TENDER FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR DEVELOPMENT OF 1292 MW (PHASE-I) ULTRA MEGA RENEWABLE ENERGY POWER PARK (SOLAR POWER PARK) INCLUDING STUDIES LIKE TOPOGRAPHICAL SURVEY, GEOTECHNICAL STUDIES etc. OF 2000 MW SOLAR PARK AT VILLAGE BODANA, TEHSIL-NACHANA-I, DISTRICT JAISALMER, RAJASTHAN".

Issued by:

THDC India Limited, Rishikesh on behalf of TREDCO Rajasthan Limited

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SECTION-1
NOTICE INVITING TENDER (NIT)

NIT No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

TENDER FOR PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR DEVELOPMENT OF 1292 MW (PHASE-I) ULTRA MEGA RENEWABLE ENERGY POWER PARK (SOLAR POWER PARK) INCLUDING ALL STUDIES LIKE TOPOGRAPHICAL SURVEY, GEOTECHNICAL STUDIES etc. OF 2000 MW SOLAR PARK AT VILLAGE BODANA, TEHSIL-NACHANA-I, DISTRICT JAISALMER, RAJASTHAN".

THDC India Limited on behalf of TREDCO INDIA Limited invites Bids **on Limited Tender basis** through e-tendering for the subject work under Single stage "Single Part Bid System" complete in accordance with the following details and enclosed Bidding Document:

Sl No	Description of Items	Particulars
1)	Estimated Cost	**Rs 1,01,75,659.00** (One Crore One Lakh Seventy-Five Thousand Six Hundred Fifty Nine Rupees Only), excluding GST
2)	Cost of bidding documents/ Tender Fee	NIL
3)	Earnest Money Deposit (EMD) in the form of DD/NEFT/RTGS/Bank Guarantee	Rs 1,02,000.00
4)	Document download/ sale/ submission start date	**13.02.2024 06:00 PM**
5)	Document download/ sale/ submission end date	**20.02.2024 06:00 PM**
6)	Bid opening date	**21.02.2024 10:00 AM**
7)	Completion schedule of work	90 days
8)	Bid Validity	Offers shall be valid for a periodof Ninety **(90) days** from bid submission due date.
9)	EMD Validity	120 days
10)	Security Deposit cum Performance Bank Guarantee	5% of Contract Value

The bank account details of THDC India Limited for e-payment for EMD are as under:

1.	Name of the beneficiary	THDC India Limited
2.	Name of the Bank	State Bank of India, Railway Road, Rishikesh

3.	Account No.	10548872555
5.	Type of account	Current Account
6.	IFSC code of the Bank	SBIN0001180
7.	Bank phone No.	0135 2433930
8.	Email Address	Sbi.01180@sbi.co.in

A) Notes:

1) Bids are invited through e-tendering by uploading and submitting the same on CPP (Central Public Procurement) e-procurement Portal website - http://eprocure.gov.in/eprocure/app.
2) The complete Bidding Document is available on CPP e-procurement Portal website- http://eprocure.gov.in/eprocure/app. The bidders may download the Bidding Documents accordingly after vendor registration.
3) All future amendments/corrigendum/addenda/clarifications, if any, shall be uploaded on the website http://eprocure.gov/eprocure/app.in only. Bidders shall keep themselves updated with all such amendments/corrigendum/addenda/clarifications.
4) The Bids are invited under Single Stage Single-Part Bid System. The Bid is to be uploaded & submitted on CPP e-procurement Portal website -http://eprocure.gov.in only in the prescribed format. No hard copy of the Bid shall be accepted, however certain documents (Appendices) are to be submitted in physical form also at the address given below.
5) The EMD is exempted for Micro and small enterprises (MSEs) as prevailing Govt. policies Directives. However, the proof for the same shall be uploaded and submitted by the bidder for claiming the eligibility. Bids without authentic proof of registration of MSME shall be treated as without EMD and shall not be entertained.
6) In case EMD submitted in the form of BG, then BG submitted by the bidders shall remain valid for a period of 30 days beyond the validity period of the proposal.
7) All interested parties are requested to understand this Tender in detail in order to comply with TREDCO Rajasthan Limited requirements including but not Limited to the fees and deadlines, scope of work, and minimum technical standards. They shall strictly abide by ALL terms prescribed in this Tender and provide accurate information to the best of their knowledge without misleading the Owner to be considered for participation in this Project.
8) The Bid shall be opened in presence of the bidders, who choose to be present.
9) Conditional Bid may run the risk of rejection.
10) Bidders are requested to go through the complete Tender Documents before submission of their proposal/bid. Clarification, if any, may be obtained on the tender document before 07 days in advance of bid submission date.
11) Any combination of Firms/Applicants in form of Joint Venture (JV) or Consortium is not permitted.
12) The Bidding Documents are not transferable. The tender shall be submitted only in prescribed form.
13) The Work is to be executed in line with the terms and conditions mentioned in the tender document.
14) Notwithstanding anything stated above, the owner i.e. THDC India Limited on behalf of TREDCO Rajasthan Limited reserves the right to accept or reject any or all the bids or split and to assess the capacity and capability of the bidder, in the overall interest of THDC India Limited/TREDCO Rajasthan Ltd, without assigning any reason whatsoever.

For further details please contact:

General Manager (Procurement),
THDC India Limited, Gangotri Bhawan,
Pragati Puram, Bye Pass Road, Rishikesh-249201, (Uttarakhand),
Tel: 0135- 2473586, e-mail: procurementrksh@thdc.co.in

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DOCUMENTS CHECKLIST:

Sr. No.	Document	Attached	For Official use
		Yes/No	
1	Format for Covering Letter **Appendix 1**:		
2	Details of Bidder as specified in **Appendix 2**		
3	Details of qualified technical staff (Proposed to be associated with assignment) as per the format in **Appendix 4**		
4	Declaration of compliance as per format prescribed in **Appendix 5**		
5	No Deviation Certificate as per format prescribed in **Appendix 6**		
6	Declaration of Bidder's relation to Directors of the Companyas per format prescribed in **Appendix 7**		
7	Format of Power of Attorney as Authorized Signatory as per format prescribed in **Appendix 8**		
8	EMD in the form of RTGS/ NEFT/BG. In case EMD submitted through BG shall be as per format prescribed in **Appendix 10 (a)**: Format of BankGuarantee for EMD		
9	Format of declaration of Non Blacklisting as per format prescribed in **Appendix 12**		
10	"Price Bid": **Appendix-13** Submission of Price Bid through e-tendering website		
11	Confidentiality Undertaking as per format prescribed in **Appendix-14**		
12	"Site Map" : **Appendix-16**		
13	Declaration for "Make in India" : **Appendix-17**		
14	Declaration for Land Border Sharing : **Appendix-18**		
15	Integrity Pact to be signed and submitted (copy of Integrity Pact is enclosed at **Appendix-20**)		
16	Copy of tax Registration Certificate ofBidder.		
17	Copy of Provident Fund Code of Bidder.		
18	Copy of PAN Card for Bidder.		

DISCLAIMER:

A) This TENDER is not an agreement and is neither an offer nor invitation by THDC India Limited on behalf of TREDCO Rajasthan Limited to the prospective Bidders or any other person. The purpose of this TENDER is to provide interested parties with information that may be useful to them in the formulation of their Bid for qualification pursuant to this TENDER. This TENDER includes statements, which reflect various assumptions and assessments arrived at by THDC India Limited on behalf of / TREDCO Rajasthan Limited or their advisors or employees or agents, in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This TENDER may not be appropriate for all persons, and it is not possible for THDC India Limited/TREDCO Rajasthan Limited, their employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this TENDER.

C. The assumptions, assessments, statements and information contained in this TENDER may not be complete, accurate, adequate or correct. Each Bidder should therefore, conduct its own investigations and analysis and should check theaccuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this TENDER and obtain independent advice from appropriate sources.

D. Information provided in this TENDER to the Bidder(s) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as acomplete or authoritative statement of law. THDC India Limited/ TREDCO Rajasthan Limited would not have any responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

E. THDC India Limited / TREDCO Rajasthan Limited, their employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder or Bidder(s), under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this Bid or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the TENDER and any assessment, assumption, statement or information contained therein or deemed to form part of this TENDER or arising in any way with prequalification of Bidders for participation in the Bidding process.

F. THDC India Limited on behalf of TREDCO Rajasthan Limited also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this TENDER. TREDCO Rajasthan Limited may, in their respective absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this TENDER.

G. THDC India Limited on behalf of TREDCO Rajasthan Limited reserves the right to reject all or any of the Bid or Bids without assigning any reasons whatsoever.

H. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not Limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the THDC India Limited /TREDCO Rajasthan Limited or any other costs incurred in connection with or relating to its Bid proposal.

1 Definition and Interpretation

1.1 Definitions

The following words and expressions shall have the meanings hereby assignedto them:

1.1.1 "Adjudicator" means the person, who shall be an engineer or a firm of engineers who is appointed by the Company to act as the adjudicator to make a decision on or to settle any dispute or difference between the Company and the Consultant referred to it or her by the parties pursuant to TENDER (Adjudicator) hereof.

1.1.2 "Applicable Law" means any statute, law, regulation, ordinance, notification, rule, regulation, judgment, order, decree, bye-law, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision of, or determination by, or any interpretation or administration having theforce of law in the Republic of India and the State Government, by any Government Authority or instrumentality thereof, whether in effect as of the dateof this Contract or thereafter.

1.1.3 "Bid" shall mean the bid submitted by the Bidder in response to the TENDER/Tender Document No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50 issued by the Company.

1.1.4 "Bidder" shall mean Bidding Company or a Bidding Individual submitting the Bid. Any reference to the Bidder includes Bidding Company / Bidding Individual including its successors, executors and permitted assigns severally, as the context may require;

1.1.5 "Completion" means that the entire works have been completed as per the Scopeof Work.

1.1.6 "Consultant/Contractor" shall mean Successful Bidder/Agency/Firm appointed to carry our work as per scope of worked defined in this TENDER and mutually agreed by both parties.

1.1.7 "Contractor" means the person(s) whose bid to perform the Contract has been accepted by the Company and is named as such the Contract Agreement, and includes the legal successors or permitted assigns of the Contractor.

1.1.8 "Consultant's Equipment" means all plant, facilities, equipment, machinery, tools, apparatus, appliances or things of every kind required in or for execution of work that are to be provided by the Consultant.

1.1.9 "Chartered Accountant" shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949.

1.1.10 "Day" means calendar day of the Gregorian calendar.

1.1.11 "DPR" Means Detailed Project Report

1.1.12 "Effective Date" for this Contract shall mean the date of issuance of Letter of Intent by the Company.

1.1.13 "GCC" means the General Conditions of Contract hereof.

1.1.14 "Government Authority" means Government of India, any state government or any governmental department, commission, board, body, bureau, agency, authority, undertaking, court or other judicial or administrative body or any sub- division or instrumentality thereof, central, state, or local, having jurisdiction over the Consultant, the Facility, or the performance of all or any of the services, obligations or covenants of Consultant under or pursuant to this Contract or any portion thereof.

1.1.15 "TREDCO Rajasthan Limited" is joint venture company of THDC India Limited (A Mini Ratna, Schedule-A PSU of Ministry of Power, GoI) and Rajasthan Renewable Energy Corporation Limited (A State PSU of Government of Rajasthan).

1.1.16 "Month" means calendar month of the Gregorian calendar.

1.1.17 "PFR" means Pre-feasibility Report

1.1.18 "Owner" means TREDCO Rajasthan Limited

1.1.19 "Project Manager" means the person appointed by the Company in the manner provided in the TENDER (Project Manager) hereof and named to perform the duties delegated by the Company.

1.1.20 "Prudent Utility Practices" means those practices, methods, techniques and standards that are generally accepted for use in Preparation of Detailed Project Report taking into account conditions in India.

1.1.21 "TENDER document" shall mean the bidding document issued by the Company including all attachments vide Tender Document No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

1.1.22 "Site" means the land and other places upon which the works are to be carried out, and such other land or places as may be specified in the Contract as formingpart of the Site.

1.1.23 "Subcontractor", including vendors, means any person to whom execution of any part of the work, is sub-contracted directly or indirectly by the Consultant, and includes its legal successors or permitted assigns.s

1.1.24 "Successful Bidder" means the bidder who has been awarded the Contract and described as Consultant for the "Project".

1.1.25 "Time for Completion" shall be the date on or before which the complete work as per TENDER with final report shall be submitted by the Consultant to the satisfactionof the Owner and such date is specified in NIT.

1.1.26 "Feasibility Study "means studies like Topographical Survey, Geotechnical Investigation, Hydrology Survey, Environmental Impact Assessment (EIA) as per MNRE requirement, Social Impact Assessment (SIA) as per MNRE etc.

1.1.27 ''Engineer-In-Charge" means any Officer appointed from time to time by owner and notified in writing to the Consultant to act as Engineer-in-charge for operation of the contract.

1.2 Interpretations

1.2.1 Language: Unless otherwise agreed by the parties in writing, the parties shall usethe English language and the Contract and the other Bid documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language. If any of the Contract Documents, correspondence or communications are prepared in any language other than English, the English translation of such Documents, correspondence or communications shall prevail in matters of interpretation.

1.2.2 Singular and Plural: The singular shall include the plural and the plural thesingular, except where the context otherwise requires.

1.2.3 Headings: The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.

1.2.4 Persons: Words importing persons or parties shall include firms, corporations and government entities.

1.2.5 Men: The word „Men" in this TENDER shall mean all genders i.e. male, female and others.

1.2.6 Entire Agreement: The Contract constitutes the entire agreement between the Company and Consultant /Contractor with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract. The various documents forming the Contract are to be taken as mutually explanatory. Should there be any discrepancy, inconsistency, error or omission in the Contract documents, the matter may be referred to the Adjudicator and the Consultant shall carry out work in accordance with the decision of the Adjudicator.

1.2.7 Amendment: No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party hereto.

1.2.8 Independent Consultant: Subject to the provisions of the Contract, the Consultantshall be solely responsible for the manner in which the Contract is performed.

i. All employees, representatives or Subcontractors engaged by the Consultant in connection with the performance of the Contract shall be under the complete control of the Consultant and shall not be deemed to be employees of theCompany and nothing contained in the Contract or in any subcontract awardedby the Consultant shall be construed to create any contractual relationship between any such employees, representatives or Subcontractors and the Company.

ii. Not in any case the sub-contractor shall claim or shall put any binding to the Company and the sub-contractor must be handled by the Consultant and the Company shall not be responsible for any claims at any time by the Consultant in relation to the sub-contractor.

1.2.9 Non-Waiver

I. Subject to Clause 1.2.9 (ii) below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

II. Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it isbeing waived.

1.2.10 Severability: If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

2 Introduction

2.1 About TREDCO Rajasthan Limited

M/s TREDCO Rajasthan Limited (referred as "TREDCO Rajasthan Limited" or "Developer" or "SPPD"), is a JV company (JVC) with 74:26 Joint venture between THDC India Limited (A Mini Ratna, Schedule-A PSU of Ministry of Power, GoI) and Rajasthan Renewable Energy Corporation Limited (A State PSU of Government of Rajasthan)., has been incorporated on 25th March 2023, under Section 2(45) of the Companies Act, 2013. The Registered Office of the company is situated at D-144 Kusum Vihar Jagatpura, Jaipur, (RJ)-302017 in the state of Rajasthan. The company is presently engaged in developing 10,000 MW UMREPP in the state of Rajasthan.

2.2 Background about Solar Park:

TREDCO Rajasthan Limited is going to develop 10,000 MW capacity Solar power park in phase wise. Presently, TREDCO has planned to develop 1292 MW capacity Solar Power Park under Mode-8 scheme of MNRE, GoI. For the development of 10,000 MW Solar Park TREDCO has identified around 29563 Acres of Govt land in different villages such as Bodana, Motigarh, Bikampur, Mehrasar, Karnisar Bhatiyan, Bhanawatawala, Soorasar, Ramsara, Sardarpura in Bikaner and Jaisalmer district of Rajasthan. Approx. 15502 Acre of Govt. Land has been identified in Rajasthan and proposal has been sent to RRECL for allocation of land for implementation of UMREPPs in Phased Manner. Among these, Proposal of Allotment of 4000 Ha. Land in Bodana Village of Tehsil-Nachana-I in Jaisalmer District for 2000 MW Capacity RE Park. The approval of allotment of land is in advance stage.

MNRE has come up with a scheme for development of Solar /Renewable Energy Ultra-Mega Parks. A Park is a concentrated zone of development of Renewable power generation projects and provides developers an area that is well characterized with proper infrastructure, access to amenities and where the riskof the project can be minimized.

3 Instruction to Bidders

3.1 General Instructions:

1) The current tender document which is issued to the Bidders, requesting a proposal for Preparation of DPR for proposed Solar projects on a fixed price basis. A Consultant would be selected through competitive bidding process for execution of the Project.

2) The Owner expects Bidders to confirm compliance to TENDER terms, conditions and specifications at the time of submission of Bids, failing which the Bids are liableto be rejected. Hence, the Bidders in their own interest are advised to submittheir Bids complete in all respects conforming to all terms and conditions of this TENDER.

3) Before submitting the Tender, the instructions may be read carefully regarding submission of Tender. If any bidder finds discrepancies or omissions in theTender documents or is in doubt as to the true meaning of any part, he shall clarify same from the Tender issuing office in writing before the due date of submission of the queries.

4) Bidders are advised to ensure that they submit appropriate and relevant supporting documentation along with their proposal in the first instance itself. Bids not complying with the requirements of this TENDER are liable to be rejected without any further opportunity.

5) Bidders need to ensure that in the event the work is awarded to it, and during execution of the work, it shall not seek to alter any agreed contractual terms, conditions and specifications.

6) All Bids must be accompanied by a Tender fee and EMD of value as specified in the NIT in the form and manner as specified in the TENDER document and must be delivered along with Bids.

7) The specification provided with this TENDER outlines the functional requirement. However, anything which is necessary for completion of the work under this tender but not explicitly mentioned may be deemed to be included in the scope of work of tenderer. No separate payment shall be made on this account since the scope of work includes to prepare DPR and get it approved from MNRE.

8) This 'Instructions to Bidders', in original, issued along with TENDER document, shall be submitted by the Bidder along with Bid duly signed by the Bidder as the token of acceptance. Bid sent without having the prescribed TENDER document and without complying with the terms and conditions of TENDER shall be ignored.

9) Issuance of this TENDER does not construe that the Bidder has been short-listed or qualified.

10) The Owner reserves the right, to accept or reject any Bid and to annul the bidding process and reject all Bids at any time prior to award of the Agreement, without assigning any reason thereof and without thereby incurring any liability to the affected Bidder(s).

11) The Owner reserves the right to reject any Bid submitted with deviations beyond the one that is specified and mentioned in the TENDER and no time shall be given in any circumstances after opening of Financial Proposal for submission of documents which are missing with Bid.

12) Tender Issuing Authority reserves the right to cancel the NIT or to change qualifying requirement or to reject any or all the tenders so received without assigning any reason.

13) Canvassing in connection with Tender is strictly prohibited and the Tender submitted by the Bidders who resort to canvassing will be liable to rejection straight way.

14) All rates shall be quoted on the proper form i.e. price bid supplied as part of the Tender documents on e-tender portal by the Department.

15) THDC India Limited on behalf of TREDCO Rajasthan Limited does not bind itself to accept the lowest Bid and reserves to itself the right to accept the whole or any part of the Tender and the Bidder shall be bound to perform the same at the rate quoted in this Tender.

3.2 Bid Documents:

The bid shall comprise of following:

3.2.1 : DELETED

3.2.2 : DELETED

3.2.3 Other Documents:

i. The Tender of only those Bidders will be considered who will produce documentary proofs, self-attested to meet the following requirements: The Bidders to have GST No., valid Proof of Permanent EPF account No. and ESI registration No. (if applicable).

ii. The Bidder or member of the joint venture/ consortium shall not be under a declaration of ineligibility for corrupt and fraudulent practices or banned/debarred/suspended from transaction/ business dealing by Ministry of Power (Govt. of India) or by THDC India Limited or appearing in the list of such bidders available on Central Public Procurement Portal (CPP Portal). A declaration to this act shall

be submitted by the bidder.

~~iii.~~ DELETED

~~iv.~~ DELETED

v. The Bidder or its Proprietor / Partner(s) / Director(s) of the Firm should not have been convicted by a Court of Law for an offence involving moral turpitude in relation to business dealings during the past seven (7) years.

vi. Notwithstanding the above, THDC India Ltd on behalf of TREDCO Rajasthan Limited reserves the right to accept or reject any bid and to annul the process of submission of bid and reject all or any bid, at any time without assigning any reason thereof, THDC India Limited on behalf of TREDCO Rajasthan Limited shall not in any way be responsible or liable for any loss, damage or inconvenience caused to the bidders on account of the rejected bids. THDC India Limited on behalf of TREDCO Rajasthan Limited shall be under no obligation to inform the respective bidder(s) of the rejection and / or ground for rejection

vii. Notwithstanding anything stated above, THDC India Limited on behalf of TREDCO Rajasthan Limited reserves the right to assess the bidders" capability and capacity to perform the consultancy services under this assignment in the overall interest of the Project.

3.3 Local Conditions:

1) The Bidder is advised to visit and examine the site conditions, location, surroundings, climate, entry permission, availability of power, water and other utilities for performance of work, access to site, handling and storage of materials, weather data, applicable laws and regulations, and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into the Contract Agreement. The costs of visiting the Site shall be at Bidder's own expense.
2) The Bidder and any of its personnel or agents shall be granted permission by the Owner to enter upon its premises (BSF permission shall be taken by Bidder) and lands for the purpose of such inspection, but only upon the express condition that the Bidder, its personnel or agents, shall release and indemnify the Owner and its personnel and agents from and against all liability in respect thereof and shall be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which, but for the exercise of such permission would not have arisen.
3) Failure to visit the Site or failure to study the TENDER document shall in no way relieve the successful Bidder from furnishing any material/Services or performing any work in accordance with the TENDER document.
4) In no case the date of Time for Completion of the project shall be extended, dueto the failure of the Bidder to visit the site and it shall be in line with the time line of TREDCO Rajasthan Limited under the Scheme.
5) The Bidder must conduct its own inspection of the proposed project site, access to the Project Site and surroundings at its own cost in order to make a proper estimate of the works to be performed under consideration of site-specific constraints.
6) It shall be deemed that by submitting a Bid, the Bidder has:
   a) made a complete and careful examination of the TENDER document;
   b) received all relevant information requested from the Owner;
   c) acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the TENDER documents or furnished by or on behalf of theCompany relating to any of the matters referred to in NIT.
   d) satisfied itself about all matters, things and information including matters referred to in the Bid Info at a glance, necessary and required for submitting an informed Bid, execution of the

work in accordance with the TENDER document and performance of all of its obligations there under;

e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the TENDER document or ignorance of any of the matters referred to in the TENDER herein shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Company, or a ground for termination of the Contract Agreement; and

f) agreed to be bound by the undertakings provided by it under and in terms hereof.

