Parking:

Design Criteria for Structural Solar Supports for Parking Canopies Installations

Overview: Effective Solar Canopy design for parking lot installations must / should meet certain reasonable standards for durability, functionality, attractiveness and affordability. Failure to address all four (4) criteria typically results in a project that either does not pencil out economically or worse, does not provide years of trouble free performance.

Durability: Simply defined, the ability of the structure to be low or no maintenance for 5 years. **Functionality:** Once installed, the ability to provide adequate structural framework for solar modules while also providing for vehicular traffic and logistics under and around the canopy. Canopy columns and trusses should not interfere with parked cars, car doors, snow plows or emergency vehicle traffic around the site.

Attractiveness: Aesthetic appeal is a subjective quality but consistent clean design lines, scale and proportion, long lasting coatings and quality workmanship will create a sustainable and inspirational image.

Affordability: Solar canopies are simply an alternative to roof and ground mounted solar and effective design is also economical design which is competitive with other installation methods. In fact, as its primary purpose is that of a solar support, it is Structural Solar LLC's opinion that solar canopies qualify as part of the Investment Tax Credit.

In effect, Solar Canopies are elevated structural solar supports with tremendous benefit to Solar Developers who need a cost effective and durable structural solution for large solar arrays. When installed in parking lots, canopies can be sized and favorably oriented to accommodate large solar arrays as an alternative to rooftop solar installations. But there is a distinction between covered parking and structural solar supports and this Product Bulletin examines the critical differences and design considerations for each.

Design – Loading and Construction: Solar Canopies (or Elevated Structural Supports) are designed to site-specific snow, wind and seismic loads and take into consideration the dead loads of the rail and modules as well as other live loads. Since vehicles park under the structure, efficiently designed systems will have a single line of columns placed between (and not in front of) the parking spaces. Cantilevered structures will utilize a drilled pier foundation or spread footer to resist the turn-over force. Columns are typically placed every 18' feet or 27' (2 or 3 parking spaces) apart.

Design – Solar Modules as the Roof: One of the most significant differences between solar canopies and parking canopies is the roof itself. Solar canopies use the solar modules connected to the racking

system as the roof. There is typically one inch around each of the modules so there is no attempt to “waterproof” the structures. Once again, there is distinction between asset protections provided by parking canopies versus solar canopies with primary intended purpose as a structural solar support (Investment Tax Credit). And there are notable additional advantages and benefits as a result. Solar Canopies (Structural Solar Supports) have a lower installed cost if the metal deck and labor to install it is eliminated. Solar Canopies (Structural Solar Supports) are a “green” solution to large unproductive paved parking areas. Instead of having a massive heat sink, solar canopies provide shade while allowing filtered light and water to pass through. Accordingly, an existing surface lot is not negatively impacted whereas a metal roof generally necessitates gutters, downspouts and underground culverts to carry the rainwater away to a detention basin. Solar Canopies (Structural Solar Supports) send a strong, highly visible and inspirational message to customers, shareholders, students and employees about the commitment to clean renewable solar energy. Solar Canopies (Structural Solar Supports) provide the framework for future installed electric charging station hardware. With columns on 18’ centers, mounted charging stations will always be adjacent to the parking space. Solar Canopies (Structural Solar Supports) will stay cooler and operate more efficiently in the summer than roof mounted PV modules. With roof mounted solar, rails must be elevated to provide for air circulation between the modules and metal roof systems. Solar Canopies (Structural Solar Supports) will clear snow easily and quickly in the winter. Empirical evidence suggests that solar arrays without an underlying metal deck will clear quickly when the sun comes out and the modules warm. The watery interface between the module surface and the snow allows the snow to slide off, melt harmlessly and clear between the modules.

Specifications for Off Grid Solar Benches:

Solar Smart Bench is a versatile outdoor bench that offers USB mobile device charging from utilizing solar energy without external electrical connection.

The simple design of the bench allows solar energy to be collected and stored in the integrated controlled battery system to be used as and when required.

The stored energy also powers LED concealed lighting on the bench and can be utilized for Wi-Fi and other reporting.

From base model to bespoke branding, the Solar Smart Bench offers flexibility in three build finish options.

Seating capacity for benches about to 1 to 4 persons.

Urban Smart Bench :The Urban Smart Bench offers a high-end, robust steel frame, powder coated in anthracite grey, with options for composite clad wood effect end panels, with a toughened edge protected 13 mm glass top.

The Solar Smart Bench has four USB charging ports, and with an LED underside strip light included, the Urban Smart Bench offers an overall durable understated stylish outdoor bench that fits with any exterior setting.

Design should ready by bidder and submit to TCGL for approval.

Concept Photographs is attached herewith for references only.

General Conditions: applicable to all the systems.

- PV modules used in solar power plants/systems must be warranted for their output peak watt capacity, which shall not be less than 90% at the end of 12 years and 80% at the end of the 25 years.
- The BoS items/components of the SPV power plants/systems deployed must confirm to the latest edition of IEC/equivalent BIS standards as specified below:

BoS item/component	Applicable IEC/equivalent BIS Standard	
	Standard Description	Standard Number
Power Conditioners/Inverters	Efficiency Measurements	IEC 61683
*	Environmental Testing	IEC 60068 2
		(6,21,27,30,75,78)
Cables	General Test and Measuring Methods PVC insulated cables for working Voltages up to and including 1100 VDo-, UV resistant for outdoor installation	IEC 60227/IS 694 IEC 60502/ IS 1554(part I & II)
Switches/ Circuit	General Requirements	IS/IEC 60947 part I,II,III
Breakers/Connectors	Connectors -safety	EN 50521
Junction	General Requirements	Enclosures IP 54 (for
Boxes/Enclosures for inverter/ charge controller/ luminaries		outdoor)/IP 21 (for

Must additionally conform to the relevant national/international Electrical Safety Standards.

All wiring for rooftop and grid connected systems shall be in UV-resistant certified for solar application, concealed in galvanized/ UPVC cable trays with minimum 3 cm clearance from the terrace/ rooftop floor.

FINANCIAL BID GUIDELINES

Sign & Seal

Supplying, Installing, testing and commissioning of ON Grid Connected Solar Photovoltaic System, Solar Parking and Off Grid Solar Benches with five years comprehensive operation & maintenance contract in various smart tourist locations in the Gujarat

- Rates quoted by Bidder will be FOR destination prices inclusive of taxes, levies, duties, packing, forwarding, freight, insurance, loading unloading, supply, installation, commissioning, connectivity charges, meter charges etc. and any/ all charges for successful Supply and Installation of the systems at any locations in the State of Gujarat and all other miscellaneous expenses of marketing, commissions etc, if any. These rates are applicable for 2 years.
- The rates quoted by the Bidder will be inclusive of GST or any other taxes applicable to such work in the format describe in the financial. Any escalation in such taxes/ levies during the tenure of the offer/ order will not be paid by TCGL and Bidders are advised to take in to consideration any such escalations in the prevailing taxes/levies/duties.
- In no circumstances, escalation in the prices will be entertained.
- Your rates are to be submitted as per the enclosed Performa of schedule of rates **(online only). Physical submission of price bid will disqualify the Bidder.**
- **This quoted rates are applicable for 2 years with different locations in Gujarat.**
- Total 3 Financial with different capacities are attached. L1 should be finalized as per below category. Bidder should have followed below table with mentioned categories :

Sr. No.	Details	Categories (Bidder Should mentioned in submission of Hardcopy)
1	On Grid Connected Solar System- 1000 KW	A
4	Solar Parking Concept	B
5	Solar Benches	C