7) The Company shall not be liable for any omission, mistake or error on the part of the Bidder in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the TENDER document or the Bidding Process, including any error or mistake therein or in any information or datagiven by the Company.

3.4 Local Regulatory Frame Work:

1) It shall be imperative for each Bidder to fully inform itself of all local conditions, laws and factors which may have any effect on the execution of the Contract as described in the Bidding Documents. The Owner shall not entertain any request for clarification from the Bidder, regarding such local conditions.

2) It is the responsibility of the Bidder that such factors have properly been investigated and considered while submitting the Bid proposals and that no claimwhatsoever including those for financial adjustment to the Contract awarded under the TENDER document shall be entertained by the Owner and that neither any change in the time schedule of the Contract nor any financial adjustments arising thereof shall be permitted by the Owner.

3.5 Amendments to Tender Document:

1) THDC India Limited on behalf of TREDCO Rajasthan Limited may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender Documents.

2) The amendments will be notified on website as mentioned in Notice Inviting e- Tender of this Tender.

3) In order to allow the prospective Bidder(s), reasonable time in which to take the amendment into account in preparing their Bids, THDC India Limited on behalf of TREDCO Rajasthan Limited at its discretion, may extend the deadline for the submission of Bids.

3.6 Acceptance of Bids:

THDC India Limited on behalf of TREDCO Rajasthan Limited neither binds itself ~~neither~~ to accept the lowest nor to assign any reason forthe rejection of any Bid. It is also not binding on THDC India Limited / TREDCO Rajasthan Limited to disclose any analysis report.

3.7 Withdrawal of Invitation to Bid:

While THDC India Limited on behalf of TREDCO Rajasthan Limited has floated this Tender and has requested Bidders to submit their proposals, THDC India Limited on behalf of TREDCO Rajasthan Limited shall always be at the liberty to withdraw this invitation to bid at any time before the acceptance of bid offer.

3.8 Representative/ Agent of Bidder:

All the Bidders are requested to mention the name of their authorized representative/ agent, if any, with full address in the Bid. In case the representative is changed during the bidding process such changes shall be notified by the Bidder, failing which, THDC India Limited on behalf of TREDCO Rajasthan Limited shall not accept any responsibility.

3.9 Financial Proposal and Currencies:

The Bidders shall quote the prices inclusive of all the taxes, while also providing the breakup of taxes as mentioned in Price Bid Format on e-tendering website for online submission. The Bidder shall indicate the price in Financial Proposal in Indian National Rupee only.

3.10 Bank Guarantees & EMD

1) Earnest Money Deposit (EMD) in the form of NEFT/RTGS /Bank Gurantee etc.
2) The validity of EMD shall be as mentioned in NIT.
3) The EMD shall specifically bind the Bidder to keep its Bid valid for acceptance and to abide by all the conditions of the Tender Documents in the event of THDC India Limited on behalf of TREDCO Rajasthan Limited desiring to award the work to the said Bidder. THDC India Limited on behalf of TREDCO Rajasthan Limited shall have an unqualified discretion to forfeit the EMD in the event: (i) Bidder fails to keep the Bid valid up to the date specified/ required; or (ii) refuses to unconditionally accept Letter of Intent and carry out the work in accordance with the Bid in the event such Bidder is chosen as the Successful Bidder
4) The Owner shall, however, arrange to release the EMD in respect of unsuccessful Bidders, without any interest, after the acceptance of LOA along with the submission of Security Deposit by successful Bidder.
   - The EMD shall be released to bidders in the following manner. The EMD of the Successful Bidder shall be returned after submission of the performance bank guarantee.
   - EMD of the unsuccessful bidders shall be released within 30 days after issuance of LOA to the successful Bidder.

5) The EMD shall be forfeited and appropriated by THDC India Limited on behalf of TREDCO Rajasthan Limited as per the discretion of THDC India Limited on behalf of TREDCO Rajasthan Limited as genuine, pre-estimated compensation and damages payable to THDC India Limitd /TREDCO Rajasthan Limited for, inter alia, time, cost and effort of THDC India Limited/TREDCO Rajasthan Limited without prejudice to any other right or remedy that may be available to THDC India Limited/ TREDCO Rajasthan Limited hereunder or otherwise, under the following conditions:

   a. If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, or restrictive practice;
   b. In the case of Successful Bidder, if it fails within 15 days from the issue of LOA— (i) Acceptance of LOA and/ or (ii) to furnish the Security Deposit cum Performance Bank Guarantee within the period prescribed.
   c. In case the Successful Bidder, having signed the Contract Agreement, commits any breach thereof prior to furnishing the Security Deposit cumPerformance Bank Guarantee.

6) The Successful Bidder shall furnish the following Bank Guarantees:

   Security Deposit cum Performance Bank Guarantee (SD/PBG) as per the format given in Appendix 10 (b): Format of Bank Guarantee for Security Deposit/ Performance Bank Guarantee shall be furnished in favour of TREDCO Rajasthan Limited. The Successful Bidder shall submit Security Deposit cum Performance Bank Guarantee of 5% of Total Contract Price, within 15 (fifteen) days after issuance of LOA. The validity period of PBG should be for a total period up to three months from the effective date of start of work date of LOA with the claim period of one month. BG shall be kept valid till the date of completion of work and shall be suitably extended if any extension is allowed by the owner in the completion period.

3.11 Right to Accept or Reject any or all Bids

1) Notwithstanding anything contained in this Tender, the Owner reserves the right to accept or reject any Bid and to annul the bidding process and reject all Bids at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning

any reasons thereof.

2) The Owner reserves the right to reject any Bid and appropriate the EMD if:

   a. at any time, a material misrepresentation is made or uncovered, or
   b. The Bidder does not provide, within the time specified by the Company, the supplemental information sought by Company for evaluation of the Bid.

3) Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If such disqualification / rejection occurs after the Bids have been opened and the Successful Bidder gets disqualified / rejected, then the Ownerreserves the right to:

a. Offer the next successful bidder an opportunity to match the financial bid of the first successful bidder, and if the offer is accepted award the contract to the next successful Bidder at the price bid of the first Successful Bidder;

4) DELETED

5) The Owner reserves the right to verify all statements, information and documents submitted by the Bidder in response to the Tender Documents. Failure of the Owner to undertake such verification shall not relieve the Bidderof its obligations or liabilities hereunder nor will it affect any rights of the Owner there under.

--- End of Section ---

4. Submission of Bid

4.1 General terms

1) A Bidder is eligible to submit only one Bid. A Bidder shall not be entitled to submit another Bid either individually or in a Consortium, as the case may be. If it is found that a party has submitted more than one bid in one or other form, all bids are liable to be rejected.
2) Notwithstanding anything to the contrary contained in this TENDER, the detailed terms specified in the Contract Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Contract Agreement.
3) The Bid should be furnished in the formats mentioned in the TENDER documentwhich shall be duly signed by the Bidder's authorized signatory.
4) The Bidder shall submit a power of attorney as per the format at "Appendix 8: Format of Power of Attorney as Authorized Signatory" authorizing the signatory of the Bidder.
5) Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection as a non-responsive Bid. The complete Bid shall be without alterations, interlineations or erasures, except those to accord with instructions issued by the Owner, or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.
6) The TENDER documents and all attached documents are and shall remain the property of the Company and are transmitted to the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid.
7) The Bidder must visit the site prior to submitting his offer and has to get himself acquainted fully with the nature, type, scope of work and involvement therein including study of conducting topographical survey in land requiring removal of bushes, underground facilities etc. The rates quoted shall remain firm during the entire period of execution till completion of the work and any additional claim for lack of knowledge shall not be entertained.
8) The Bidder shall upload the documents on e-portal after duly stamped and signed by the authorized signatory.

4.2 Format and Signing of Bid

1) The Bidder shall provide all the information sought under this TENDER. The Owner will evaluate only those Bids that are received in the required formats and complete in all respects.
2) The Bid shall be typed or written and signed by the authorized signatory of the Bidder who shall also initial each page. All the alterations, omissions, additions or any other amendments made to the Bid shall be initialed by the person(s) signing the Bid.

4.3 Enclosures of the Bid

a. The Covering Letter as per the format prescribed in Appendix 1: Format for Covering Letter.
b. Details of the Bidder as per format prescribed in Appendix 2: Details of Bidder.
c. Copy of PAN of the bidder/bidding entity
d. Bank account No., IFSC Code, Bank name, Branch and address of the bidder
e. Copy of GST Registration Certificate of the Bidder.
f. Copy of Provident Fund registration of the Bidder.
g. Copy of MoA and AoA, Incorporation Certificate, Board resolution
h. Appendix 3: DELETED

i. Details of qualified technical staff as per format prescribed in Appendix 4: Details of qualified technical staff
j. Declaration of compliance as per format prescribed in Appendix 5
k. No Deviation Certificate as per format prescribed in Appendix 6.
l. Declaration of Bidder's relation to Directors of the Company as per format prescribed in Appendix 7.
m. Format of Power of Attorney as Authorized Signatory as per format prescribed in Appendix 8
n. Appendix 9. - DELETED
o. Format of declaration of Non Blacklisting as per format prescribed in Appendix 12.
p. Format of Schedule of Price as per format- Appendix-13
q. Format for Confidentiality undertaking as per format prescribed in Appendix-14
r. Format for declaration of "Make in India" – Appendix-17
s. Format for "Land Border Sharing" – Appendix-18

4.4 Bid Due Date

1) Bids should be submitted before the deadline for Submission of Bid as specified in NIT.
2) THDC India Limited on behalf of TREDCO Rajasthan Limited may, in its sole discretion, extend the Bid due date by issuing an Amendment/ Addendum in accordance with Clause No. 3.6 uniformly for all Bidders.

4.5 Late Bids

Bids received by the Owner after the specified time on the bid due date shall not be eligible for consideration and shall be summarily rejected. In case of the unscheduled holiday being declared on the prescribed closing/opening day of the Bid, the next working day shall be treated as the scheduled prescribed day of closing/opening of the Bid.

4.6 Confidentiality

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Company in relation to or matters arising out of, or concerning the bidding process. The Company will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. The Company may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Company.

4.7 Correspondence with the Bidder

The Owner shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.

4.8 Bid Opening and Evaluation

1) The Owner shall open, examine and evaluate the Bids in accordance with the provisions set out in this TENDER document.
2) To facilitate evaluation of Bids, the Owner may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Bid.
3) Evaluation of price bid shall be made on the basis of total price quoted.

Responsiveness of Bid

1) Prior to the detailed evaluation, THDC India Limited on behalf of TREDCO Rajasthan Limited will determine the substantial responsiveness of each Bid. A substantially responsive Bid is one which conforms to all the terms and conditions of the Tender Documents without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning EMD, Applicable Law and Taxes and Duties will be deemed to be a material deviation. THDC India Limited on behalf of TREDCO Rajasthan Limited determination of a Bid"s responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.
2) If the Bid is not substantially responsive, it will be rejected by THDC India Limited on behalf of TREDCO Rajasthan Limited and may not subsequently be made responsive by the Bidder by correction of the nonconformity.
3) THDC India Limited on behalf of TREDCO Rajasthan Limited will evaluate and compare Bids which have been determined to be substantially responsive.
4) A Bid shall be considered responsive only if:

a. it is received in the manner prescribed in this TENDER
b. it is accompanied by the requisite Tender Fee and EMD;
c. it is received with all the Enclosures of the Bid as prescribed in the Clause 4.4
d. its Enclosures are received as per the formats specified in Appendices as well as the Tender;
e. it contains all the information (complete in all respects) as requested in thisTender (in the same formats as specified);
f. it complies will all the terms, conditions and provisions specified in thisTender; and it does not contain any conditions or deviations

5) The Owner reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertainedby the Owner in respect of such Bid.
6) If at any stage of evaluation, it is found that bidders has made deviations of any kind in the bid, the bid shall be rejected.

4.9 Modification and Withdrawal of Bids

1) In case any clarifications are sought by the Owner after opening of Bids then the replies of the Bidder should be restricted to the clarifications sought. Any Bidder who modifies its Bid (including a modification which has the effect of altering the value of its Financial Proposal) after opening of Bid without specific reference by the Company, shall render the Bid liable to be rejected without notice and withoutfurther reference to the Bidder and its EMD shall be forfeited.
2) No Bid may be withdrawn in the interval between the bid due date and the expiration of the validity period of the Bid. Withdrawal or unsolicited modification of a Bid during this interval shall result in the Bidder's forfeiture of its Bid Security.

4.10 Bid Evaluation Criteria and Methodology

1) THDC India Limited on behalf of TREDCO Rajasthan Limited will examine the Bid 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 Bid is generally in order.
2) In no case, a Bidder shall have the right to claim to be the Successful Bidder for its Bid.
3) Price Bids of those bidders shall be considered for further evaluation who have submitted their bids in total completeness as per this TENDER.
4) After, meeting Responsiveness, Preliminary scrutiny of the Bid , the Bid Evaluation shall be carried out.

Detail of Key Personal CV to be deployed.

Sl. No.	Designation /Role	Minimum Basic Qualification	Area of Expertise/pastexperience	Remarks
1	Team Leader/Project Manager/Project Co coordinator	BE from Civil/Mech./Elect Discipline from reputed University	Min 7 years+ experience in engineering/ consultancy in relevant industry out of which minimum 5 years association and experience in Solar Park Development/ Consultancy of Preparation of DPR large Solar Energy Park Projects of large scale >=300 MW	Experience of Solar Park Development will be added advantage.
2	Civil Engineering	BE/M Tech(Civil)	Min 5+years of Experience in Reviewing, Designing & Engineering of large Green Field infrastructure projects /Providing Consultancy for solar park development of Large Green Field infrastructure projects of capacity of at least 300 MW is must	Experience of Solar Park Development will be added advantage.
3	Mechanical Engineering	BE/M Tech(Mech)	Min 5+years of Experience in Reviewing, designing & engineering of Solar projects of capacity of at least 300 MW are must. Knowledge of latest version of energy estimation software like Wasp, PV syst is essential.	
4	Electrical Engineering	BE/M Tech	Min 5+years of Experience in Reviewing, Designing & engineering of Solar projects of capacity of at least 300 MW is must. Knowledge of Power system design, (AC/DC), HT/LT supply with protection is must. Also, must have Knowledge of. latest version of energy estimation software PVsyst	Experience of 400 KV / 765 KV system development will be added advantage.
5	Regulatory , Power evacuation , grid related matter	BE/Other graduate	Min 5+years of Experience in Power regulation related law, Power market, and Awareness of latest. Policies related Solar, projects of capacity of at least 300 MW is must	
6	Financial & Investment analysis	CA/CMA/ MBA(Fin)	Min 7+ Years of experience in investment analysis, calculation, IRR, developing financial models for RE Solar projects of capacity of at least 300 MW is must. Also must be aware of all taxation and cost accounting practices.	

Note: The Bidder must deploy the above mentioned Key Experts. and will submit the CV as per above mentioned table.

4.11 Contacts during Bid Evaluation

Bids shall be deemed to be under consideration immediately after they areopened and until such time the Owner makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain from

contacting by any means, the Owner and/ or their employees/ representatives on matters related to the Bids under consideration.

4.12 Employment of Officials/ Ex-Official of the Owner

Bidders are advised not to employ serving professionals who are serving with the Owner. It is also advised not to employ ex-personnel of the Owner within the initial two years period after their retirement/ resignation/severance from the service without specific permission of the Owner. The Owner may decide not to deal with such firms who fail to comply with the above advice.

4.13 Declaration on Bidder's Relation to Directors

The Bidders are required to certify in prescribed format Appendix 7: Declaration of Compliance, whether he/they is/are related to any of the Directors/Senior Personnel of the Company in any of the ways mentioned in the Certificate. It is clarified that any such affirmative certificate shall not, by itself, prejudice consideration of the Bid. This certificate must accompany the Bid.

4.14 Award of Work / Issuance of Letter of Intent ("LOA")

1) After selection of the Successful Bidder, a Letter of Intent (the "LOA") shall be issued, in duplicate, to the Successful Bidder. The Successful Bidder shall not beentitled to seek any deviation from the Contract, as may have been amended by THDC India Limited on behalf of TREDCO Rajasthan Limited prior to the bid submission date.
2) The Successful Bidder shall acknowledge the LOA and return duplicate signed (by authorized signatory of the Successful bidder) copy to THDC India Limited within 15 days of issue of LOA.
3) On issue of the LOA by the Company, Authorized representative of the SuccessfulBidder shall submit the performance Bank Guarantee within the stipulated time.
4) It will be sole discretion of THDC India Limited /TREDCO Rajasthan Limited to award or cancel the whole or part of the bid to any bidder.

4.15 Security Deposit

1) Security Deposit/ Performance Bank Guarantee in the form of Bank Guarantee (PBG) as per the format given: Format of Bank Guarantee for Security Deposit Bank Guarantee shall be furnished in favour of TREDCO Rajasthan Limited. The Successful Bidder shall submit Security Deposit cum Performance Bank Guarantee of 5% of the total Contract Price, within 15 Days after issue of date of LOA, initially validity period of PBG should be for a total period up to 3 Months/extended completion period from the date of LOA. PBG shall be returned only after successful completion of entire work (as specified in the scope of work)to the satisfaction of the Owner. No interest is payable on PBG amount.
2) The bank guarantee by the Consultant will be given from bank specified inAppendix 11: List of Banks (for Bank Guarantee) only. BG of any other Bank will not be treated as valid BG.
3) The PBGs shall be liable to be encashed wholly or partly at the sole discretion of the Owner, should the Consultant either fail to execute the work within thestipulated period or fail to fulfill the contractual obligations or fail to settle in full hisdues to the Owner. In case of premature termination of the contract, the PBG will be encashed and the Owner will be at liberty to recover the loss suffered by it from the Consultant.
4) The Owner is empowered to recover from the PBG through invocation of PBG for any sum due and for any other sum that may be fixed by the Owner as being the amount or loss or losses or damages suffered by it due to delay in Performance and/or non-performance and / or partial performance of any of the conditions of the contract and / or non-performance of guarantee obligations.

4.16 Fraudulent Practices

1) The Bidders may please note that the Owner shall not entertain anycorrespondence or queries on the status of the Bids received against this TENDER. Bidders are advised not to depute any of their personnel

or agents to visit the Owner’s office for making such inquiries.

2) Any effort by a Bidder to influence the Owner on the Bid evaluation, Bid comparison or Contract award decision may result in the rejection of the Bidder's Bid.

--- End of Section ---

5 Scope of Services

The broad Scope of Services for “PREPARATION OF DETAILED PROJECT REPORT (DPR) FOR DEVELOPMENT OF 1292 MW (PHASE-I) ULTRA MEGA RENEWABLE ENERGY POWER PARK (SOLAR POWER PARK INCLUDING ALL STUDIES LIKE TOPOGRAPHICAL SURVEY, GEOTECHNICAL STUDIES etc. OF 2000 MW SOLAR PARK AT VILLAGE BODANA, TEHSIL-NACHANA-I, DISTRICT JAISALMER, Rajasthan” proposed under this TENDER is as follows:

(i) Preparation of Study Report which comprises Site Engineering Assessment, and soil testing reports, assessment of solar radiation resource, ,direct normal insolation study for analyzing the extent and requirement of design;(soil testing, topography details/contour survey report, hydrology data, and load flow assessment for the proposed substation) , Environmental Impact Assessment (EIA) as per MNRE requirement ,Social Impact Assessment (SIA) as per MNRE requirement, development model possible for Solar Park, Regulatory approvals, Proposed Buyer of electricity generation, etc. of 2000 MW Capacity Solar Park (1292 MW for Phase I and 708 MW for Phase II) with working out various Business Models / Options / Strategy /Route for investment for the park considering available land, common infrastructure, evacuation system, power future market scenario, regulation with compliance of government /MNRE guidelines etc.

(ii) Preparation of Detailed Project Report (DPR) in accordance with Table of Contents for Detailed Project Report as per MNRE guidelines for 1292 MW Solar Park (Phase-I) and final input data on engineering and other parameters etc.

(iii) Providing Assistance for getting DPR approve from MNRE, provide clarification/ reply /modifications in DPR, in case the same is desired by MNRE before approval.

(iv) The DPR shall be prepared to meet requirement of all Financial Institution, MNRE, Govt. Regulatory bodies etc. to comply with their norms for Project appraisal and sanction and approval and lending and tie up of Financing etc. In short, DPR must have a bankability to promote for investment destination.

(v) The Broad scope of service consist of Preparation of DPR for development of solar park comprising both technical & commercial analysis to understand the attractiveness, feasibility, risks & mitigation plans related with setting up of Solar Power Park 1292 MW CAPACITY at Village Bodana, District Jaisalmer, Rajasthan” (Phase-I).

(vi) The preparation of the Detailed Project Report (DPR) should encompass analyzing key aspects as outlined in “Table of Contents for Detailed Project Report for Solar Park provided by MNRE”. This Table of Content provides a comprehensive structure for organizing the contents of the DPR." Listed under clause **5.1** hereinunder.

5.1 The Key Aspects of Table of Contents for Detailed Project Report for Solar Park' provided by MNRE are as under:

- Solar Power Park Developer and Ownership (Shareholders)
- Location & Approach Roads
- Size of the Land
- Total Solar Power Capacity to be Developed (MWAC)
- Plot Sizes and Capacity Planned as per plot sizes
- Transmission Infrastructures to be constructed
- Road infrastructures to be constructed
- Water source & infrastructures to be constructed
- Green belt to be planted
- Common facilities to be developed
- Corporate Social Responsibility (CSR) Activities
- Environmental (Endangered Fauna And Flora Being Affected) and Social Impacts(Displacement of people and livelihoods)
- Total cost of development of solar park envisaged
- Likely off-takers and/or under which scheme the park is going to be allotted
- Value requested as a grant Vs value permitted as grant /subsidy as per scheme, ifany
- Onetime charges and annual charges to be levied on solar project developers
- Estimated cost of solar power (per kWh) in the park
- Time schedule for execution of the solar park (internal infrastructures, bidding, solar power developers, commissioning of the park and of the plants)
- Availability of transmission capacity up-to destinations for both within state andinterstate. If any capacity augmentation activity in external network may be required and connectivity details
- Socio economic value (number of jobs to be created during the construction of thesolar park and during operation & maintenance; number of jobs to be created during the construction of the solar plants and during the operation & maintenance; potential GDP impact of the project at the state level; avoided CO_2 emissions)

5.1.1 PURPOSE AND SCOPE OF REPORT

- Introduce the concept of solar park
- Brief description of the solar park being planned
- Purpose of the DPR

5.1.2 SOLAR SECTOR OVERVIEW

- Include briefly the PV technologies.

5.1.3 SOLAR PARKS SCHEME IN INDIA AND THE RATIONALE FOR THE SOLAR PARK

- Briefly include the solar park scheme
- Include how the intended solar park meets the requirements

5.1.4 PROJECT DETAILS

- Land size
- Total power capacity (in AC) to be located within the park

- Number of solar plots envisaged
- Internal Transmission infrastructure requirements within park and up to the sub-station of STU / CTU.
- External Transmission infrastructure requirements, capacity already available, augmentation required up to target destinations.
- Road infrastructure requirements
- Water pipeline/supply/reticulation & recirculation requirements, if any
- Common facilities planned
- CSR activities

5.1.5 SOLAR PARK LOCATION AND LAND OWNERSHIP

- Location and Approach
- GPS coordinates (or UTM) of the boundaries of the land
- Proximity of rail, port, major highways and major cities
- Land nature (Government land, Private Land, Assigned land etc.)
- Land ownership status (data from the collector's office) including any land to be purchased or leased (clearly marked in the drawing with measurements and scales)
- Land Acquisition process
- Land allocation process to SPDs
- Google image with the boundaries
- AutoCAD or technical drawing with the topography

5.1.6 SOLAR IRRADIATION AND WEATHER DATA

- Include average monthly GHI from the nearest met station or the MNRE network of SRRA stations or other reliable sources
- Include ambient temperature, wind speed, wind direction, humidity and rainfall
-

5.1.7 ANNUAL ENERGY YIELD ASSESMENT

- Simulation using reputed PV software
- Orientation and tilt angle of solar PV modules
- Capacity Utilization Factor (CUF)
- Annual degradation

5.1.8 LAND ASSESSMENT

GEOTECHNICAL ASSESSMENT OF SITE

Main results of the geotechnical assessment including:

I. Geotechnical Analysis

a) Standard Penetration Test (tests to determine the capacity of the soil to bearthe structures)
b) Laboratory Testing (testing of the extracted samples in terms of thecomposition of the soil until at least 3 to 4 meters deep)
c) Local Geologic Settings (description of the geological type of the ground and soil)
d) Seismic activity (what is the type of potential seismic activity of the area)
e) Groundwater (depth of the groundwater)
f) Geologic Hazards

i) Landslides (potential for a landslide in case of a natural disaster)
ii) Flooding and Erosion (proneness of the site to flooding and erosion)
iii) Subsidence (possibility of the soil collapsing downwards)
iv) Poor Soil Conditions
v) Primary Ground Rupture (possibility of such event in case of a major natural disaster, e.g. earthquake)
vi) Strong Ground Motion (whether the site is located in less than 50 km of earth faults)
vii) Liquefaction (potential for a soil to loose strength and stiffness and collapsing)

II. Foundations (what is required in depth of foundations for the PV mounting structures to hold)
III. Earthworks (how easy or difficult are earthworks, namely earth moving)
IV. Soil resistivity analysis (level of corrosiveness of the ground)

5.1.9 TOPOGRAPHIC SURVEY

Provide the topographic survey for the identified land (assess the size of the land before gridding the land; the usual method will not work well for a large piece of land like 1000 hectare or more: requires a preliminary study using Google earth and identifying the flat areas over the non-flat areas and thus inform the survey on the needs to reposition the gridding according to the results of the preliminary study)

5.1.10 HYDROLOGICAL STUDY

- Water requirements for the park (PV plants, park, green belt, common facilities, CSR activities)
- Water availability: if boreholes: ground extraction potential to be investigated; if canal, water allocation to be investigated; if other source to be stated.

5.1.11 LAND PREPARATION

- State if the land is ready to be used or requires flattening, removal of objects, soil reconditioning, rezoning, etc.
- Define the activities required for the land to be deemed suitable for solar power development: maximum, minimum and average slope of the land to be indicated
- If fencing is envisaged, provide the perimeter
- Indicate where the green belt will be placed and created

5.1.12 INFRASTRUCTURE DEVELOPMENTS

I. ELECTRICAL INFRASTRUCTURE

- Electrical interface point (scope of SPPD and SPD to be identified)
- Existing electrical infrastructure (load of existing substation and lines)
- Internal Transmission infrastructure: Laying of power cables at suitable voltage level for interconnection between individual solar projects with the pooling stations, New electrical infrastructure required (33/66 kV or 132 kV for solar plant evacuation; 132 or 220 kV pooling stations) and construction of transmission line for connection to STU/CTU
- External Transmission infrastructure requirements, capacity already available, augmentation required up to target destinations.

II. CONTROL INFRASTRUCTURE

- Facility for gathering data on monitoring, forecasting, scheduling & dispatching (should monitor all solar plants) for submission to the load dispatch center.
- Metering and connectivity arrangements as per CEA guidelines

III. ROAD INFRASTRUCTURE

- Existing and/or up gradation of road infrastructure required (impact duringconstruction)
- New road infrastructure required (minimum 10 meters with shoulder for main accessroads and 7.5 m for secondary roads)

IV. WATER INFRASTRUCTURES

- Water supply provisions and needs (consider 2 to 3 liters per m^2 of modules to be installed; 1 washing per month,12 months per year; for states/regions that are water starved or water depleted, reduction to the value above should be considered and described; higher number of washings must be thoroughly justified)
- Water interface point (scope of SPPD and SPD to be identified)
- Existing water sources (quantities and sustainability of the extraction potential)
- If extraction from public canal, allocation for power sector and solar power to bementioned
- Planned water reticulation (this is always recommended and if not followed, it mustbe justified)
- Planned water harvesting, storage (if considered)

V. GREEN BELT

- Determination of prevailing winds (directions and speeds)
- Plan for the green belt (indicating its location, suitable types of trees, number of trees,water needs and maintenance needs)

VI. COMMON FACILITIES

- Lighting (Required)
- Developing access road to each plot (required)
- Solar Radiation Resource Assessment station (should be installed immediately if nostation is available within 10 km)
- Drainage System (required)
- Fencing (optional)
- Construction of offices, housing and common building infrastructure (optional)
- Security (optional
- Telecommunication infrastructures (required)
- Medical facilities (optional)
- Warehouses (required)
- Waste disposal and liquid sewage treatment plant
- Solid waste collection, recycling and storage (required)
    - Any other envisaged

VII. CSR ACTIVITIES

- Proposed budget for CSR activities
- Scope for the CSR activities
- Impact in the local livelihoods
- Schedule of implementation

VIII. SOLAR PARK DEVELOPMENT

5.1.13 SOLAR POWER PARK DEVELOPER (SPPD)

- Details of SPPD
- Shareholders of the company
- Stakeholders involved

5.1.14 TIME SCHEDULE OF IMPLEMENTATION Activity-

TimeSchedule to be provided in respect of the following milestones

- Preparation Detailed Project Report (DPR)
- Land acquisition
- Financial Closure
- Tender for the Electrical infrastructures
- Tender for the Road infrastructures
- Tender for the Water infrastructures
- Tender for the Telecommunication infrastructures
- Completion of all above works
- Tendering of solar projects inside solar park
- Allotment of the solar plots to the Solar Project Developers (SPDs)
- Commissioning of the solar plants

5.1.15 SOLAR PARK DEVELOPMENT FRAMEWORK

- How will the solar park be implemented?
- How will it be financed?
- How will it be rolled out (off takers, schemes etc.)

5.1.16 INDICATIVE ENVIRONMENTAL & SOCIAL IMPACTS

I. ENVIRONMENTAL SETTING (in and around the site-10 Km radius)

II. ENVIRONMENTAL IMPACTS (Positive and negative)

- Environmental positive impacts (on fauna and flora)
- Environmental negative impacts (on fauna and flora)

III. SOCIAL IMPACTS (Positive and negative)

- Social Impacts (positive)
- Social impacts (displacement of people and livelihoods)

IV. MITIGATION MEASURES

- Environmental action/management plan for construction phase and operation phase
- Recommendations on Environmental Impact Assessment
- Social action/management plan
- Recommendations on Social Impact Assessment

5.1.17 STATUTORY & LEGAL FRAMEWORK

- Relevant solar policy from the State

- Compliance of the solar park with the solar policy
- All Statutory Clearances, Licenses, permissions required for development solar parkand time frame (list them and the agencies issuing them)
- List of clearances/licenses/permissions to be obtained by SPDs and issuing agency

5.1.18 PROJECT FINANCIALS

Explain the methodology to be followed

5.1.19 SOLAR PARK- COST ESTIMATES

- Cost of the land
- Cost of the electrical infrastructure
- Cost of the road & drainage infrastructure
- Cost of the water infrastructure
- Cost of street light
- Cost of Admin Building and other infrastructure
- Cost of the green belt
- Cost of the common facilities
- Any other costs

i) Summary of project cost under essential and optional activities heads
ii) Assumed equity returns for the solar park development
iii) Determination of the one-time charges, the yearly O&M charges, any other charges

5.1.20 FINANCIAL VIABILITY

- State policy initiative for solar promotion leading to bankability
- Equity participation of the JV company of the SPPD
- Solar Park Assumptions & Financing Assumptions
- Revenue & Expense Timelines
- Capital cost & Project IRR

5.1.21 PROJECTION OF THE COST OF SOLAR POWER IN THE SOLAR PARK

Projected costs of solar power inside solar park as per recent trends solar power tariff inthe concerned state

5.1.22 SENSITIVITY ANALYSIS

5.1.23 SOCIAL-ECONOMIC IMPACT

- Estimates of the job creation potential during the solar park construction
- Estimates of the job creation potential during the solar park operation andmaintenance
- Estimates of the job creation potential during the solar plants construction
- Estimates of the job creation potential during the solar plants operation andmaintenance
- GDP impact in the state
- Estimated reduction of CO_2 emissions

Annexures

- General Lay Out Plan of 2000 MW Park

- General Lay Out Plan of 1292 MW Park
- Land Drawing (Google Map also)
- Infrastructure Details
- Internal Power Map
- Substation Drawing/Single Line Diagram
- External Transmission Link Drawing (Single Line Diagram)
- Power Evacuation System Design
- Power Map of State

Note : ***The above scope of assignment broadly covers all the aspects, however, any part not specifically mentioned but required to complete the report, shall be deemed to have been included in the scope of work.***

5.2 Details of Topographical Survey Works :

5.2.1 INTRODUCTION

The work is to be carried out at Village Bodana, Tehsil Nachana-I, District Jaisalmer in the state of Rajasthan. The Tentative partial map of village Bodana is enclosed at **Appendix -16**. The area of proposed plant shall be of about 10000 acres. The nearest major railway station is Bap railway station which is located in and around 45.6 kilometer distance and the nearest airport is at Nal Airport located about 116.8 kms from the project site.

- This specification covers the technical requirements for carrying out "Topographical Survey Works" for the entire area of proposed project site.The work shall be executed in accordance with the specification and good standard of practice necessary to fulfill the objectives of the survey work strictly in accordance with the instruction and satisfaction of the Engineer- in-Charge. The area for carrying out survey is as per the villages of above table.

5.2.2 Topographical Survey should include the following:

i. It should indicate existing permanent and temporary structure falling within premises.
ii. It should indicate with necessary co-ordinates for trees, pipeline, culvert, temple, nala, manhole, pond, roads, High tension line, poles, well, huts etc. falling within premises.
iii. Providing and fixing temporary or permanent bench mark required for survey work using RCC Concrete Pillars of dimensions 150 mm X 150 mm X 1200 mm or Size readily available in market) with Material, machinery & labour at site with life expectancy of 2 to years.
iv. Take spot level the ground with respect to Permanent Bench Mark (PBM) at the grid interval of 20M X 20 M for proposed premises. Survey of the 5 mtr length beyond the periphery of the proposed boundary of the premises.
v. Preparation of counter lines at every 1.0 mtr interval.
vi. Once the plan is developed the spot level of the ground shall be taken for theexisting Road, Drainage, Earthen bund etc. for the proposed area.
vii. Providing the Hard and soft copies of the contour drawing, topographical surveydrawing.
viii. True north shall also be shown in the drawing.
ix. Marking of the High flood level from nearest authentic government structure.
x. Assistance in Superimposing of surveyed area on cadastral map/ revenue map/ forest compartment map falling within the site with listing of type and area of land (khasra / compartment wise) and Providing Boundary of Area to be surveyed on Kml File.
xi. All necessary drawing shall be prepared in scale of 1:1000.
xii. Necessary equipment's used for the topographical survey shall be any one or a Combination of the following:

a) Total Station
b) DGPS (Digital GPS)

c) Drone

xiii. Development of '3D Modeling' of the plot area, site or park in and within the state of Rajasthan.

xiv. Any other work which is not specified above but is required to complete the work as per the requirement of the Site and / or MNRE Guidelines for UMREPPs issued vide letter no. 30/26/2014-15/NSM dtd. 21.03.2017 and /or amendments thereof, shall be carried out by the Surveyor within the quoted prices.

Deliverable: Submission of Topographical Survey Report as per the TOR in Five Hard &two Soft Copies along with AutoCAD and Boundary of Project in KMZ File.

Input/ facilities to be provided by TREDCO Rajasthan Limited

Cadastral Maps/Revenue maps/Forest compartment map will be arranged by the client.

5.2.3 TIME PERIOD

Time period of completion of Topographical survey work as mentioned in deliverables

5.2.4 DRAWING

- The work shall be carried out as per the instructions of the Engineer-in-Charge and as per drawing.
- The agency must visit the site prior to submitting his offer and has to get himself acquainted fully with the nature, type, scope of work and involvement therein including study of conducting topographical survey in land requiring removal of bushes, underground facilities etc. The rates quoted shall remainfirm during the entire period of execution till completion of the work and any additional claim for lack of knowledge shall not be entertained.

5.2.5 SPECIFICATION

- The work shall be executed according to the specification and good standard of practice necessary to fulfill the objectives of the survey work strictly in accordance with the instruction and satisfaction of the Engineer-in- Charge.
- The work at site shall be carried out under the full-time supervision of a qualified engineer or a senior surveyor. The engineer or senior surveyor shall be responsible for and capable of coordinating the work of the surveying teams, setting out the work accurately, identifying immediately and positively the type of instruments to be deployed and the methodology of surveying to achieve speed and accuracy in the work and shall be fully conversant with the theory and techniques of traversing, triangulation, spot leveling survey work etc., covered by this contract. The agency shall get their equipment calibrated from NABL labs/government approved agency/Govt. Engg. Colleges and submit the same to the Engineer-In Charge before commencement of topographical survey work.
- The agency shall be responsible for the proper execution of the work to such accuracies as specified in the specification, drawings or as directed by the Engineer-in-Charge from time to time.
- After mobilization of the instruments at site, these shall not be removed fromthe site by the agency without the prior written permission and approval of the Engineer-in- Charge. In case the instruments are moved out of the site without the prior written permission and approval, the Engineer-in- Chargereserves the right to deduct from the agency's bill(s), the amount as considered reasonable and/or to withhold the payments for the work done. The decision of the Engineer-in-Charge in this regard shall be final and binding on the agency.

  Note: If work is hampered due to any local issue or hinderance and Engineer -in-Charge is satisfied then only suitable time extension shall be provided by TREDCO Rajasthan Limited to

the bidder in line with tender conditions**.**

5.2.6 CARRYING OUT AND SETTING UP OF BENCH MARK

- The agency shall establish the bench mark (level and co-ordinates) by fly- leveling and traversing from the nearest available bench mark asapproved by the Engineer-in-Charge and establish the same on two permanent bench marks to be constructed at location(s) as shown in the drawings or as per the instructions of the Engineer-in-Charge and the same shall be approved by Engineer-in-Charge before commencement of all subsequent transfer of levels and coordinates. The locations of the benchmarks shall be shown on the survey drawings. Mobilization of all survey equipment including total station and experienced surveyors for establishing base line / reference line in the site, establishing the NORTH (magnetic) line, bench marks, transferring the benchmark from the nearest established benchmark, grid pillars installed as required to complete the work, preparation and submission of drawings (AutoCAD) and survey report in soft copy (2 Nos.)& hard copies color prints (4 Nos.) are in the scope of work.
- The fly leveling should be carried out using two nos. calibrated instruments simultaneously. The leveling instruments should always be kept free from collimation error which should be checked and adjusted before start of the work every day. A record of adjustments should be kept in the field book. Also the coordinates shall be transferred/ established by calibrated total station.
- While carrying the bench mark to the project site, levels shall be established on existing permanent objects at suitable intervals along the route with adequate description about the objects and levels to be mentioned in the level book/survey report to facilitate locating these objects later on and this shall be produced to the Engineer-in-Charge on demand. The route for transferring levels shall follow the existing roads as far as possible and this route shall require the approval of the Engineer-in- Charge before the commencement of work.
- Closing error in leveling should be Limited to 12 $\sqrt{}$ L mm, where L is thelength of the route in km and report shall be made available for the same. Closing error in traverse shall not exceed 1 in 25000 in terms of length or L$\sqrt{}$N seconds in terms of angular measurement. (L is the least count and N is the number of stations)

5.2.7 TOPOGRAPHICAL SURVEY AND MAPPING

- A detailed topographical survey of the project shall be carried out by total station and digital auto level survey and survey plans shall be prepared ata scale of 1:100 or as necessary. Site plan shall show all boundaries with adjoining properties, access roads/paths, water ways, railway lines,important landmarks, trees as well as accurate dimension of sides and diagonal. Detailed survey showing spot level at 5 (five) meter grid and 0.5 meter contour intervals shall be carried out. The survey will also include establishment of control points, permanent bench marks at location as shown in the drawings. The necessary jungle clearance and provision of temporary pathways will be in the agency's scope. The details of any existing structure, overhead/underground electric lines & posts, and telephone lines including OFC, water pipe lines, process pipe lines, sewage/drains open or closed, river/nallahs, other water bodies that may be passing through or near the site with exact location should be shown on the site plan. Positions in plan of all natural and artificial features of the area like waterways, trees, cultivation, houses/any structure, fences, pucca and kutcha roads including culverts and crossings, foot tracks, fencing and other permanent objects like telephone posts etc., are to be established and subsequently be shown on survey maps by means of conventional symbols (preferably symbols of Survey of India maps). The survey shall also include details of existing underground pipelines, cables etc. in the area of the

survey. For this purpose, suitable scanner/detector shall be used to detect the underground utility pipes lines /cables/structures etc., All earth deposits, depressions, hills and valleys within the area/areas are to be Surveyed and plotted on maps by contours. Survey work shall be carried out in the area/s to plot on survey maps the contours at specified intervals duly establishing the horizontal and vertical control. Any unusual condition or formations on the ground, location of rock outcrops and springs/falls etc. shall also be noted and plotted on the maps. The proposal for diversion / closure / containment for these artificial and natural services if any and features must be recommended separately either to improve the site condition or to enhance the suitability of site for construction activities and other land uses. Record of levels/ level charts shall be provided by the survey agency.

The existing approaches to the site shall be clearly brought out in the site maps. The general topography, locations including vegetation type and patterns, existing buildings and other structures on site shall also be indicated on the drawings.

- The field work shall be done with total station equipment in the following steps.

i. Establishing horizontal and vertical controls and locating reference grids and bench mark in the area.
ii. Surveying for establishing spot levels and plotting contours.
iii. Surveying for locating natural and manmade details as described earlier.
iv. Location of Magnetic North.
v. The grids for the survey work shall be established in N-S & E-W direction corresponding to magnetic north or the site north as directed by the Engineer-in-Charge.

5.2.8 TRAVERSING

- Triangulation or traversing or a combination of both shall be adopted for the purpose of establishing horizontal control and in order to determine the exact relationship between various existing points on the ground so that survey required under the present scope of work and in future may be co- related and tied together.
- Total station instruments should be deployed to achieve the specified accuracy of the work. Proper precautions for avoiding graduation errors, instrumental and personal errors should be scrupulously observed.
- From main traverse/triangulation station, subsidiary stations shall be established at suitable intervals to cover the entire area. Level of these stations shall be based on the bench mark established in the survey area. Occupying the main & subsidiary stations, all major details shall be surveyed by total station equipment.
- The closing error in traverse shall not exceed one in twenty-five thousand (1 in 25000) in terms of length or $L\sqrt{N}$ seconds (total in angular measurement) whichever is less (where L is the least count of the instrument and N is the number of stations).

5.2.9 CONTOURING

- Agency shall carry out spot level surveying at an interval of 5m for contouring the area/areas. Levels shall also be taken on all traverse stations and on salient points located at random over the area (ground points). Contours are to be interpolated at 0.5m intervals after the above points are plotted. The contours shall not be just interpolated but properly surveyed on the ground so that features falling between the two successive levels are also picked up. Sufficient points properly distributed over the entire area shall be located and levels taken so that accurate contouring can be done. At places of sharp curvature or abrupt change in direction and elevation, points selected shall be close to each other. Salient points on ridge lines and valley lines shall also be measured.
- Cross-section of canal / nallah, if any, shall be prepared by taking spot levels at 5m interval or less depending upon the site conditions and instructions of the Engineer-in-Charge. The spot levels interval on canal slope shall not be more than 0.5m. Furnishing survey report as described in detail in the succeeding paragraphs is also included in the

scope of work.

- Leveling operation shall always start from main/subsidiary stations whose levels are based on the bench mark established in the survey area and closed on the same.
- Closing error in leveling shall not exceed the limit mentioned in clause 6.4.

5.2.10 CONSTRUCTION OF BENCH MARKS & GRID PILLARS

- Bench marks shall be constructed as per details furnished in the tender drawing and as per the directions of the Engineer-in-Charge. The pedestal for permanent bench marks shall be of 0.5m height from existing ground level and shall be constructed in RCC with top MS plate & hemispherical steel balls. The direction and coordinates of two orthogonal axes shall be punched on the MS plate fixed at the top of concrete pedestals. The level of top of MS hemispherical ball shall be painted on the pedestals. The permanent bench mark pillars shall be protected by means of structural fencing around the pillars as shown in the tender drawings.
- Grid pillars shall be constructed at the corners of boundary at an interval of 200m which should be established at site in N-S and E-W direction corresponding to magnetic north or site north or as directed by the Engineer-in-Charge and their co-ordinates with reference to the survey grids shall be marked on the pillars. The grid pillars should be painted red and the coordinates marked in yellow. Bidder may Quote their Financial Bid by considering the cost of Grid Pillar required to be installed for completing the work.

5.2.11 PREPARATION & SUBMISSION OF SURVEY MAPS

- The survey report shall contain information indicating setting out of the grids, total area surveyed, bench marks, grid pillars constructed, demarcation of the land, jungles, bushes & vegetation's etc., amongst all other details mentioned elsewhere above including methodology adopted for surveying and instruments and staff deployed at the site and difficulties encountered during execution of the work etc.
- The agency shall submit survey maps (Separate block level and contour drawings) of the site in 1:1000 scale indicating grid lines and contour lines, demarcating all permanent features like roads, railways, waterways, buildings, power lines, natural streams, trees etc. Site area drawing should have four originals showing spot levels at 5m grids and contours (with contour line interval of 0.5m) with grid lines, contour lines and permanent features. The agency shall provide cross section of existing nallah ponds etc., if any; details of existing culverts with invert levels.
- All the maps should be prepared in digitized forms using Inkjet/Pen plotter and standard computer software like AutoCAD - 12/13/14 or latest version of AutoCAD on standard A-0 size. The block of name plate of all the drawings should be as per TREDCO Rajasthan Limited standards.
- The agency shall submit a copy of the map for review and approval of the Engineer-in-Charge. After approval, 4(four) color prints of all the final maps along with 2(two) CDs shall be submitted. Copies of the maps shall be submitted in proper flappers and CD shall be handed over in proper boxes.

5.2.12 SUBMISSION OF FIELD DATA AND REPORT

- Agency shall submit all data pertaining to the survey in original to the Engineer-in-Charge.
- All field data shall be submitted to the Engineer-in-Charge from time to time as per progress of the work.
- A copy of the draft report shall be submitted on the completion of the field work for review and approval of the Engineer-in-Charge. The report should give the introduction of the site, methodology adopted for surveying the areas, calculation of errors, transfer of

bench mark and any other calculation required for surveying and preparation of the survey maps.

- Details of trees with their name, numbers and girths shall also form part of the survey report.
- The survey report should also cover the following as applicable.

i) General site observations such as location of access roads, nallah courses, both underground as well as over ground obstructions like pipelines, cables etc.
ii) Presence of any well or tube well in the site and water level in them shall also be indicated.
iii) Whether there are any rock outcrops in the site.
iv) Existing drainage pattern of the site, possibility of water logging and high flood level of the area.
v) Location of the buildings in present status.

- Final survey report shall be submitted in soft copy as well as 4 copies of standard A4 size sheets properly bound and printed using good quality paper and material.

5.2.13 CLEARANCE OF BUSHES, VEGETATION AND CUTTING OF TREES

Clearance of bushes and cutting of trees / chopping of branches, uprooting of vegetation growing in the land to the extent as required for carrying out the survey work shall be in the scope of this tender and No extra payment is admissible on this account. The agency shall ensure that jungles, vegetation growing in this area is cleared and trees are properly cut as per the directionof Engineer-In Charge. TREDCO Rajasthan Limited shall facilitate in getting necessary statutory clearances, if required, for thecutting of trees from the forest authorities. The usable trees cleared shall be stacked and handed over including transportation of the same to a location as directed by Engineer in Charge. All other vegetation cleared shall be disposed of. No extra payment is admissible on this account. However if in case trees/bushes ,the survey point may be shifted if required anywhere in the grid i.e (20 m x 20 m).

5.2.14 INSPECTION

The agency shall make all arrangements of men, material, instruments, surveyors, necessary transport, necessary records and field data etc., at the work site for checking of the work to the satisfaction of the Engineer-in- Charge or his authorized representative during the progress and on successful completion of the work. The agency shall intimate well in advance before final demobilizing from work site so that the final work can be inspected by the Engineer-in-Charge. This will form a part of acceptance of the work for release of payments. TREDCO Rajasthan Limited shall facilitate in getting Necessary statutory clearances, if required for working in the demarcated area, however it will not absolve the bidder from its responsibility of getting the clearances.

5.2.15 PREAMBLE TO SCHEDULE OF QUANTITIES

- The general survey shall be paid on the basis of area covered. This item shall cover the cost of field work, drawing office work and submission of drawings and reports in stipulated number of copies. No part payment shall be allowed.
- Bushes, trees, vegetation growing in site or any other obstruction coming in the way of survey work shall be removed or alternative suitable methods are to be adopted to clear such obstacles so that survey work can continue uninterrupted and as per the technical specifications. Cost towards such expenses shall be included in the contract price. The agency shall include in his rates clearing of bushes, vegetation etc. and other obstructions in

carrying out the survey work.

- The agency shall make his own arrangement for water, power, accommodation, transport and all other facilities for his personnel and bear all charges and expenses for the same.
- The contract price shall remain firm during the tenure of this Agreement.

5.3. Details of Soil Investigation Works:

5.3.1 Soil Investigation of the 2000MW (i.e 1292 MW for Phase I and 708 MW for Phase II) Solar Park sites at Bodana Village, Nachana-I Tehsil, Distt. Jaisalmer as per the MNRE Guidelines. The land details are as follows:

Sl. No.	Name of Village	Total Land
1	Bodana	10000 Acre /4000 Hectare

5.3.2 Geotechnical Analysis

a) Drilling of Bore Holes

The job shall involve drilling of borehole (150mm /Nx Size diameter) up to 10-meter depth or up to refusal strata whichever is earlier and conducting Standard Penetration test at regular intervals of 1.5 m or at every change of strata as per IS: 2131-1981 and Permeability Test. It shall also include collection of disturbed/undisturbed soil samples at different depths/wherever strata changes as per IS: 2132-1977 and core samples in case of rock. Approx. 1 borehole/ 25 Ha. may be considered for determination of SBC.

Following details to be mentioned in the report shall be from NABL Certified Labs.

- Cross section profile
- Laboratory test results
- Standard penetration test curves
- Grain size distribution curves Shear strength test curves
- SBC calculation (value for Pile designing, Liquefaction layer if any, CBR value etc)

Including Testing of Soil Samples in Laboratory for

i. Sieve Analysis
ii. Hydrometer Analysis
iii. Atterberg's Limits i.e. Liquid Limit & Plastic Limit
iv. Specific Gravity
v. Bulk and Dry Density & Natural Moisture Content
vi. Direct Shear Test
vii. Triaxial Compression Test - Unconsolidated Undrained
viii. Unconfined Compression Test
ix. Consolidation Test
x. Modified Proctor Test
xi. Laboratory CBR
xii. Chemical Analysis of Soil and Sub-Soil Water Samples

Including Testing of Rock Samples in Laboratory for

i. Unconfined Compression Test
ii. Water Absorption Test

iii. Unit Weight
iv. Porosity

Laboratory tests were carried out in accordance with the procedures described in IS Code (IS:2720) of Practiced.

tets

b) Local Geologic Settings (description of the geological type of the ground and soil)
c) Seismic Activity (what is the type of potential seismic activity of that area)
d) Groundwater (depth of the ground water)
e) Geologic Hazards
i) Landslides (potential of land slide in case of disaster)
ii) Flooding and erosion (proneness of the site to flooding and erosion)
iii) Subsidence (possibility of the soil collapsing downwards)
iv) Poor soil conditions
v) Primary Ground Rupture (possibility of such events in case of a major natural disaster, e.g. earthquake)
vi) Strong Ground Motion (whether the site is located in less than 50 km of earth faults)
vii) Liquefaction (potential for a soil to lose strength and stiffness and collapsing)

f) Foundations (what is required in depth of foundations for the PV mounting structures to hold)

g) Earthworks (how easy or difficult are earthworks, namely earth moving)

h) Soil Resistivity Analysis;

- Soil resistivity is a measure of how much the soil resist the flow of electricity. It is a critical factor in design of systems that rely on passing current through the Earth's surface. An understanding of the soil resistivity and how it varies with depth in the soil is necessary to design the grounding system in an electrical substation, or for lightning conductors. It is needed for design of grounding (earthing) electrodes for substations and High-voltage direct current transmission systems.
- Conducting Electrical Resistivity Test using Wenner's 4 Pin method as per IS –15736: 2007 and IS 3043:2018 at distributed locations to determine the electrical resistivity of the soil. Approx. 1 ERT/100 Ha.) may be consider to determine the electrical resistivity of the soil.

i) Any other test, report required as per MNRE, GoI guidelines for UMREPP/Solar Power Scheme 2017 and its amendments thereafter.

Deliverable: Analysis of results, report finalization and submission of 03 copies of Report with soft copy in editable format complete as per TOR (initial report followed by final report incorporating comments of TREDCO Rajasthan Limited if any) - Report will contain information on local geological setup, drill logs with photographs, field and laboratory test results along with recommended values, soil classification and provide information on N value, bearing capacity, modulus of subgrade reaction, Seismic activity, depth of ground water table, Geological hazard including landslide, flooding and erosion, subsidence , Poor soil conditions, Primary ground rupture (possibility of such events in case of major natural disaster, e.g. earthquake), Strong ground motion (Weather the site is located in less than 50 kms of earth fault), liquefaction(potential for a soil to loose strength and stiffness and collapsing),Foundations (what is required in depth of foundations for the PV mounting structures to hold),Earthworks (how easy or difficult are earthworks, namely earth moving) and bearing capacity for different size of foundation at various depths.

5.3.3 GENERAL REQUIREMENTS

i) The Contractor shall take advantage of existing local knowledge, records of trial pits, bore holes, etc., in the vicinity and the type of foundations adopted and behavior of existing structures, particularly those of similar nature to the ones proposed for this project.

ii) The agency shall make use of information gathered from quarries, unlined wells, cuttings from nearby areas, etc. The general topography of the nearby areas will often give some indication about the variation of the soil conditions which are likely to exist.

iii) The agency shall gather data regarding the removal of overburden by excavation, erosion or landslides, etc. in the areas. Similarly, data regarding recent fills shall also be studied to determine the characteristics of the fill as well as the original strata.

iv) The water level in streams and water courses, if any, in the neighborhood shall be noted. Reliable information regarding ground water level shall also be gathered from water level in the wells nearby.

v) The agency shall make enquiry and verify regarding earlier use of the site which can have important bearing on its suitability for the proposed structures. This is important, particularly in areas where there have been underground works e.g. worked out ballast pits, quarries, old brick fields, mines, mineral workings, etc. The possibility of damage to the structures, sewers, conduits and drainage system by subsidence shall also be investigated.

vi) It is essential that the equipment's/instruments are properly calibrated at the commencement of the work so that they represent true values and submit the test reports to Engineer. If the Engineer so desires, the Contractors shall arrange for having the instruments tested in presence of the Engineer at an approved laboratory at his cost and the test reports shall be submitted to the Engineer.

vii) No claim whatsoever shall be entertained for differences between the extent, location, depth, etc. of soil test indicated on the construction drawings and those shown on the tender drawings, if any.

viii) When blasting with explosives is involved, agency/contractor shall arrange statutory clearance and also the portable magazine for storing /carrying the explosives. Only licensee shall handle these explosives.

5.3.4 FIELD INVESTIGATIONS – IN SOIL

a) Boring

General Requirements

i) Bore holes shall be taken at specified locations to obtain information about the sub-soil profile, its nature and strength and to collect soil samples for strata identification and conducting laboratory tests. The minimum diameter of the bore shall be 150 mm and boring shall be carried out in accordance with the provisions of IS: 1892 as per this specification.

ii) All bore holes shall extend upto depths shown on the construction drawings or as directed by the Engineer-in-Charge. If the strata with Standard Penetration Test (SPT) 'N' value greater than 100 with characteristics of rock is met with, prior to the specified depth, the bore hole shall be advanced further by chiselling. Chiselling shall be continued for a maximum depth of 20 cms or upto 2 hours whichever is earlier. During chiselling rock fragments shall be collected. Identification of rock strata shall be on the basis of visual examination of SPT sample and rock fragments. After it is established that rock is met with, borehole shall be advanced further by drilling in rock as specified in clause 6 and core shall be collected. When the bore hole is terminated in soil strata, an additional Standard Penetration Test shall be carried out at the termination depth.

iii) Casing pipe shall be used in the bore hole to support its sides when a side fall is suspected to occur inside the bore hole. When casing pipe is used, it shall be ensured that its bottom end is at all times less than 15 cm above the bottom of the bore hole and not below the level at which the test has to be conducted or sampling has to be done. In case of cohesionless soils the advancement of the casing pipe shall be such that it does not disturb the soil to be tested or

sampled. The casing shall be advanced by slowly turning the casing pipe and not by driving.

iv) In-situ tests shall be conducted or undisturbed samples (UDS) shall be collected in the bore holes at regular intervals and at change of strata or as decided by the Engineer. Representative disturbed samples shall be preserved for conducting various identification tests in the laboratory. Water table in the bore hole shall be carefully recorded and reported. No water/drilling mud shall be added while boring above ground water table. For cohesionless soil below water table, the water level in the bore hole shall at all times be maintained slightly above the water table.

v) The bore hole shall be cleaned using suitable tools up to the depth of testing or sampling, ensuring that there is minimum disturbance of the soil at the bottom of the bore hole. The process of jetting through an open tube sampler shall not be permitted. In cohesive soils, the bore hole may be cleaned using a bailer with a flap valve. Gentle circulation of drilling fluid shall be done when rotary mud circulation boring is adopted.

vi) On completion of the bore hole, including the borehole in which special tests are conducted, the Contractor shall backfill all the bore hole as directed by the Engineer.

b) Auger Boring

Auger boring can be adopted in soft to stiff cohesive soils above water table. Augers shall be of helical or post hole type which may be manually or power operated. While boring, care shall be taken to minimize the disturbance to the deposits below the bottom of the bore hole. The cuttings brought up by the auger shall be carefully examined in the field and the description of all the strata shall be duly recorded. No water shall be introduced from the top while conducting Auger boring.

c) Shell and Auger Boring

Shell and Auger boring can be used in all types of soil free from boulders. For cohesionless soil below ground water table, the water level in the bore hole shall always be maintained at or above the ground water level. The use of chisel bit shall be permitted in hard strata with SPT-N value greater than 100. Chisel bits may also be used to extend the bore hole through local obstruction, such as old construction, boulders, etc. The Bidder shall also include all other requirements fo r this type of boring also.

d) Percussion boring (Chiselling)

This method can be adopted in soil with gravel and boulders when the boring has to be done at a fast rate. This method consists of breaking of the strata by repeated blows from a chisel or drilling bit and bailing out the debris at intervals by adding water into the bore hole. This method is not permitted unless otherwise specified.

e) Rotary Mud Circulation Boring

This method can be used in all types of soil below water table. In this method boring shall be done by rotating the bit fixed at the bottom of the drill rod. Proper care shall be taken to keep firm contact between the bit and the bottom of the bore hole. Bentonite mud shall be used as the drilling fluid to prevent caving in of the bore hole sides. Use of percussion tool shall be permitted in hard clays and dense sandy deposits.

f) Standard Penetration Test

This test shall be conducted in all types of soil deposits met within a bore hole, to find the variation in the soil stratification by correlating with the number of blows required for unit penetration of standard penetrometer. This test shall be conducted at 3.0 m intervals and every change of strata and as per the direction of the Engineer. The starting depth of performing SPT shall be between 1.0 and 2.0 M depth below ground level. This depth shall be staggered in alternate boreholes. The depth interval between the top levels of Standard penetration test and next undisturbed sampling shall not be less than 1.0 m. The specifications for the equipments and other accessories, procedure for conducting the test, presentation of test results and collection of the disturbed soil samples shall conform to IS: 2131.

This test shall be carried out by driving a standard split spoon sampler in the bore hole by means of a 650 N hammer having a free fall of 0.75 m. The sampler shall be driven using the hammer

and for 450 mm. While driving the number of blows for every 150 mm penetration and the penetration for every 50 blows shall be recorded. The number of blows for the last 300 mm drive shall be reported as N value. This test shall be discontinued when the blow count is equal to 100 and the penetration shall be recorded. Refusal shall be considered to be met with when the blow count is equal to or greater than 100. At the location where the test is discontinued the penetration and the number of blows shall also be reported. Sufficient quantity of disturbed soil samples shall be collected from the split spoon sampler for identification and laboratory testing. The sample shall be visually classified and recorded at the site and shall be properly preserved and labeled for future identification.

g) Sampling

i. Sufficient number of soil samples shall be collected for reliable estimation of soil properties.The samples collected shall be either disturbed or undisturbed. Disturbed soil samples shall be collected for field identification and conducting tests such as sieve analysis, index properties, specific gravity, chemical analysis, etc. Undisturbed samples shall be collected to estimate the strength and settlement properties of the soil.

ii. All the accessories required for sampling and the method of sampling shall conform to IS: 2132. All the disturbed and undisturbed samples collected in the field shall be classified at the site as per IS: 1498.

iii. All the samples shall be identified with date, bore hole or trial pit number, depth ofsampling, etc. It is also essential to mark an arrow pointing towards the top surface of the sample. Care shall be taken to keep the undisturbed soil samples and box samplesvertically with the arrow directing upwards. The tube samples shall be properly trimmed at both ends and sealed with molten paraffin wax at both ends immediately after extracting the samples from the bore hole and suitably capped on both sides.

iv. When the Contractor fails to collect the undisturbed soil sample at a specified depth the reason for the same shall be indicated in the bore log and the bore hole shall be advanced by 0.5 M. Subsequently, for cohesionless soil Standard Penetration Test shall be performed and for very soft cohesive soil field vane shear test shall be performed.

v. Precaution shall be taken to ensure that there shall not be any change in moisture content and disturbance of the soil samples and they shall be placed in a temporary store at theend of the day's work. All the samples shall be kept over a bed of sand, jute bags, saw dust, etc. and covered over on top with similar material. The bed and top cover shall be kept moist till they are properly packed in wooden boxes. The Contractor shall be responsible for packing and transporting of all the samples from site to the laboratory withinseven days after sampling with proper protection against loss and damage.

vi. All the samples shall be packed in wooden boxes using sand, saw dust etc. all around the samples before transportation to laboratory for testing.

Disturbed sample

i) Disturbed soil samples shall be collected in bore holes at regular intervals to provide complete description of soil profile and its variation. Jar samples weighing approximately 10 N shall be collected in bore holes at 0.5 m intervals starting from a depth of 0.5 mbelow ground level and at every identifiable change of strata to supplement the boring records. Samples shall be immediately stored in air tight jars or polythene bags and labelled with bore hole number and depth.

ii) In elevated areas, if superficial material is available in plenty, then bulk samples from a depth of about 0.5 m below ground level shall be collected to establish all the required properties to use it as a fill material. Disturbed samples weighing about 250 N shall be collected at shallow depths and immediately stored in polythene bags as per IS: 1892. The bags shall be sealed properly and they shall be kept in wooden boxes.

Undisturbed Samples

In each bore hole undisturbed sample shall be collected at every change of strata and at regular intervals of 3.0 m and as directed by the engineer. The starting depth of collection of UDS shall be between ground level and 1.0 m below ground level and as decided by the Engineer. The starting depth shall be staggered in alternate boreholes. In cohesive soils collection of UDS shall be preferred in place of SPT. The depth interval between the top level of undisturbed sampling and standard penetration test shall be at least 0.5m. Undisturbed samples shall be 100 mm dia and 450 mm length. Samples shall be collected in such a manner that the structure of the soil and its moisture content do not get altered. The specifications for the accessories required for sampling and the sampling procedure shall conform to IS : 1892 and IS : 2132. Undisturbed sampling in sand shall be done using compressed air technique mentioned in IS : 8763. Thin walled sampler shall be used to collect undisturbed samples by pushing the tube into the soil. The sampling tube shall have a smooth finish on both surfaces and minimum effective length of 450 mm. The area ratio of sampling tubes shall be less than 12.5%. However, in case of very stiff soils, area ratio upto 20% shall be permitted.

i) Undisturbed Sampling in cohesive soil

Undisturbed samples in soft to stiff cohesive soils shall be obtained using a thin walled sampler. In order to reduce the wall friction, suitable precautions such as oiling the surfaces shall be taken. The bore hole shall be cleaned and the depth of sampling below the ground level shall be noted. The sampler shall then be attached to the bottom of the boring rods and lowered into the bore hole. The sampler shall be pushed into the clay layer by hand or by jacking and soil sample of specified length shall be collected without disturbing the soil. The distance by which the sampler penetrates into the soil strata shall be checked. Care being taken to ensure that the sampler is not driven too far as this will compress the soil. The sampler shall be rotated to break the core at the bottom of the sampler and then steadily drawn up.

ii) Undisturbed sampling using Piston sampler

Undisturbed samples in very loose saturated sandy and silty soils and very soft clays shall be obtained by using a piston sampler consisting of a sampling cylinder and piston system. In soft clays and silty clays, with water standing in the casing pipe, piston sampler shall be used to collect undisturbed samples. During this method of sampling expert supervision is called for.

The interior surface of the sampler shall be smooth, clean and corrosion resistant. Its cutting edge and the ring seals shall be inspected for wear and rejected if worn. Check shall be done to ensure that the moving parts of the sampler function freely before the sampler is lowered into the bore hole.

While pushing the system into the soil and till the beginning of the sampling operations, the bottom of the piston shall be flush with the cutting edge of the sampler. At the depth of sampling, the piston should be fixed relative to the ground and the sampler cylinder shall be independently pressed down smoothly and continuously into the ground. If an obstruction is met, the sampler shall be withdrawn and another sample taken after the obstruction is removed.

Accurate measurements of the depth of sampling, height of sampler, stroke and length of sample recovery shall be recorded. After the sampler is pushed to the required depth, both the sampler cylinder and piston system shall be drawn up together ensuring that there shall not be any disturbance to the sample which shall then be protected from changes in moisture content.

iii) Undisturbed sampling in Cohesionless Soils

Undisturbed samples in cohesion less soils shall be obtained as per the procedure given in IS: 8763. Compressed air sampler shall be used to take samples of cohesion less soil below water table. Precautions shall be taken to clear the bore hole before sampling. Thin walled tube samplers of 60 mm internal diameter shall be used. The height and other dimensions of the sampler shall be recorded before use. Proper care shall be taken to maintain the water level

slightly above the ground water table before and during sampling operations. Immediately after the sample is obtained, the ends of the sample shall be waxed and capped to avoid moisture content changes.

iv) Relaxation During Sampling

- The Sampler shall be pushed into the soil and driving of sampler shall be resorted to only when it cannot be pushed into the soil. This shall be done only with the permission of the Engineer and all the details about the same shall be recorded into the bore logs.
- In clays when N value is above 50, undisturbed samples may be replaced by standardpenetration test.

h. Ground Water

i) One of the following methods shall be adopted for determining the ground water table in bore holes as per IS: 6935 and as per the instructions of the Engineer.

- In permeable soils, the water level in the bore hole shall be allowed to stabilize after lowering it adequately by bailing. When the water level inside the bore hole is found to be stable, the depth of water level below ground level shall be measured. Stability of sides and bottom of the bore hole shall be ensured at all times.
- For both permeable and impermeable soils, the following method shall be suitable. The bore hole shall be filled with water and then bailed out to various depths. Observations on the rise or fall of water level shall be made at each depth. The level at which neither a fall nor a rise is observed shall be considered as the water table elevation. This shall be established by three successive readings of water level taken at an interval of two hours.

ii) In case any variation in the ground water level is observed in any specific boreholes, then the water level in these bore holes shall be recorded daily during the course of the field investigation. Levels in nearby wells, streams, etc. if any, shall be noted whenever these readings are taken.

iii) If so called for, observation wells shall be drilled for the purpose of long-term studies of the fluctuation in ground water levels and pressure. Either a Stand pipe or Piezometer shall be installed in selected previously drilled or specially drilled bore holes covering the complete site area. These shall be at specified depths as per the specifications and instructions of the Engineer. Daily water level readings shall be recorded immediately following the installation upto the time of leaving the site. At the end of field work, these installations shallbe handed over in satisfactory working condition to the Engineer without disturbing their position so that the owner can continue further observations. It is important to install some Stand pipes and Piezometers prior to the coming monsoon, in order to record the local effects and variations in the ground water level during the period.

iv) Stand pipes and Piezometers shall consist of 19mm internal diameter rigid unplasticised (UPVC) tubing. All the joints in the tubing shall be made of coupling sleeves. The top of UPVC tubing shall be enclosed in a 75mm diameter galvanised steel pipe of 1.5m length having a galvanised steel screw cap with well-greased threads and the caps shall be tightened such that it would be impossible to loosen by hand. The lower end of the pipe shall have four legs of 6mm thick and 100mm long and welded to have projection of 25mm.The pipe shall be sealed into the ground with cement grout so that it does not rotate. The top end of the pipe shall project about 300 mm above ground level unless otherwise specified by the Engineer.

v) The perforated tubing for the porous element shall be surrounded by a response zone of well graded sand from 500 mm below to 150 mm above the lower end of the Stand pipe or Piezometer, and the bore hole above the response zone shall be back filled with naturalsoil or well graded sand. The latter shall compose of particles that vary in amount according to the size in such a manner that the void space formed by the larger particles can be filled by smaller size particles.

- **Stand pipe -** Stand pipes shall be installed to measure the water level in soils with high permeability such as sand and gravel. The stand pipe shall consist of a perforated tubing attached to the bottom of the UPVC tubing. The perforated tube shall be 150 mm long having perforation

of diameter not greater than 1 mm.

- **Piezometers-** Piezometers shall be installed to measure the pore pressures in soil with medium to low permeability. Piezometers shall consist of a porous filter attached to the bottom of the UPVC tubing. The filter shall be 300 mm length and shall be placed in the bore hole and sealed at top and bottom by grouting. Hydraulic Piezometers with double line to be used to remove the air trapped in the system.

vi) Sub-soil Water Samples

- Sub-soil water samples shall be collected for carrying out chemical analysis. Representative samples of ground water shall be collected when it is first encountered in bore holes before the addition of water to aid boring or drilling. Water samples shall not be collected when bentonite slurry or mud has been used for drilling operations. If water has been added for drilling purpose or if ground water has been diluted by surface rain water, then the bore hole shall be dewatered and water allowed to rise from which the sample may be taken.
- The sampling apparatus shall be such that the water at the desired depth can be collected directly without any disturbance and any change in the concentration of the constituents like dissolved gases, etc. Undue agitation shall be avoided. An ordinary suction pump with its suction end inserted upto the required depth in the bore hole shall be used for this purpose.

- The sample shall be collected in a clean vessel and allowed to settle so that the supernatural liquid can be poured into a clean well rinsed glass or polythene bottle. Sufficient quantity and number of samples shall be collected to carry out the chemical analysis and sent to a laboratory in airtight bottles with proper labelling. Chemical analysis of water samples shall include determination of pH value; turbidity; sulphate, carbonate, nitrate and chloride; presence of organic matter and suspended solids.
- In some cases, constituents may be mixed and analysed later as specified in the specific test methods. Chemical preservatives may be added to the sample for cases as specified in the test method/IS codes. This shall only be done if analysis cannot be conducted within an hour of collection and shall have the prior written permission and approval of the Engineer.

i. In-situ Permeability Test

i.(a) In-situ permeability test shall be conducted to determine the water percolation capacity of overburden soil. This test shall be performed inside the bore hole/trial pit at specified depths or in each layer or as per the directions of the Engineer. The type of test shall be either pump-in or pump-out test depending on the subsoil and ground water conditions. Pump-in test shall be conducted whether ground water in bore hole exists or not. Pump-out test shall be conducted to obtain data for dewatering purposes when ground water is met in the bore hole. The specifications for the equipment required for the test and the procedure of testing shall be in accordance with IS: 5529, Part-I. When it is required to carry out the permeability test for a particular section of thesoil strata above the ground water table, bentonite slurry shall not be used while boring.

I(b) Pump-in Test

Pump-in test shall be conducted in the bore hole/trial pit by allowing water to percolate into the soil. Choice of the method of testing shall depend on the soil permeability and prevailing ground water level. Only clear water shall be used for conducting the test. Before conducting the test, the bore hole shall be cleaned as specified in par 4.1.1 (e). Water shall be allowed to percolate through the test section for sufficient period of time to saturate the soil before starting the observation.

- **Constant Head Method (in bore hole) -** This test shall be conducted in bore holes where soil has a high permeability. Water shall be allowed into the bore hole through a metering system ensuring gravity flow at constant head so as to maintain a steady water level in the bore hole. A reference mark shall be made at a convenient level which can be easily seen in the casing pipe

to note down the fluctuations of water level. The fluctuations shall be counteracted by varying the quantity of water flowing into the bore hole. The elevation of water shall be observed at every 5 minute interval. When three consecutive readings show constant value, the necessary observations such as flow rate, elevation of water surface above test depth, diameter of casing pipe, etc. shall be made and recorded as per the proforma recommended in IS : 5529, Part-I, Appendix-A.

- **Falling Head Method (in bore hole) -** This method shall be adopted for soils of low permeability and which can stand without casing. The test section shall be sealed by the bottom of the bore hole and a packer at the top of the test section. If the test has to be conducted at an intermediate section of a pre bored hole then, double packers shall be used. Access to the test section through the packer shall be by means of a pipe which shall extend to above the ground level. Water shall be filled into the pipe upto the level marked just below the top of the pipe and water allowed to drain into the test section. The water level in the pipe shall be recorded at regular intervals as mentioned in IS: 5529, Part-I, Appendix-B. The test shall be repeated till constant records of water level are achieved.
- **Percolation Test (in trial pit) -** Percolation test shall be conducted in the trial pit in areas where water/effluent is stored/discharged in ground level tanks. The loss of water due to percolation into the soil shall be estimated by the soil absorption capacity. This test shall be conducted in trial pits as per the procedure given in IS : 2470-Part-I, Appendix-A.

i.(c) Pump-out Test

This test shall be carried out to determine accurate values of permeability of soil below water table.This test shall be conducted by continuous pumping out water from a well so as to maintain a steady water level at the desired depth in the well. The fluctuations in water level shall be counteracted by varying the quantity of water pumped out of the well. The specifications for the equipment and accessories required for performing the test, test procedure, field observations andreporting of results shall conform to IS : 5529, Part-I. The well shall be 400 mm dia perforated G.I./M.S. pipe to be installed in the well of 250 mm dia and observation pipes of 50 mm dia shallbe installed at regular intervals along three radial lines extending from the well at 120 degrees to each other. Length of these pipes shall depend upon the ground level, estimated lowering of ground water table and the distance from the well.

Sufficient number of observation pipes shall be installed along each of the radial lines so as to assess the zones of influence due to dewatering. Draw down depth in the well as specified in the drawings.

i.(d) Field California Bearing Ratio Test

This test shall be carried out to obtain the properties of soil required for the construction of roads. The equipments and accessories required for carrying out the test procedure, recording of observations and presentation of results shall conform to IS: 2720 part XXXI. The test locations and depth shall be as specified in the drawings or as directed by the Engineer.

i.(e) Electrical Resistivity Test

This test shall be conducted to determine the Electrical resistivity of soil required for designing safety grounding system for the entire power plant area. The specifications for the equipmentand other accessories required for performing electrical resistivity test, the test procedure, and reporting of field observations shall conforms to IS: 3043. The test shall be conducted using Wanner's four electrode method as specified in IS: 1892, Appendix-B2. Unless otherwise specified, at each test location, the test shall be conducted along two perpendicular lines parallel to the coordinate axes. On each line a minimum of 8 to 10 readings shall be taken by changing the spacing of the electrodes from an initial small value of 0.5 m upto a distance of 10.0 m.

j. FIELD INVESTIGATION - ROCK

j.(i) Rock Drilling

Drilling in rock shall be done at specified location or as per the directions of the Engineer. Before commencing drilling, it shall be proved that characteristics of rock have been met with as mentioned in clause 4.1.1 (b). The starting depth of drilling in rock, as mentioned in clause 4.1.1 (b) shall be certified by the Engineer. The portion drilled in rock shall be backfilled with cement and sand (1:3) grout. The drilling information shall be recorded in pro-forma as given in Table-C.

j.(ii) Equipment

- Core drilling shall be done by rotary motion using diamond bit. The feed or thrust to the drilling bit shall be actuated by hydraulic type. The equipment or set up shall be capable of recovering 75% of the drilled volume. The rotary core drilling equipment and procedure for drilling shall conform to IS: 6926. The equipment shall be provided with necessary facilities toregulate the spindle speed, bit pressure and water pressure during core drilling to get good core recovery.
- Drilling shall be carried out with NX size diamond tipped drill bits or impregnated diamond bit depending on the type of rock encountered. Double tube swivel core barrel of Type Bconforming to IS: 6926 shall be used to ensure good core recovery and to pick up cores from all layers of rock. Suitable core catchers shall be used to ensure continuous and good core recovery.

j.(iii) Procedure

- The drilling fluid shall be clean water. Circulation of the drilling fluid shall be started before the core barrel reaches the bottom of the hole to prevent cuttings or sludge from entering the core barrel at the start of coring. Drilling fluid shall be circulated continuously down the hollow rods and the sludge conveying the rock cuttings to the surface shall be collected.
- When drilling through soft/weathered/fractured rock water circulation must be reduced so asto avoid shattering/breaking the core.
- The rotational speed of the bit (spindle speed) the amount of downward pressure applied on the bit (bit pressure) and water pressure shall be suitably adjusted and properly monitored so that the core is collected with least disturbance and avoid shearing of the Core from its base. Bit speed, bit pressure, water pressure for the type of bit for various rocks type shall be as given in Appendix A of IS: 6926.
- No drilling run shall exceed 0.75 m in length. This can be increased to 1.5 m provided the core recovery is observed more than 80% in two successive 0.75 m drill runs and on approval from Engineer. If the core recovery is less than 20% then SPT shall be performed before commencing the next drill run as explained in clause 6.3.
- If at any time a blocking of the bit or grinding of the core is indicated, the core barrel shall be immediately withdrawn from the bore hole regardless of the length of drill run completed.
- Contractor has to ensure maximum possible core recovery in rock strata, using double or triple tube core barrel. However, it will not be applicable for the drilling through over burden and adverse geological condition encountered and certified by EIC.

j.(iv) Observations

- The colour of return water at regular intervals, the depth at which any change of colour of return water is observed, the depth of occurrence and amount of flow of hot water, if encountered, shall be recorded.
- The depths through which a uniform rate of penetration was maintained, the depth at which marked change in rate of penetration or sudden fall of drill rod occurs, the depth at which any blockage of drill bit causing core loss, if any, shall be recorded.
- Any heavy vibration or torque noticed during drilling should be recorded together with the depth ofoccurrence.
- Special conditions like the depth at which grouting was done during drilling, presence of artesian conditions, loss of drilling fluid, observation of gas discharge with return water etc., shall also be observed and recorded.

- During drilling operation, observation on return water, rate of penetration etc. shall be recorded ona pro-forma as given in IS : 5313, Appendix-A.

k. Core Samples

- Core samples shall be extracted by the application of a continuous pressure at one end of the core with the barrel held horizontally without vibration. Friable cores shall be extracted from the barrel directly into a suitable sized half round plastic channel section. Care shall be taken to maintain the direction of extrusion of sample same as that while coring toavoid stress reversal.
- Immediately after withdrawal from the core barrel, the cores shall be placed in a tray and transferred into boxes specially prepared for the purpose. The boxes shall be made from seasoned timber or any other durable material and shall be indexed on top of the lid asper IS: 4078. The cores shall be numbered serially and arranged in the boxes in a sequential order. The description of the core samples shall be recorded as per IS: 4464. Where no core is recovered, it shall be recorded as specified in the continuous record of core recovery and RQD to be mentioned in the core log as per IS: 11315 Part-II.
- The basic information for the description of rocks shall cover a) degree of weathering b) discontinuity spacing c) strength d) colour e) grain size f) structural condition, the mineralogy of the grains and cementing material g) rock name special features like major joint planes's features/laminations, faults, etc. shall also be indicated.

l. Permeability Test

Permeability test shall be conducted in bedrock inside the drilled hole by pumping in water under pressure to determine the percolation capacity of the rock strata. This test shall be conducted in encased and ungrouted sections of the drill hole and the use of bentonite slurry drilling is strictly prohibited. Clear and clean water shall be used for the purpose of both drilling and testing. The equipments required and the procedure to be followed for conducting the test shall conform to IS : 5529, Part-II. The length of the test section shall be either 1.5m or 3.0m as per field conditions and the directions of the Engineer. The levels of water table, if any, in the drill hole shall be recorded and the drill hole shall be cleaned before starting the test. Depending upon the depth of the test section, single packer or double packer method shall be adopted. Care shall be taken to see that all joints and connections are watertight during the test.

l.i) Single Packer Method

This method shall be adopted when the bottom elevation of the test section is the same as the bottom of the drill hole and where it is considered necessary to know the permeability value during drilling itself. This test shall be useful where the full length of the hole cannot stand encased or ungrouted. The packer shall be fixed at the top level of test section such that only the test section lies below the packer. Water shall then be pumped through a pipe into the test section under a required pressure and maintaining it till a constant quantity of water intake is observed. The amount of water percolating through the hole shall be recorded at every 5 minutes intervals. The test shall be repeated by increasing the pressure at regular intervals upto a pressure limit as specified in IS : 5529, Part-II. The details and observations during the test shall be suitably recorded in a proforma recommended in IS : 5529, Part-II, Appendix-B.

l.ii) Double Packer Method

This method shall be used when the permeability of an isolated section inside a drill hole is to be determined. Packers shall be fixed both at the top and bottom of the test section such that their spacing is exactly equal to the length of the test section. The test shall then be conducted as specified in clause 6.2(a).

m. Standard Penetration Test

The relevant hardness of rocks shall be tested in boreholes and after every drill run of 0.75 m in rock if core recovery is observed less than 20% or as directed by Engineer. The test equipment

and arrangement shall be conforming to IS: 2131. An initial seating of the blows shall be given and the number of blows for each 7.5 cm penetration to a total penetration of 45 cm shall be recorded. Penetration shall be recorded (to mm) for every 50 blows and test shall be stopped at total of 100 blows.

n. LABORATORY TESTING

n.i) Essential Requirements

- All laboratory tests shall be conducted in an approved laboratory using approved apparatus complying with the requirements and specification of Indian Standards or other approved standards for this class of work. It shall be checked that the apparatus is in good working condition before starting the laboratory tests. Calibration of all the instruments and their accessories shall be done carefully and precisely.
- Depending on the type of sub strata encountered, appropriate laboratory tests shall be conducted on soil and rock samples collected in the field. Laboratory tests shall be scheduled and performed by qualified and experienced personnel who are thoroughly conversant with the work. Tests indicated in the schedule of items shall be performed onsoil, water and rock samples as per relevant IS Codes indicated in para 4.0. One copy of all the laboratory test data records shall be submitted to the Owner progressively every week. Laboratory tests shall be carried out concurrently with field investigation since initial laboratory test results could be useful in planning the later part of field work. **A schedule of laboratory tests shall be established by the Contractor and the same shall be submitted and got approved by the Engineer before starting of laboratory tests**.
- All samples, whether undisturbed or disturbed, shall be extracted, prepared and examined by competent personnel, properly trained and experienced in soil sampling, examination, testing and in using the apparatus as per the specified standards.
- Undisturbed soil samples retained in liners or seamless tube samplers shall be taken out without causing any disturbance to the samples using suitably designed extruder justprior to actual testing. If the extruder is horizontal, proper support shall be provided to prevent the sample from breaking. For screw type extrudes, the pushing head shall be free from the screw shaft so that no torque is applied to the soil sample in contact withthe pushing head. For soft clay samples, the sample from tube shall be cut by means of ahigh-speed hacksaw to specified test length and placed over the mould before pushing the sample into it with a suitable piston.
- While extracting a sample from a liner or tube, care shall be taken to see that its directionof movement is the same as that during sampling to avoid stress reversal.
- On all undisturbed soil samples tested for bulk density, water content, grain sizedistribution, liquid limit and plastic limit tests shall also be performed.
- On all rock samples tested for unconfined compression test, unit weight, water absorption, porosity tests shall also be performed.

o. Tests

The tests to be conducted are mentioned in the BOQ (Annexure-16).

p. Salient Test Requirements

- Remoulded soil specimen, whenever desired, shall be fully reworked at field density and moisture content. For conducting CBR test and triaxial test for dyke/road material the sample shall be remoulded to 95% of standard proctor density.
- Triaxial shear test shall be conducted on undisturbed soil samples, saturated by the application of back pressure. Only if the water table is at sufficient depth such that chances of its rising to the base of the footing are meagre or nil, the triaxial tests shall be performed on specimens at natural moisture content. Each test shall be carried out on a set of three test specimens from one

sample at cell pressures equals to 100, 200 and 300 kN/Sq.m or as required depending on the soil conditions.

- Effective stress triaxial shear test unconsolidated undrained. The test shall be conducted at cell pressures of 100, 200 and 300 kN/Sq.m ensuring complete consolidation at each stage.
- Direct shear test shall be conducted on undisturbed soil samples. The three normal vertical stresses for each test shall be 100, 200 and 300 kN/Sq.m or as required as per the soil conditions.
- Consolidation test shall have loading stages of 10, 25, 50, 75, 100, 200, 400 and 800 kN/Sq.m. Rebound curve shall be recorded for all the samples by unloading the specimen at the in-situ stress of the specimen. Additional rebound curves shall also be recorded wheneverdesired by the Engineer.
- Chemical analysis of sub-soil shall include determination of pH value; carbonate, sulphate (both SO3 and SO4), chloride and nitrate contents; organic matter, chemicals salinity and any other chemicals harmful to the foundation material. The contents in soil shall beindicated as percentage (%).
- Chemical analysis of sub-soil water sample shall include the determination of the properties such as colour, odour, turbidity, pH value and Specific conductivity, both at 25 deg. C and chemical contents such as Carbonates, Sulfates (both SO3 and SO4), Chlorides, Nitrates, Organic matter and any other chemical harmful to the foundation material. The contents such as Sulphates, etc. shall be indicated as ppm by weight.
- The lab CBR test shall be performed on undisturbed and remolded sample for soaked & unsoaked and condition.

q. Examination of Soil Samples, Rock Cores and final Log Sub Surface explorations ofBore Holes

On completion of each bore hole the contractor shall get the soil samples and cores examined and loggedby his Engineering Geologist with the geologist of Client available at site.

For each bore hole the final log of sub-surface explorations shall be prepared by the contractor's Engineering Geologist which shall comprise of the following:

- Bore log in overburden soil
- Geological log of the bore hole

These final logs shall be prepared on the basis of the Daily drill reports, the consolidated drilling Log, visual examination of the soil samples and rock cores and laboratory testing data. In general, the logsshall present a clear concise accurate picture of the subsurface conditions.

Boring logs shall contain the date when the boring was made, the location of the boring with reference to the co-ordinate system used for the site, the depth of the boring and the elevation with respect to a fixed datum.

The logs shall also include the elevation of the top and bottom of boring and the level at which water table and the boundaries of soil and rock strata were encountered. The classification and description of soil androck layer, percent recovery of rock core, quality of core lost or not recovered for each core interval or drill run and rock quality designation (RQD). Results of field permeability tests and bore hole logging shall alsobe included on logs. The type of tools used in making the boring shall be noted. Notes shall be provided of everything significant to the interpretation of sub-surface conditions such as lost drilling fluid, rod dropsand changes in drilling rate. Incomplete or abandoned boring shall be described with the same care as successfully completed borings.

Initially, the contractor shall submit one copy of the logs of each bore hole on completion of the

drill hole tothe Engineer-in-charge for his comments and approval. The approved final logs of all bore holes in triplicate and the soft copy of all the bore logs in the form of CD shall be submitted to the Engineer-in- charge for his acceptance.

r. REPORT

- On completion of all the field and laboratory work, the agency shall submit a draft report containing Geological information of the region, procedure adopted for investigation, field observations, summarised test data, statistical average parameters for each identified layer. The report shall include detailed borelogs, subsoil sections, field test results, laboratory observations and test results both in tabular as well as graphical form, practical and theoretical considerations for the interpretation of test results, the supporting calculations/ documents for the conclusions drawn, etc. Initially, the agency shall submit three copies of the report in draft form for the Owner's review. The abstract of the sub-soil stratification of the project shall also be included in the report.
- The Contractor's qualified Geotechnical engineer shall visit the Owner's site Office for a detailed discussion on the draft report based on the comments of the Owner. Before submission of draft report, the Geotechnical Engineer shall give the presentation on the site investigation work completed, contents of draft report, discussion on soil strata/foundation system etc. at Owner's site Office. During the discussions, it shall be decided as to the modifications that need to be done in the draft report. Thereafter the Contractor shall incorporate in the report the agreed modifications as suggested by the Owner and submit the revised draft report for Owner's approval. Upon Owner's approval, the final report shall be submitted in five hard copies. The approved report shall also be submitted on three computer compatible compact discs (CDs).
- The detailed final report based on field observations, in - situ and laboratory tests shall encompass theoretical as well as practical considerations to arrive at foundations of different types of structures envisaged in the area under investigation. The Contractor shall acquaint himself about the type of structures, foundation loads and other information required from the Engineer.

r. (i) Data to be furnished

The report shall also include but not be Limited to the following:

- A plot plan showing the locations and reduced levels of all field tests e.g. bore holes, etc., properly drawn to scale and dimensioned with reference to the established grid lines.
- Geological information of the area such as geomorphology, geological structure, lighology, stratigraphy and tectonics faults, seismicity of the region and site, core recovery and rock quality designation, etc.
- Past observations and historical data, if available, for the area or for other areas with similar soil profile with similar structures in the surrounding areas.
- A true cross section of all individual boreholes with reduced levels and coordinates showing the classification and thickness of individual stratum, position of ground water table, various in-situ tests conducted and samples collected at different depths and the rock stratum, if met with. All soil profiles shall be presented using any latest software package.
- A set of longitudinal and transverse soil/rock profiles vertical scale 1:200, horizontal scale 1:1000 connecting various bore holes in order to give a clear picture of the various of the subsoil strata asper IS: 6065.
- Water level contours and Rock level contours shall be presented in any latest softwarepackage.
- Plot of Standard Penetration Test (N values both uncorrected and corrected) with depth for identified areas.
- Results of all laboratory tests summarized (i) for each sample (as per Table-1 and Table 2 for soil and rock respectively) as well as (ii) a consolidated table giving the layerwise soil and rock properties in a format similar to Table 1 and 2. All the relevant charts, tables, graphs, figures, supporting calculations, conclusions and photographs of representative rock cores and trial pits shall be furnished.

- For all triaxial shear tests, stress v/s strain diagrams as well as Mohr's circle envelopes shall be furnished. If back pressure is applied for saturation, the magnitude of the same shall be indicated. The value of modulus of elasticity, E shall be furnished for all tests along with relevant calculations.
- For all consolidation test, the following curves shall be furnished: e vs P and compression vs log t or compression vs square root of t (depending upon the shape of the plot for proper determination of coefficient of consolidation). The point showing the initial condition (eo, Po) of the soil shall be marked on the curves.
- Values of compression index, coefficient of volume compressibility shall be furnished. The procedure adopted for calculating the compression index from the field curve and settlement of soil strata shall be clearly specified. The time required for 50% and 90% primary consolidation along with secondary settlement, if significant, shall also be calculated.
- Values of cohesion, angle of internal friction, pressure meter modulus, shear modulus and coefficient of sub-grade reaction along with sample calculation. Calculation for allowable bearing pressures and corresponding total settlements, for shallow foundations and load capacity calculation of piles in various modes.

s. Analysis and Discussion of Results

- Coefficient of permeability of various sub soil and rock strata based on in-situ permeability tests.
- Electrical resistivity of sub-soil based on electrical resistance tests including electrode spacing vs commutative resistivity curve.
- Dynamic soil properties such as dynamic shear modulus, Poisson's ratio based on cross-hole shear and seismic refraction test data.
- Suitability of the soil for construction of roads and pavements, their stable slopes for shallow and deep excavations, active and passive earth pressures at rest and modulus of elasticity asa function of depths for use in the design of underground structures.
- Suitability of locally available soils at site for filling and back filling purposes.
- If expansive soil is met with removal/ retainment of the same under the structures/roads etc. shall be given. In the latter case, detailed specifications of any special treatment required including specifications for materials to be used, construction method, equipment's to bedeployed, etc. shall be furnished.
- Chemical nature of soil and ground water with due regard to potential deleterious effects on concrete, steel and other building materials, etc. shall be dealt in detail.
- Susceptibility of sub soil strata to liquefaction, if any, in the event of an earthquake.
- Any other information of special significance like dewatering schemes, etc.
- Additional soil investigation beyond the scope of the present work if the Contractor considers such investigation is necessary.

Note : The Specification and Methodology mentioned in the all the tender clauses are for the reference of the bidders. The Bidder at its own discretion may carry out the soil investigation by the Specifications and Methodology as per the Indian Standard Practice or NABL Laboratory Standard procedures of Geotechnical Investigations to get the desired results of soil investigation as per requirement of this tender

5.4 Study Report:

The firm shall provide study report to understand the topographical survey, Geotechnical Investigation ,hydrological study etc along with Business model for Proposed RE Park. Feasibility Study report shall consist of model of Business possible forRE Park, Regulatory approvals, Proposed Buyer of electricity generation, probably buyer for signing Power Sale Agreement etc.

5.5 Detailed Project Report:

Detailed project report shall consist of Technical as well as financial parameters for development of Solar Power Park. Further ,It also includes Layouts, Drawings, Detailed Bill of Quantities (BoQs) & cost estimates for Various Project Components.

5.6 Task-I: Technical Assessment:

The Firm shall:

a) Undertake site survey including contouring, soil testing, solar radiation resource and Wind Resource assessment, direct normal insolation study, effect of rise in sea level / global warming / submergence of site for the next 35 years and any other assessment .

b) Preparation of Plot Plan/ Layout design for Solar Park with optimum utilization of land/ infrastructure/ facilities; including cabletrenching, area grading/ land preparation works, boundary wall/ fencing, illumination, horticulture/ green belt, landscaping, warehouses/storage sheds & Admin Buildings, telecom infrastructure, fire-fighting system, security control room, medical & ambulance facilities, mechanical & electrical workshops etc.

c) Prior to finalization of DPR, Bidder shall work out and provide various options of Plot sizing with energy yield estimate and other aspects of infrastructure to evaluate each option on merit of sale ability and attractiveness to investor, final tariff from the project developed in the park and return on investment to TREDCO Rajasthan Limited from RE Park as a whole considering all aspects. Based on the evaluation, TREDCO Rajasthan Limited may finalize few options and the same may be included in DPR to project techno- economic viability of the project.

d) Considering the Common infrastructure/ facilities required for optimum utilization of 2000 MW Capacity Solar Park, undertake construction of approach roadsto park, if required etc.

e) Prepare a Comprehensive Power Evacuation Plan considering 2000 MW Capacity Solar Parks including 400/ 220/ 132/ 33 KV substations & auxiliary power distribution network, metering arrangement, pooling arrangement, cabling, lightning arrestors, transformers & associated infrastructure, transmission lines for evacuation to nearest CTU/STU substation; augmentation of existing substations, if required etc.

f) Prepare a Comprehensive Power evacuation scheme considering 2000 MW Capacity Solar Power Park with preliminary SLD for theelectrical system starting from plant evacuation to the Grid connectivity point. Brief description and broad parameters of all electrical equipment;

g) Build scenarios of capacity utilization factor for the proposed solar park with various technology options (both PV crystalline & thin-film with/ without energy storage/ tracking mechanism/ with various heights of WTG/ variation in Wind Solar Ration etc.), in the identified parcel of land etc.;

h) Guide for STU/CTU connectivity including application for the same and tentative planning of CTU/STU for Power evacuation system.

i) Preparation of Layouts & Drawings

j) Study, investigation & preparation of report of the present characteristics of land, ambient conditions and water for the requirement of Solar Parks (of indicated capacity), complete with all the infrastructure facilities.

k) Guide for Limited A and Connectivity approval from CTU for evacuation of power from the proposed evacuation system

l) Prepare Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) as per MNRE requirements for Detailed Project Report Preparation.

m) The selected bidder is required to conduct all studies/investigation/assessment and prepare all documents/drawings (including evacuation system)/designs that are essential for approval of DPR as per MNRE's solar park and UMREPP guidelines amended time to time for mentioned solar parks. These studies include but not Limited to geo-technical investigation and soil analysis, ground water assessment, hydrological analysis and flood assessment or any other studies which are mandatory for the execution of ground mounted solar park.

5.7 Task-II: Financial Assessment and Commercial Report

The Firm shall:

a) Prepare separate block cost estimates of individual project components, structures, approach roads within the boundary of the project including drainage, water supply, etc., hard & soft landscaping and all other infrastructure services;

b) Financial assessment covering financial assumptions and inputs like development phases, forecast of costs, availability of grants etc. to provideFunds Requirement, Project IRR, Pay Back Period, DSCR and other financial ratios for the Solar Parks;

c) Financial Model shall be developed in order to provide the financial projections; that shall cover the standard modules including capital expenditure, financing plan, operating costs and financial statements;

d) These models shall have Sensitivity Analysis developed to understand the impact of variations in major inputs parameters (such as cost, revenue, rate of interest etc.) on the output parameters/ project returns (such asIRR, ROI, ROE, Payback period etc.).

e) Structuring of Project Revenue Model considering the various business plan, land area requirement & technology options, suggestions for improving viability for successful marketing of the project etc.

f) The role of the developer and operator in design, construction, finance, disposal, maintenance, and transfer shall be clearly identified. Such suggestions may include proposal for grants, if required, with justification for improving the viability of the project along with cost and phasing of such grants;

g) Identify the sources of the funds and advise on availability of grants from any scheme/ GoI or any other organization for the Project.

h) For the solar power generated from the proposed Solar Park, determine its landed cost for the identified consumer categories at HTlevel in the constituent states of Western Region (WR), Northern Region (NR), Southern Regions (SR), and Eastern Regions (ER). For the purpose of this analysis, identification of consumers/categories for such states would be studied by the FIRM as a part of DPR preparation work for a specific solar park.

5.8 Deliverables:

Initially Firm shall prepare a Comprehensive Study Report. In consultation with TREDCO Rajasthan Limited, Firm will submit a draft DPR of solar Power Park for the review by TREDCO Rajasthan Limited On the written receipt of final go ahead from TREDCO Rajasthan Limited, Firm will submit its final DPR against the scope of work mentioned in TENDER.

Deliverables :

Preparation of DPR of 1292 MW Capacity Solar Park including all Studies Like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park.

Deliverable	From the date of issue of letter of Intent in favour of the Firm
Draft Comprehensive Study Reports includes(Topographical survey, Geotechnical Studies etc) along with all Studies as mentioned in scope of work of Tender of Solar Park	Within 2 weeks after completion of Topographical Survey (i.e 45 days which include 30 days for Topographical Survey) from date of LOA.
Final Comprehensive Study Reports of 2000 MW Solar Park (1292 MW for Phase I and 708 MW for Phase II)	Within one week after receipt of written comments onthe draft Comprehensive Study Report by TREDCO Raj Limited
Draft DPR of 1292 MW Solar Park (Phase-I)	Within 75 Days from date of LOA
Final DPR 1292 MW Solar Park (Phase-I)	Within 90 Days from date of LOA and after receipt of written comments on the Draft DPR from TREDCO Rajasthan Limited These responses may require multiple submission or alterations; hence every comment should be responded in defined time frame.
Note-1: *Total Time period for completion of final submission of DPR is 3 Months i.e., 90 days from date of LOA. However, the scope will complete only after getting the final approval from MNRE. It will also be the responsibility of the contractor/firm to provide clarification/ reply /modifications in DPR in case the same is desired by MNRE before approval.* **Note-2**: *It is expected that the Land for the above captioned project is free from any hinderances and if work is hampered due to any local issue or hinderance and Engineer -in-Charge is satisfied then only suitable time extension is to be provided by TREDCO Rajasthan Limited to the bidder in line with tender conditions.*	

5.9 Confidentiality of Data and Documents:

All Intellectual Property Rights (IPR) of data collected as well as the deliverables produced shall remain with the TREDCO Rajasthan Limited All knowledge and information, which may beacquired during the assignment, shall be for all times and for all purposes, regarded as strictly confidential and held in confidence, and shall not be directly or indirectly disclosed to any person whatsoever, without the explicit written permission of TREDCO Rajasthan Limited

--- End of Section ---

6 General Terms & Conditions

6.1 Use of Contract Documents & Information

6.1.1 The Consultant shall not, without TREDCO Rajasthan Limited"s prior written consent, disclose the Contract or any provision thereof or any specification, plan, drawing, pattern therewith to any person other than person employed by the Consultant in performance of the Contract. Disclosure to any such employed person shall bemade in confidence and shall extend strictly for purpose of performance only.

6.1.2 The Consultant shall not, without TREDCO Rajasthan Limited"s prior written consent, make use of any document or information except for purpose of performing the Contract.

6.1.3 Any document other than the Contract itself shall remain the property of TREDCO Rajasthan Limited

6.2 Patent Rights

The Consultant shall indemnify TREDCO Rajasthan Limited against third party claims of infringementof patent, trademark or rights arising from use of goods/design or any part thereof.

6.3 Statutory Responsibility

The Consultant shall comply with all applicable laws, by laws, rules, and regulations and shall procure and maintain their validity all necessary Municipal, Panchayat and Government permits & licenses etc. at its own cost.

6.4 Insolvency and Breach of Contract

TREDCO Rajasthan Limited may at any time by notice in writing summarily terminate the Contract without compensation to the Consultant in any of the following events:

If the Consultant at any time, is adjudged insolvent or have a receiving order or order from administration of its state made against it or shall take any proceeding for compensation under any Insolvency Act for the time being in force or make any conveyance or assignment with its creditors or suspend payment. If the Consultant being a company is wound up voluntarily or by the order of a court or a Receiver, Liquidator or manager on behalf of the Debenture holder is appointed or circumstances have arisen which entitle the Court or debenture holder to appoint a Receiver, Liquidator or Manager.

6.5 Timeline

The Consultant shall provide full program of the work schedule in Bar/ PERT Chart indicating completion schedule for various items involved in the work within the stipulated completion period and the Consultant should strictly adhere to that schedule. Strict adherence and guaranteed completion schedule mentioned in terms and conditions shall be the essence of the Contract and must be maintained.

The entire work (as specified in scope of work) must be completed within schedule as mentioned in deliverables. The issue of LOA shall be considered as the Zero Date.

6.6 Delay in Execution or Failure to complete the Contract

i. Any delay in completion of the work shall attract liquidated damage/ penalty for late completion as per Liquidated Damage (Clause 6.7) of this Tender.

ii. If the Consultant fails to complete the entire work (as specified in scope of work) or fails

to start the work within specified time frame after issue of LOA or fails to carry out the work as per agreed schedule or leaves the work site after partial execution of the work, TREDCO Rajasthan Limited shall have the right to get the work done through any other agency at the risk and cost of the Consultant. Further to this, TREDCO Rajasthan Limited may, without prejudice to the right of the Consultant to recover damages for breach of trust of the Contract, may impose penalties.

iii. If, at any time, the CONSULTANT‟s actual progress falls behind or is likely to fall behind the agreed schedule of the break-up/detailed activities, the CONSULTANT shall submit to the OWNER, a revised programme with catch up schedule, taking into account the prevailing circumstances and delay in the respective activities / milestones. The CONSULTANT shall, at the same time/forthwith notify promptly to TREDCO Rajasthan Limited of the steps being taken to expedite progress of the activities, so as to achieve completion of such activities within the agreed Time schedule for Completion. The Consultant shall in order to overcome the situation, forthwith mobilize required additional resources like manpower, materials, machineries etc. to achieve the prescribed timeline/schedule at his risk and cost.

iv. In case further slippage is observed in the progress of activities, as per agreed time schedule or failure by Consultant, at any stage of the Contract, to perform the Contract diligently to fulfill his obligations as per the Contract, TREDCO Rajasthan Limited reserves the right to engage any other Contractor(s)/sub-contractor(s) at any time, at the risk and cost of the Consultant to ensure completion of the work in line with the agreed time schedule. Further, TREDCO Rajasthan Limited will also deduct Liquidated Damages (LD) arising out of any such delay, if any, as per the terms of this tender document or recover the costs, expenses, losses, damages incurred or suffered by TREDCO Rajasthan Limited as per the recourse available under this tender document or any other law for the time being in force.

6.7 Liquidated Damages for Delay

i. For any delays attributable to the Consultant beyond the scheduled period of completion of the entire work as per the agreed completion schedule, the Consultant shall pay to Owner liquidated damages at the rate of 0.5% of contract value per week subject to maximum 10% of contract value. Maximum applicable Liquidated Damages: The upper ceiling for total liquidated damages for delay shall be maximum 10% of the Contract Price.

ii. The said right of the TREDCO Rajasthan Limited to levy damages on account of delay shall be without prejudice to and in addition to the right of the Company to get the concerned work done from a third party at the complete risk and cost of the Consultant.

iii. Any strike / lockouts at works or site of the Consultant or his sub-supplier/sub- contractor shall not be considered as force majeure condition.

iv. For calculation of LD, date of issue of LOA shall be the reference date.

v. **For delays covered under clause 6.7 (Inexcusable Delay Due to Consultant):**

a) No increases in price on account of any statutory increase in or fresh Imposition of GST, or on account of any other taxes/ duty/ cess/ levy) leviable in respect of the Services and incidental goods/ works stipulated in the said Contract which takes place after the original delivery date shall be admissible on such of the said Services, as are delivered after the said date.

b) Nevertheless, the Procuring Entity shall be entitled to the benefit of any decrease in price on account of reduction in or remission of GST or on account of any other tax or duty or any other ground as stipulated in the price variation clause, which takes place after the expiry of the original delivery date.

NOTE : The bidder shall clearly note that time is the essence of the contract. The work described in the TENDER "the scope of the work" shall be completed within the stipulated period as per the terms and conditions. However, early completion of the works is highly appreciable

6.8 Termination for Default

i. The Owner may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Consultant, terminate the Contract in whole or in part if the Consultant fails to deliver or execute any or all of the works within the time period(s) under the Contract or any extension thereof granted by TREDCO Rajasthan Limited pursuant to the clause for Delay in Execution or Failure to Supply or, If the Consultant fails to perform any other obligations(s) under the Contract.

ii. In the event the Owner terminates the Contract in whole or in part, pursuant to above, the Owner may procure, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered, the Consultant shall beliable to the Owner for any excess costs for such similar goods. However, the Consultant shall continue the performance of the Contract to the extent not terminated.

6.9 Breach and Cancellation of the Contract

i. In case of non-performance in any form or change of the covenant and conditions of the Contract by the Consultant, the Owner shall have the power to annul, rescind, cancel or terminate the order and upon its notifying in writing to the Consultant that it has so done, this Contract shall absolutely determine. The decision of the Owner in this regard shall be final and binding.

ii. The Owner may cancel the order or a portion thereof, and if so purchase or authorize purchase of the Services not so delivered or order assignments or services of similar description (opinion of the Owner shall be final) at the risk and cost of the Consultant.

6.10 Force Majeure

i. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under this Contract, relative obligation of the party affected by such Force Majeure shall be treated as suspended during which the Force Majeure condition lasts.

ii. The term "Force Majeure" shall have herein mean riots (other than amongthe Consultant's employee), Civil commotion, War (whether declared or not), invasion, act of foreign enemies hostilities, civil war, rebellion, revolution, insurrection, military coup, damage from aircraft, nuclear fission, embargoes, quarantines, acts of god such as earthquake, lightning, unprecedented floods, fires not caused by the Consultants negligence and other causes which the Consultant has no control and accepted as such by TREDCO Rajasthan Limited whose decision shall be final and binding. Normal rainy season and monsoons are not Force Majeure.

iii. Upon occurrence of such causes and upon its termination, the party alleging that it has been rendered unable as aforesaid, thereby, shall notify the other party in writing by registered notice as soon as possible and in any event not later than 14 days following the occurrence of such event; thereof giving full particulars and satisfactory evidence in support of its claim.

iv. Time for performance of the relative obligation suspended by the Force Majeure shall stand extended by the period for which such clause lasts.

v. If works are suspended by Force Majeure conditions lasting for more than two (2) months, TREDCO Rajasthan Limited shall have the option of cancelling this Contract in whole or part thereof, at its discretion.

vi. The Consultant shall not claim any compensation for Force Majeure conditions and shall take appropriate steps to insure men and materials utilized by it under the Contract well in advance.

6.11 Insurance

i. During the Contract period, all insurance shall be taken by the Consultant and related expenses shall be borne by the Consultant. The Owner shall not incur/ bear any financial loss.

ii. In case of any loss or damage or pilferage or theft or fire accident or combination of the said incidents etc. under the coverage of insurance, the Consultant shall lodge the claim as per rules of insurance. Any FIR required to be lodged to local Police Station shall be the responsibility of the Consultant.

iii. The Consultant shall arrange for providing insurance coverage to its workmen under Workmen's Compensation Act or similar Rules and Acts as applicable during execution of work for covering risk against any mishap toits workmen. The Consultant shall also undertake a Third Party Insurance. The Owner shall not be responsible for any such loss or mishap.

6.12 Software, Tools and Tackles

The Consultant shall provide technically suitable tools and tackles, equipment's, Machineries, Software (like PV system, WASP, Stead) etc. conforming to relevant BIS safety and technical standards for proper execution of work. The Owner, in no way, shall be responsible for supplyof any tools and tackles, equipment, Machineries etc. for execution of the work.

6.13 Responsibility of the Bidder

The Bidder shall provide guarantee and be entirely responsible for the execution of the Contract in accordance with this tender including but not Limited to its specification, schedules, and annexure.

6.14 Governing Language

The Contract shall be written in English Language. All correspondence and documents pertaining to the Contract, which are exchanged by the Owner and Consultant, shall be written in English.

6.15 Order Amendments

No variation in or modification of the terms of the contract shall be made except by written amendments issued by the Owner.

6.16 Assignments or Subletting of Contract

The Consultant shall not, without the prior consent in writing of the Owner, assign or sublet or transfer its Contract in whole or in part, its obligationsto perform under the Contract or a substantial part thereof, or for any part of the work of which makers are named in the Contract, provided that any such consent shall not relieve the Consultant from any obligation, duty or responsibility under the Contract.

6.17 Subcontracts

(i) The Consultant shall notify the Owner in writing of all subcontracts awarded under the Contract if not already specified in his Bid. Such notification in its original Bid or later shall not relieve the Consultant from any liability or obligation under the Contract.

(ii) Subcontracting a work shall not, under any circumstances, relieve the Consultant from its obligations towards the Project and the Owner.

(iii) In case, the Consultant engages any Subcontractor to carry out a part of the work, the Subcontractor should have requisite Government License/permits for carrying out such part of the work.

6.18 Terms of Payment

Please refer STC (special terms and conditions) for Payment terms and conditions.

6.19 Payments Procedure

Subject to any deduction which the Owner may be authorized to make under this Contract, and or to any additions or deductions provided for in this Contract, the Consultant shall be entitled to payment as follows

a. All payments shall be made in Indian Rupees (INR), unless otherwise specified in the LOA/Contract Agreement. All payment shall be made on the basis of actual measurement for the quantified items as per schedule ofworks.

b. The Consultant shall submit the bill for claim in three copies with all supporting documents as per the Contract condition to TREDCO Rajasthan Limited After due verification and recommendation, TREDCO Rajasthan Limited shall process verified bills for release of payment. Payments shall be released in 30 (Thirty) days by A/c payee cheque / RTGS/ NEFT from date of submission of clear invoice.

c. The Consultant shall submit the bill / invoice for the work executed showing separately GST and any other statutory levies in the bill / invoice.

d. All taxes and deductions shall be applicable as per prevailing income tax and other statutory rules and provisions in force.

e. In case Consultant fails to submit the invoice with all the required documents to process payments, TREDCO Rajasthan Limited reserves the right to hold the payment of the Consultant against such bills.

f. Separate Invoice will be prepared for items under Phase -I and Phase-II.

6.20 SETTLEMENT OF DISPUTES:

i) Amicable Settlement

The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or the interpretation thereof.

ii) Dispute Settlement

Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement by arbitration in accordance with Arbitration and Conciliation Act 1996 (Latest amendment)

(a) Number and Selection of Arbitrators

An arbitration panel composed of three arbitrators, in accordance with the following provisions, shall hear each dispute submitted by a Party to arbitration: The Client/Owner and the Consultant/Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel.

(b) Rules of Procedure

Arbitration proceedings shall be conducted in accordance with Arbitration & Conciliation Act 1996 (latest amendments), of India.

(c) Substitute Arbitrators

If for any reason an arbitrator is unable to perform his function, a substitute shall be appointed in the same manner as the original arbitrator.

(d) Qualifications of Arbitrators

The third arbitrator appointed pursuant to Clause 6.20.i hereof shall be an internationally recognized legal expert with vast experience in the field of arbitration.

(e) Miscellaneous

In any arbitration proceeding hereunder:

- Proceedings shall, unless otherwise agreed by the Parties, be held in Jaipur.
- The English language shall be the official language for all purposes; and
- The arbitrators shall give reasoned award. The decision of the majority of the arbitrators shall be final and binding on the parties.
- The cost of arbitration shall be equally shared by the parties.
- All disputes arising out and /or relating to subject matter of proposal/ agreement / order shall be subject to the jurisdiction of the Court/High Court of Rajasthan. In case the Indian Contractor is a Central Government Department/Enterprise/Organisation or a State Level Public Enterprise (SLPE), the dispute arising between the Employer and the Contractor shall be referred for resolution to the Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) of the Department of Public Enterprises, Government of India as per the Office Memorandum No. 4(1) 2013-DPE(GM)/FTS-1835 dated 22.05.18 and 04.07.18 issued by Government of India, Ministry of Heavy Industries and Public Enterprises, Department of Public Enterprises and its further modifications and amendments.

6.21 Construction of Contract

The Contract shall in all respect be construed and operated, as a Contract as defined in the Indian Contracts Act, 1872, and all the payments there under shall be made in Indian Rupees unless otherwise specified.

6.22 Notices

i. For all purpose of the Contract, including arbitration there under, the address of the Consultant mentioned in the Bid shall be the address to which all communications addressed to the Consultant shall be sent, unless the Consultant has notified a change by a separate letter containing no other communication and sent by registered post with acknowledgement due to TREDCO Rajasthan Limited The Consultant shall be solely responsible for the consequence of an omission to notify change of address in the manner aforesaid.

ii. Any communication or notice on behalf of the Owner in relation to the Contract Agreement may be issued to the Consultant by the Owner and all such communication and notice may be served on the Consultant either by registered post or under certificate of posting or by ordinary post or by hand delivery at the option of the officer.

iii. Instructions or notices to the Consultant and notices from the Consultant to TREDCO Rajasthan Limited recorded in a minute signed by the authorized representatives of both TREDCO Rajasthan Limited and the Consultant. Such notice or instruction shall be valid notice of instruction for the purpose of the Contract.

6.23 Risk Purchase

If the Consultant fails, on receipt of the LOA, to take up the work within a reasonable period or leave the work Site after partial execution of the work, TREDCO Rajasthan Limited . shall have the liberty to get the work done through other agency at the Consultant own risk and additional cost if any. If the situation, so warrants, to compel TREDCO Rajasthan Limited to cancel the LOA placed on the Consultant, it shall be liable to compensate the loss or damage, which TREDCO Rajasthan Limited may sustain due to reasons of failure on Consultant part to execute the work in time.

6.24 Confidential Information

i. TREDCO Rajasthan Limited and the Consultant shall keep confidential and shall not, without the written consent of the other Party hereto, divulge to any third party any documents, data or other

information furnished directly or indirectly by the other Party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Consultant may furnish to its Subcontractor(s) such documents, data and other information it receivesfrom TREDCO Rajasthan Limited to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Consultant shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Consultant

ii. Notwithstanding the generality of the foregoing all maps, plans, drawings, specifications, schemes and the subject matter contained therein and allother information given to the Consultant, by the Company in connection withthe performance of the Contract shall be held confidential by the Consultant and shall remain the property of the Company and shall not be used or disclosed to third parties by the Consultant for any purpose other than for which they have been supplied or prepared. The Consultant may disclose to third parties, upon execution of secrecy agreements satisfactory to the Company, such part of the drawings, specifications or information if such disclosure is necessary for the performance of the Contract under this Clause

iii. Maps, layouts and photographs of the unit/integrated plant including its surrounding region's showing vital installation for national security shall not be published or disclosed to the third parties or taken out of the country without prior written approval of the Company and upon execution of secrecy agreements satisfactory to the Company with such third parties prior to disclosure.

iv. Title to secret processes, if any, developed by the Consultant on an exclusive basis and employed in the design of the unit shall remain with the Consultant. The Company shall hold in confidence such process and shall not disclose such processes to the third parties without prior approval of the Consultant and execution by such third parties of secrecy agreements satisfactory to the Consultant prior to disclosure.

v. Technical specifications, drawings, flow sheets, norms, calculations, diagrams, interpretations of the test results, schematics, layouts and such other information which the Consultant has supplied to the Company under the Contract shall be passed on to the Company. The Company shall have the right to use these for construction erection, start-up, commissioning,operation, maintenance, modifications and/ or expansion of the unit includingfor the manufacture of spare parts.

vi. The obligation of a party under this Clause 6.24 , however, shall not apply to that information which:

a. now or hereafter enters the public domain through no fault of that Party

b. can be proven to have been possessed by that Party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other Party hereto, or

c. Otherwise lawfully becomes available to that Party from a third party that has no obligation of Confidentiality

vii. The above provisions of this Clause 6.24 shall not in any way modify any undertaking of Confidentiality given by either of the Parties hereto prior to thedate of the Contract in respect of the Facilities or any part thereof.

viii. The provisions of this Clause 6.24 shall survive Termination, for whatever reason, of the Contract.

6.25 Limitation of Liability (LLP)

i. The total liability of the Consultant under or in connection with this Tender andthe consequent Contract shall not exceed the full Contract Price inclusive of taxes and duties.

ii. This sub-Clause shall not limit the liability in case of fraud, deliberate default/negligence, reckless misconduct or illegal or unlawful acts by the Consultant.

6.26 Removal and / or Replacement of key Personnel:

Key personnel from the proposed list, other than the following reasons:

(a) Substitution of key personnel can be allowed in compelling or unavoidable situations only and the substitute shall be of equivalent or higher credentials and it should be approved by the client. In case of replacement of any one key personnel, even after approval of client, there will be a reduction of 5% payment from the remaining payment to the consultant. Further replacement (i.e.

2nd key personnel), there will be reduction of another 5% payment from the remaining payment and so on.

(b) If the Client (i) Finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, or (ii) has reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Consultants shall, at the Client's written request specifying the grounds therefore, forthwith provide as a replacement a person with qualifications and experience acceptable to the Client.

(c) The consultant shall have no claim for additional cost arising out of or incidental to any removal and / or replacement of personnel."

6.27 Penalty for delay in signing of the Contract Agreement:

In case delay in signing of the Contract Agreement is caused due to non-submission of the Performance Security within the stipulated time as mentioned in the LOA, a penalty shall be deducted from the RA bill (s) of the contractor as per the slabs given below. However, at any point of time THDCIL shall have the right to invoke the tender clause for forfeiture of EMD.

Contract value (In Rs.)	**Min. Penalty per week or part thereof (in Rs.)**	**Max. Penalty (in Rs.)**
Up to 5 lacs	500	2500
>5 lacs to 10 lacs	750	5000
>10 lacs to 20 lacs	1500	10000
>20 lacs to 1 Cr.	1000	10000
>1 Cr to 5 Cr	10000	1.0 Lacs
5Cr to 10 Cr	25000	2.5 Lacs

6.28 NO CLAIM FOR INTEREST OR DAMAGE.

No claim for interest or damage will be entertained or be payable by the corporation in respect of any amount or balance which may be lying with the corporation owing to any dispute, difference or misunderstanding between the parties or in respect of any delay or omission on the part of the Engineer-in-charge in making intermediate or final payments or in any other respect whatsoever

6.29 INTEREST ON MONEY DUE TO THE CONTRACTOR

No Omission on the part of the Engineer-in-charge to pay the amount due upon measurement or otherwise shall vitiate or make void the contract, nor shall the Contractor be entitled to interest upon any guarantee or payments in arrears nor upon any balance which may on the final settlement of his account be due to him.

7 Special Terms & Condition

7.1 Definition

i. The General Terms and Conditions as well as the Special Terms and Conditions of the Tender are complementary to each other, and wherever there is a conflict, the Special Terms and Conditions shall prevail.

ii. Objective of the Work/Assignment: The main objective of this work is "Bid for Preparation of DPR for proposed Solar Power Projects in the State of Rajasthan.

7.2 Location/Site Map.

The work is to be carried out at Village Bodana, Tehsil Nachana-I, District Jaisalmer in the state of Rajasthan. The Tentative partial map of village Bodana is enclosed at **Appendix -16**. The area of proposed plant shall be of about 10000 acres. The nearest major railway station is Bap railway station, which is located in and around 45.6 kilometer distance and the nearest airport is at Nal Airport located about 116.8 kms from the project site.

7.3 Mode of Execution

All the work shall be executed strictly in conformity with the provisions of the Contract documents, specifications and instructions by the Engineer-in-Chargewhether mentioned in the contract or not. The Consultant shall be responsible for ensuring that works are executed in the most substantial, proper and workman like manner using the quality materials/equipment's and labor throughout the job/assignment completion in strict accordance with the specifications and relevant IS standards and to the entire satisfaction of the Owner.

7.4 Units & Standards/Codes/Regulation

The International System of Units (SI) shall be used for carrying out the services mentioned in the specification. Indian Standards, Codes and Regulations, wherever applicable shall be adopted and adhered to by the Consultant. In case of such Indian Standards/Codes/Regulations being not available in particulararеas, applicable and acceptable international standards shall be followed. The Consultant shall also comply with any changes / modifications in the Standards while undertaking the above studies and preparation of various reports.

7.5 Program of Work

The Consultant shall submit the Program of work within 07 days from the date of receipt of Letter of Intent. The Program shall include a Bar Chart indicating there in the starting position and completion date of each of the major items of work.

7.6 Completion Schedule

Completion schedule shall be as mentioned in Deliverables clause-5.8.

7.7 Site Inspection & Basis of Bid

The volume and quantity of work indicated in schedule of works may vary. The Bidders are advised to inspect the site of work and its environments and be well acquainted with the actual working and other prevailing conditions, position of material and labor. It should be noted before tendering that it is the Bidder's responsibility to provide any items which is not specifically mentioned in the specifications and scope, but is necessary to complete the work. No separate payment shall be made to this account.

Bidder shall make his own arrangements for the transport of personnel andequipment to the site and also for the boarding and lodging facilities of their team during the work. The cost of these are deemed to be included in the bid prices and no extra payment shall be made on this account.

7.8 Price Escalation

The rate(s) quoted against all items of this tender shall remain firm during the entire Contract period. The rates shall also remain firm for the budgetary offer for the optional items.

7.9 TAXES AND DUTIES:

7.9.1 The price quoted shall be inclusive of all applicable taxes, duties, levies as applicable. However, the payment of GST shall be made on production of documentary evidences for the same. Prices quoted by the bidder/ consultant are for entire scope of the Contract, including all preliminary and ancillary works necessary for fulfilment of the various conditions under the Contract & shall remain FIRM without any variation till completion of the contract. The Goods and Service Tax (GST) shall be payable at the prevailing rate subject to the maximum of the GST quoted price. All other Taxes,

Duties & Levies etc. shall be inclusive in the quoted prices and any variation in such taxes shall be borne by the Consultant. THDCIL shall not entertain any claim of the Consultant for variation in these Taxes.

7.9.2 The Goods and Service Tax (GST) paid by the Consultant (as per the quoted GST) shall be reimbursed by the Owner on production of proof of deposit of GST with the concerned Authorities. THDCIL's liability for reimbursement of GST shall be restricted to the rates and amount at which this Tax shall have correctly been levied. THDCIL will not reimburse the taxes and duties to the extent wrongly paid by the Consultant or wrongly demanded by the concerned authority. The Consultant shall be responsible for payment of all Taxes, Duties and Levies etc.

7.9.3 The deduction of Taxes at Source from the payments shall be made as per Laws applicable at the time of making the payment.

7.9.4 Any increase and / or new imposition of Taxes, Duties and Levies in India other than Income Tax shall be paid by the bidder/Consultant and the same shall be reimbursed to them on production of documentary evidence of increase / new imposition and proof of its payment to concerned Govt. Authorities. If there is any reduction in above, the same is to be passed on to the client by the Consultant.

7.9.5 Any Taxes, Duties and Levies imposed on the Consultant including Business Tax, Corporate Income Tax, Personal Income Tax on expatriate personnel inside/outside India shall be borne by the Consultant and no claim whatsoever shall be admissible in this regard.

7.9.6 Works / Contract Tax / Turnover Tax or any similar tax, etc., wherever applicable, shall be borne by the Consultant. The owner ~~Corporation~~ shall not entertain any deviation whatsoever in this respect. The rates quoted by the Consultant shall be deemed to be inclusive of all such taxes.

7.9.7 Notwithstanding anything to the contrary the owner shall not be liable for any taxes, duties, fees or levies of any kind whatsoever in India or elsewhere, of the sub-consultant(s) or of the sub-consultant's personnel, including taxes on the income of such sub-consultant(s) or their personnel.

7.9.8 **Deduction of Tax at Source:**

Payments due to the Consultant under this Contract shall be made by the owner after such deduction of tax at source or withholding tax as may be required under any law of State or Central Govt. in force from time to time in this regard. The Consultant shall receive only net sum, after deduction of tax/withholding tax referred to above. A certificate of such deduction of tax / withholding tax shall be issued by the owner as required under law.

7.9.9 The Consultant shall ensure that all taxes, duties, levies etc. are paid by him and / or his personnel in time and other obligations under the relevant tax laws are promptly and properly discharged. The Consultant shall indemnify Owner from any loss, cost / expense or damage arising out of any such default on the part of the Consultant and/ or his personnel.

7.9 Labor Engagement

The Bidder shall comply to various applicable labor laws like the Factories Act, Minimum Wages Act, ESI Act, Payment of Wages Act, the Workman's Compensation Act, EPF Act, Contractor labor (Regulation & Abolition) Act,1970 and all other statutory requirements as amended from time to time to the entire satisfaction of Central/State Govt. Authorities, shall be the responsibility of the Consultant and he shall have to make good loss, if any, suffered by TREDCO Rajasthan Limited on account of default in this regard by the Consultant.

7.10 Termination on the death of Consultant

Without prejudice to any of the rights or remedies under this contract, if the Consultant dies, the Engineer-in-Charge on behalf of TREDCO Rajasthan Limited shall have the option of terminating the Contract without compensation to the Consultant.

7.11 Retired Government servants taking to Contract

No engineer of gazetted rank or other gazetted officer employed in engineering or administrative duties in the Engineering Department of the Company is allowed to work as Consultant for a period of two years of his retirement from Company's service without the previous permission of the Company. This contract is liable to be cancelled if either the Consultant or any of his employees is found at any time to be a person who had not obtained the permission of the Company as aforesaid before submission of the tender or engagement in the Consultant's service as the case may be.

7.12 Other Bid Conditions

- Price bid shall be strictly filled online only.
- Billing will be as per milestone/deliverables & certified by ENGINEER
- Separate Invoice will be prepared for items under Phase-I and Phase-II.
- Study Report and Detailed Project Report should be submitted in both hard copy (2 sets of good quality color prints Minimum A4 size) as well as soft copy (editable format) and non-editable (PDF)
- It is mandatory to quote for all the items of the bids.
- The prices for Main item shall remain firm during their validity. No escalation /Price Variation shall be payable.

7.13 Terms of Payment

7.14.1Terms of Payment

(Preparation of DPR of 1292 MW Capacity Solar Park (Phase-I) including Studies like Topographical Survey, Geotechnical Investigation etc of 2000 MW

Sr. No.	Milestone for Works	Amount
1	Within 07 days after submission of site visit report against submission of GST invoice to EIC.	10% of the total cost
2	Submission of Studies Topographical Survey, Geotechnical Investigation etc of 2000 MW (1292 MW for Phase I and 708 MW Phase II) and its acceptance by TREDCO Rajasthan Limited	20 % of the total cost
3	Submission of Final DPR for 1292 MW Phase -I to TREDCO Rajasthan Limited for submission to MNRE.	40 % of the total cost
4	On Approval of DPR from MNRE	30 % of the total cost

7.14 Schedule of Prices:

Schedule of prices shall be as per Appendix 13 or as per Format uploaded in CPP Portal**.**

8.0 Preference to Make in India

Preference to Make in India and Eligibility for Participation/ granting of Purchase Preference to Class-I local suppliers

It is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of Goods and Services in India with a view to enhancing income and employment. In this regard, the following guidelines, concerning the procedure to be adopted for granting Eligibility for Participation/purchase preference to local suppliers, are hereby issued:

1.0 Definitions:

a) 'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the goods, services or works procured (excluding net domestic indirect taxes) minus the value of imported content in the goods, services or works (including all customs duties) as a proportion of the total value, in percent.

b) 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed.
'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-II local supplier' but less than that prescribed for 'Class-I local supplier'.
'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than that prescribed for 'Class-II local supplier'.

c) 'L1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

d) 'Margin of purchase preference' means the maximum extent to which the evaluated bid price of a 'Class-I local supplier' may be above the L1 for the purpose of purchase preference.

e) DELETED

f) DELETED

2.0 Eligibility for Participation/Purchase Preference:

2.1 Eligibility for Participation
Only Class-I local suppliers are eligible to Bid. Bids received (if any) from Class-II Local Supplier / Non Local Supplier shall be out rightly rejected.

3.0 NOT USED

4.0 Minimum Local Content
The local content requirement to categorize a Bidder/Supplier as 'Class-I local supplier' is minimum 50%.

5.0 Verification of Local Content:

5.1 The 'Class-I local supplier' shall be required to provide, in the Bid Form of Techno- Commercial Bid, self-certification / declaration that the Item offered meets the local content requirement for 'Class-I local supplier' and shall give details of the location(s) at which the local value addition is made.

5.2 The 'Class-I local supplier' shall be required to provide a certificate in the format attached as

5.3 DELETED.

5.4 False declarations will be dealt in line with the CORRUPT AND FRAUDULENT PRACTICESas mentioned in the bidding documents.

5.5 In case of false declaration / violation of the provision of PPP-MII Order, if a bidder has been debarred / banned by Employer, then the fact and duration of debarment should be promptly brought to the notice of the Member-Convenor of the Standing Committee (as per para 16 of PPP-MII Order) and the Department of Expenditure through Ministry of Power, GOI.

5.6 A supplier who has been debarred / banned by any other procuring entity for violation of 'Public Procurement (Preference to Make In India), Order 2017' (PPP-MII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by Department of Industrial Policy and Promotion (DIPP) shall not be eligible for evaluation/preference, as applicable, under the aforesaid procedures for duration of the debarment. The 'Class-I local supplier' shall be required to furnish a confirmation in this regard in the Bid Form.

6.0 Local Sourcing

6.1 The Bidder/its Sub-vendors must be Class-I local supplier for Item(s) mentioned in the Technical Specifications, as applicable, in case such item(s) are Self Manufactured/Bought-out.

6.2 The Bidder/ Contractor are requested to encourage and promote domestic manufacturing and production of goods and services by sourcing goods and services applicable under the contract/ package from domestic suppliers/ service providers. In this regard, Bidder shall also follow guidelines/ advisory issued by Government of India from time to time, to the extent applicable to them, regarding promotion of local sourcing of goods including Bought out Items and services.

9.0 INTEGRITY PACT

Bidder are required to unconditionally accept the "integrity pact (IP)" (executed on plain paper) as per Annexure-M to the Bidding Documents which has been pre-signed by the Employer and submit the same duly signed on all pages by the Bidder's Authorized signatory along with the Bid. Bidder's failure to comply with the aforesaid requirement regarding submissions of"integrity Pact (IP)" shall lead outright rejection of the bid and in such case the bids shall not be opened.

Independent External Monitors (IEMs):
In respect of this package, the independent External Monitors (IEMs) would be monitoring the bidding and process and execution of contract to oversee implementations and effectiveness of the Integrity Pact Program.

The following Independent External Monitor(s) (IEMS) have been Appointed by THDCIL, in terms of Integrity Pact (IP). which forms parts of the THDCIL. Tenders/ contracts:

1- Dr. Ashok Kumar Verma, IPS (Retired)
Email: vermaashokk@gmail.com

2- Dr. Prasenjit Mukherjee (IA&AS) Retired)
Email: prasenjitm@hotmail.com

This panel is authorized to examine / consider all references made to it under this tender. The bidder(s) in case of any dispute(s) complain(s) pertaining to this package may raise the issue either with the designated 'Nodal officer in THDC or directly with the IEMs.

The Independent External Monitors (IEMs) has the right/access without restriction to all Project documentations of the Employer including that provided by the contractor. The contractor will also grant the Monitor, upon his request and demonstration of a valid interest unrestricted and unconditional access to his project Documentations. The same is also applicable to Sub-contractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/ Contractor / Sub- Contractors/ JV partners/ Consortium member with confidentially.

--- End of Section ---

Appendix-1: Format for covering Letter

To,
GM (Procurement)
THDC INDIA Limited, Rishikesh

Subject: Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

I/We, the undersigned have carefully examined and understood the tender document. I /we hereby agree to carry out work & provide services as described in scope of work &other parts of tender.

In case of award of work, we shall complete the work as per the prescribed schedule inthe tender

Authorized signatory
Name & designation with seal

Date:
Plac:

Appendix-2 Details of Bidder

To,
GM (Procurement)
THDC INDIA Limited, Rishikesh

Sub: Subject: **Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50**

i. (a) Name of the Bidder:
   (b) Registered Office Address:
   (c) Telephone No. & Fax No.
   (d) E-mail ID & Website:
   (e) GST No. (Copy Attached: Yes/No):
   (f) Income Tax Permanent Account No (Copy of PAN Attached: Yes /No):

ii. Details of individual(s) who will serve as the point of contact/ communication for company:
   (a) Name:
   (b) Designation:
   (c) Company:
   (d) Address:
   (e) Telephone Number:
   (f) E-mail address:

iii. Particulars of the Authorized Signatory of the Bidder:
   (a) Name:
   (b) Designation:
   (c) Address:
   (d) Telephone Number:
   (e) E-mail address:

iv. Details of current business of the Applicant
v. Detail of experience in renewable energy sector (use separate sheet if required)
vi. Whether the Applicant or any of its promoter(s)/director(s)/ associates is blacklisted by any central government or state government/ department/ agency in India? (yes/no)
vii. Any other information (use separate sheet)

Company Seal **Signature of Bidder**

DELETED

Appendix-4 Details of Qualified Technical Staff (proposed to be associated with assignment) along with Curriculum Vitae

Sr. No.	Name	Educational Qualification	Position in the Firm	Years of Relevant Experience	Expertise
1					
2					
3					
4					
5					
6					

Format of Curriculum Vitae (to be provided by all the Team Members including Team Leader)

1. **Name of Staff**: _____
2. **Proposed Position:** _____
3. **Employer**: _____
4. **Date of Birth**:_____**Nationality**:_____
5. **Education**

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Year Obtained

6. **Countries of Work Experience**: _____
7. **Languages:** _____
8. **Employment Record**

Name of the Firm	From – To Date	Designation/ Position held

9. **Work Undertaken that Best Illustrates Capability to Handle the Tasks defined in the scope of work** Name of assignment or project: _____
   Year:_____
   Location:_____
   Client:_____
   Main project features: _____
   Positions held: _____
   Activities performed:_____

Note:

Kindly submit copies of CV and appropriate certifications with this sheet.
Additional sheets may be used to provide accurate information.

Appendix-5 Declaration of Compliance

To,
GM (Procurement)
THDC INDIA Limited, Rishikesh

Sub: Subject: **Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village - Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No- THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50**

Dear Sir,

This is to certify that I,_____, am the duly authorized signatory appointed on behalf of my organization to submit this Bid. The authorization letter is attached herewith.

I on behalf of my organization agree to all the terms and conditions set forth in this TENDER Document.

If awarded the job, the job work shall also conform to the terms and conditions, aswell as specifications indicated in the TENDER documents and as finally indicated by the Evaluation Committee.

I further certify that all the information provided in this document is accurate to the best of my knowledge.

Signature:_____ Designation: _____

Name:_____ Organization: _____

Address:_____ Phone: _____

Email: _____

Appendix- 6 No Deviation Certificate

To,
GM (Procurement)
THDC INDIA Limited, Rishikesh

Sub: Subject: **Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village - Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No- THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50**

Dear Sir,

We_____

(Bidder's name), confirm our acceptance to all terms and conditions mentioned in the TENDER Document, and all subsequent clarifications, in totality and withdraw all deviations raised by us, if any.

_____

SEAL AND SIGNATURE OF BIDDER

Date: _____

Appendix- 7 Declaration on Bidder's relation to Directors

To,
GM (Procurement)
THDC INDIA Limited, Rishikesh

Sub: Declaration of relationship with Directors/ any other employee/associates.

Dear Sir,

This has reference to our proposed Contract regarding Bid for Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No-THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

For the purpose of Section 297/299 of the Companies Act, 1956 we certify that to the best of my/our knowledge;

1) I am not a relative of any Director of T**REDCO Rajasthan** Limited;

2) We are not a firm in which a Director of T**REDCO Rajasthan** Limited or its relative is a partner;

3) I am not a partner in a firm in which a Director of T**REDCO Rajasthan** Limited, or its relative is apartner;

4) We are not a private company in which a Director of T**REDCO Rajasthan** Limited is a member cordirector;

5) We are not a company in which Directors of T**REDCO Rajasthan** Limited hold more than 2% of thepaid-up share capital of our company or vice-versa.

Authorized Signatory of the Contracting Party

Place:

Date:

Appendix- 8 Format of Power of Attorney as Authorized Signatory

(On a non-judicial stamp paper of appropriate value)

Know all men by these presents, We ... (name of the firm and address of theregistered office) do hereby irrevocably constitute, nominate, appoint and authorizeMr. / Ms (Name), son/daughter/wife of ..... and presently residing at.....,who is presently employed with us and holding the position of ..... , as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all suchacts, deeds and things as are necessary or required in connection with or incidental tosubmission of our Bid *for "* Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", *Rajasthan*, pursuant to the TENDER document no. THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50 issued by TREDCO Rajasthan Limited including but not Limited to signing and submissionof all applications, Bids and other documents and writings, participate in Bidders" and other conferences and providing information / responses to the Company, representing us in all matters before the Company, signing and execution of allcontracts including the Contract Agreement and undertakings consequent toacceptance of our Bid, and generally dealing with the Company in all matters in connection with or relating to or arising out of our Bid for the said Project and/or upon award thereof to us and/or till the entering into of the Contract Agreement with TREDCO Rajasthan Limited.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deedsand things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ……..., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS

…… DAY OF……..., 20…..

For……..

(Signature, name, designation and address)

Witnesses:

1.

2.

Accepted Notarized

(Signature, name, designation and address of the Attorney)

Notes:

1. *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure*.

2. *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution/ power ofattorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*

3. *For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Powerof Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostle certificate.*

Appendix- 9 Format of Summary of Audited Financial statements

DELETED

Appendix- 10 (a) Format of Bank Guarantee for EMD

[To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) orappropriate value as per Stamp Act relevant to place of execution, duly signed on each page. Foreign entities submitting Bid are required to follow the applicable law in their country]

Reference No. ……Bank Guarantee No. …… Dated: ……

EMD BANK GUARANTEE FORMAT FOR TENDER /TENDER No.

(BANK GUARANTEE ON NON-JUDICIAL STAMP PAPER OF Rs.100)
WHEREAS M/s. _____
(Name and Address of the Firm) having their registered Office at _____ (Address of the Firm"s registered Office) (hereinafter called the Tenderer) wish to participate in the Tender No._____for _____ of (supply / Erection / Supply & Erection / Work) of

_____
(Name of the material / equipment / work) for_____ THDC India Limited and WHEREAS a Bank Guarantee for (hereinafter called the "Beneficiary") Rs._____(Amount of EMD) valid till _____ (mention here date of validity of this Guarantee) which is required to be submitted by the Tenderer along with the Tender.

We, _____
(Name of the Bank and address of the Branch giving the Bank Guarantee) having our registered Office at_____(Address of Bank"s registered Office)hereby gives this Bank Guarantee No. _____
dated_____and hereby agree unequivocally and unconditionally to pay immediately on demand in writing from the THDC India Limited or any Officer authorized by it in this behalf any amount not exceeding Rs.____(amount of EMD) (Rupees _____ _____) (in words) to the said THDC India Limited on behalf of the Tenderer.

We,_____(Name of the Bank) also agree that withdrawal of the Tender or part thereof by the Tenderer within its validity or non-submission of Security Deposit by the Tenderer within one month from the date of Tender or a part thereof has been accepted by the THDC India Limited would constitute a default on the part of the Tenderer and that this Bank Guarantee is liable to be invoked and encashed within its validity by the Beneficiary in case of any occurrence of a default on the part of the Tenderer and that the encashed amount is liable to be forfeited by the Beneficiary.
This agreement shall be valid and binding on this Bank upto and inclusive of _____ (Mention here the date of validity of Bank Guarantee) and shall not be terminated by notice or by Guarantor change in the constitution of the Bank or the Firm of Tenderer or by any reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alterations made, given, conceded with or without our knowledge or consent by or between the Tenderer and the THDC India Limited

"Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this Guarantee shall not be assignable, transferable by the beneficiary (i.e. THDC India Limited). Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained

by the Bank. Any invocation of the Guarantee can be made only by the beneficiary directly."

NOT WITHSTANDING anything contained hereinbefore our liability under this Guarantee is restricted to Rs. _____ (Amount of EMD) (Rupees_____(in words). Our Guarantee shall remain in force till_____(date of validity of the Guarantee). Unless demands or claims under this Bank Guarantee are made to us in writing on or before_____(date should be 1 month after the above validity period of BG), all rights of Beneficiary under this Bank Guarantee shall be forfeited and we shall be released and discharged from all liabilities there under.

Place:

Date:

(Please mention here complete Postal Address of Bank with Branch Code, Signature of the Bank"s authorized Signatory Telephone and Fax Nos) with official seal.

INSTRUCTIONS FOR FURNISHING BANK GUARANTEE

i) The Bank Guarantee validity should be **120 days** from last date of Bid submission.

ii) The Bank Guarantee by Bidders will be given on non-judicial stamp paper as per stamp duty applicable at the place where the Tender has emanated. The non-judicialstamp paper should be in name of the issuing bank.

iii) The Bank Guarantee by Bidder will be given from Nationalized/Scheduled bank as per Appendix-11.

iv) This bank guarantee/ all further communication relating to the bank guarantee should be forwarded to General Manager (Procurement), THDC India Limited, Rishikesh.

v) The full address along with the Telex/Fax No. and email address of the issuing bank to be mentioned.

Appendix- 10 (b) Format of Bank Guarantee for Security deposit /Performance Bank Guarantee

[To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) orappropriate value as per Stamp Act relevant to place of execution, duly signed on each page. Foreign entities submitting Bid are required to follow the applicable law in their country]

Reference No. …… Bank Guarantee No. …… Dated: ……

(On stamp paper of Rs.100/-)

FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSIT/ PERFORMANCE BANK GUARANTEE.

We, Bank of_____here by agree unequivocally and unconditionally to pay immediately on demand in writing from the TREDCO Rajasthan Limited or any Officer authorized by it in this behalf any amount up toand not exceeding Rs._____(inwords) Rupees to the said TREDCO Rajasthan Limited on behalf of M/s. _____ _____who have entered into a contract for the supply/works specified below:

L.O.I. No._____dated

This agreement shall be valid and binding on this Bank upto and inclusive of _____and shall not be terminable by notice or by change in the constitution of the Bank or the firm of Consultants / Suppliers or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alterations made, given conceded or agreed, with or without our knowledge or consent, by or between parties to the said within written contract.

"Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this Guarantee shall not be assignable, transferable by the beneficiary (i.e. THDC India Limited). Notice or invocation by any person such as assignee, transferee or agentof beneficiary shall not be entertained by the Bank. Any invocation of the Guarantee canbe made only by the beneficiary directly."

"NOTWITHSTANDING" anything contained herein before, our liability under this guarantee is restricted to Rs._____(Rupees_____only). Our guarantee shallremain in force until ____(Date of validity of the Guarantee). Unless demands or claims under this Bank Guarantee are made to us in writing on or before_____ (Date of validity of the Guarantee), all rights of Beneficiary under this Bank Guarantee shall be forfeited and we shall be released and discharged from all liabilities there under;

Place:

Date:

INSTRUCTIONS FOR FURNISHING PERFORMANCE BANK GUARANTEE

- The Bank Guarantee by Bidders will be given on non-judicial stamp paper as per stamp duty applicable at the place where the Tender has emanated. The non-judicial stamp paper should be in name of the issuing bank.
- The Bank Guarantee by Bidder will be given from bank as per Appendix-11 only.

vi) This Bank Guarantee/ all further communication relating to the bank guarantee should be forwarded to TREDCO Rajasthan Limited D-144 Kusum Vihar Jagatpura Jaipur, (RJ) 302017.

- The full address along with the Tele/Fax No. and email address of the issuing bank to be mentioned.

- The validity period of PBG should be for a total period up to three months from the effective date of start of work date of LOA with the claim period of one month. BG shall be kept valid till the date of completion of work and shall be suitably extended if any extension is allowed by the owner in the completion period.

Appendix- 11 List of Banks (for Bank Guarantee)

DELETED

Appendix- 12 Form of declaration of Non Blacklisting

(On the letter head of Company)

Ref. No.: Date:

I/ We, M/s ..... hereby certify that I/we have not been declared blacklisted/banned/de-listed/debarred from similar business by State/Central Govt. departments or Government Under takings in accordance with Clause No. 3.2.3 (ii) of TENDER document No. ……..on Banning of Business Dealings.

(Seal & Signature of the Bidder)

Appendix- 13 Format for Schedule of Price

Schedule of Price

Sr. No.	Description of Item	Unit	Rate including all taxes& duties (in Rs.)	GST Rate (in %)	GST (inRs.)	Total Amount (In Rs) including GST
1.	**A.)** Preparation of Study Report viz Topographical Survey, Geotechnical Investigation etc for 1292 MW Solar Park -Phase -I	**Lump Sum**				
	B.) Preparation of study report viz .Topographical Survey, Geotechnical Investigation etc for 708 MW Solar Park -Phase -II	**Lump Sum**				
2.	Preparation & Submission of Detailed Project Report (using Study Report Conducted for Phase -I i.e 1292 MW)	**Lump Sum**				
	Total Cost (1A+1B+2) for Preparation of Detailed Project Report Park of 1292 MW Solar Park (Phase -I) Including Studies Like Topographical Survey, Geotechnical Studies Etc. of 2000 MW Solar Park (Phase I and Phase II) .					

NOTE

1. *Price bid shall be strictly filled online only.*
2. *Billing will be as per milestone/deliverables & certified by ENGINEER-IN CHARGE*
3. *Separate Invoice will be prepared for items under Phase -I and Phase II.*
4. *Study Reports and Detailed Project Report should be submitted in both hard copy (2 sets of good quality color prints Minimum A4 size) as well as soft copy (editable format)and non-editable (PDF)*

CONFIDENTIALITY UNDERTAKING

(On Company Letter Head with seal)

I,_____{**Name of Authorized Person**} on behalf of (**Name of Bidder**)Undertake to TREDCO Rajasthan Limited that:

1. I undertake to keep confidential at all the times information obtained directly, indirectly thorough written, verbal or any other means during working for this assignment. I undertake not to disclose, publish, reveal, copy, transmit, quote, use any of the information in full or part, data, drawings, documents, photographs or any other literature to anyone during the course of assignment and thereafter in future either by the Company or any individual. The undertaking shall be binding to Bidding Firm including its successor/assignee as a whole and all individuals assigned to the task irrespective of their association with Bidding Firm in future.

2. I acknowledge that damages are not a sufficient remedy for any breach of this Undertaking and that TREDCO Rajasthan Limited is entitled to specific performance or injunctive relief (as appropriate) as a remedy for any breach or threatened breach of this Undertaking, in addition to any other remedies available to TREDCO Rajasthan Limited as per law .

3. I acknowledge that this Undertaking is governed by the law in force in India and agree to submit to jurisdiction of the court of Jaipur, Rajasthan.

4. I undertake to sign Non-Disclosure Agreement (NDA) in case of assigning the job.

Company Seal Authorized Signatory

Place:

Date:

Appendix- 15: Format for Advance Payment Guarantee

DELETED

Appendix- 16: Site Map

Enclosed

Appendix- 17: Preference to Make in India

(CERTIFICATE OF FULL COMPLIANCE ON "Purchase Preference to Make in India")

To,
The General Manager (Procurement)
THDC India Limited,
Gangotri Bhawan, By Pass Road, Pragati Puram,
Rishikesh-249 201

Dear Sirs,

Subject: Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No- THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

(i) We confirm that we fulfill the requirements of Local content for Class-I local supplier. The details of the location(s) at which the local value addition are as under:

Sl.No.	Description of Goods & Services	Details of the location(s) at which the local value addition is made

(ii) We confirm that we fulfill the requirements of Local content for Class-I local supplier for Item(s) mentioned in Technical Specifications, as applicable. We further confirm that in case such item(s) are bought-out for us, we shall source the same from Class-I local supplier only.

We undertake that (in case the value of work is more than 10 Crore), a certificate from the statutory auditor or cost auditor (in the case the bidder is a company) or from a practicing cost accountant or practicing chartered accountant (in respect of bidders other than companies) certifying the percentage of local content shall be submitted by us prior to submission of our last bill for payment.

##We further confirm that we are presently not debarred / banned by any other procuring entity for violation of 'Public Procurement (Preference to Make in India), Order 2017'(PPP-MII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by Department for Promotion of Industry and Internal trade (DPIIT)."

##In case a Bidder has been banned/debarred by any other procuring entity for violation of 'Public Procurement (Preference to Make In India), Order 2017' (PPPMII Order) dated 15.06.2017 and its subsequent revisions / amendments issued by
Department of Industrial Policy and Promotion (DIPP), the same may be declared by Bidder by striking off para above and declaring the details of banning using additional sheets.

Bidder may also enclose additional sheets in similar format (if required), for providing details pertaining to local value addition.

Date: (Signature).....
Place: (Printed Name).....
(Designation).....
(Company Seal).....

Appendix- 18: Restrictions on Procurement from a bidder of a country which shares a land border with India

To,
The General Manager (Procurement),
THDC India Limited,
Gangotri Bhawan, By Pass Road, Pragati Puram,
Rishikesh-249 201

Subject: Detailed Project Report (DPR) for Development of 1292 MW (Phase-I) Ultra Mega Renewable Energy Power Park (Solar Power Park) Including all Studies like Topographical Survey, Geotechnical Studies etc. of 2000 MW Solar Park at Village -Bodana, Tehsil-Nachana-I, District -Jaisalmer, Rajasthan", NIT No- THDC/RKSH/PROC/LTD/TREDCO/2023-24/ 50

1) With reference to our subject bid proposal, we hereby confirm and certify that we fully comply Restrictions on Procurement from a bidder of a country which shares a land border with India. We have read, understood and accepted the Restrictions on Procurement from a bidder of a country which shares a land border with India and our bid is in compliance to this clause.
2) We confirm that if it is established that we have provided any falls information in pursuance of the aforesaid ITB Clause, while competing for this contract, then our bid shall be rejected.
3) We further confirm that, if it is established that we have not complied with terms of aforesaid ITB Clause, during execution of contract, this would be a sufficient ground for immediate termination of the contract as per GCC Clause titled Termination for contractor's Default and shall be dealt accordingly.

Date:

Place:

(Signature of the Authorized Signatory with date)
(Official-Seal)

Appendix- 19: FORM FOR CONTRACT-AGREEMENT

(On Non Judicial Stamp paper of appropriate value)

This agreement is made on.....day of.....Two Thousand…..…. between THDC India Limited on behalf of **TREDCO Tajasthan Limited**, registered and existing under the Laws of India and having its registered Office at Bhagirathi Bhawan (Top Terrace), Bhagirathi Puram, Tehri-249001, Uttarakhand, India (hereinafter referred to as the "Employer" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) on the one part and M/s....., a Company/Corporation registered/ incorporated under the Laws of...../Companies Act....., having its registered office at..... (herein after referred to as the "Consultant," which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the other part.

WHEREAS THDC India Limited is desirous that the works contained to carry out due diligence and valuation of three target SPVs of seven hydro projects in Arunachal Pradesh, **Tender No- …….** Should be executed and has accepted the bid submitted by the consultant and awarded the work by a letter of award **THDC/RKSH/…….**……. for the execution and completion of such works on the terms and conditions of above Letter of Award and documents referred to therein which has been accepted by the Consultant vide letter No……..… dated…… resulting into a "Contract".

AND WHEREAS the present contract as defined below shall be carried out by the Consultant.

NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND COVENANT AS FOLLOWS:

5. In this agreement works and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

6. The following documents attached hereto shall be deemed to form and be read and construed as an integral part of this Contract Agreement :

a) Agreement
b) Letter of Award
c) Correspondences exchanged between THDCIL/ TREDCO and Consultant after opening of Bid and before issue of Letter of Award.
d) Financial Bid.
e) Clarification(s) and Amendment(s) issued to the bidding document, if any.
f) Technical Specifications /Terms of Reference
g) Special Conditions of Contract
h) General Conditions of Contract
i) All Forms, Annexure & Appendixes submitted by the Consultant
j) NIT and Information & Instruction to Bidders
k) Any other documents forming part of the Contract.

.

3. The aforesaid documents shall be taken as complementary and mutually explanatory of one another but in the case of ambiguities or discrepancies, shall take precedence in the order setout above.
4. In consideration of the Payment to be made by Owner to the Consultant as hereinafter mentioned the Consultant hereby covenants with Owner to execute and complete the works in conformity, in all respect, with the provisions of the contract.

7. The contract price in respect of this shall be `…..(Rupees ….....) only.

8. Owner hereby covenants to pay to the Consultant, in consideration of the execution and completion of the works, the contract price at the times and in the manner prescribed by the contract.

IN WITNESS WHEREOF the parties have hereinto set their respective has on the day and year first above written.

For and on behalf of Employer
(TREDCO Rajasthan Limited)

….....
(By Authorized Representative)
Name :….....
Designation: ….....
Address : ….....
Place : Rishikesh
Date : ….....

Witnesses :
Name :….....
Designation: ….....
Address : ….....

Name :….....
Designation: ….....
Address : ….....

For & on behalf of Consultant
(M/s…....)

….....
(By Authorized Representative)
Name :….....
Designation: ….....
Address : ….....
Place : Rishikesh
Date : ….....

Witnesses :
Name :….....
Designation: ….....
Address : ….....

Name :….....
Designation: ….....
Address : ….....

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Appendix- 20: INTERGRITY PACT

Integrity Pact- Annexure-M
(Signed copy Attached separately)