

# CENTRAL ELECTRICITY REGULATORY COMMISSION

Ground Floor, Chanderlok Building, 36, Janpath, New Delhi-110001

No. CERC/RA/Study/07082020

Dated, the 20 November, 2020

## **Study on Solar Thermal and Solar PV Projects** **Terms of Reference(TOR)**

### **1. Context/Background**

1.1 The Commission in exercise of powers conferred under Electricity Act, 2003 notified CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 on 23.06.2020 for the new control period from 01.07.2020 to 31.03.2023. The Commission considered the comments of the stakeholders on the Draft Regulations, views of the participants in the Public Hearing as well as their written submissions received during and after the Public Hearing.

1.2 The Regulations have been finalized after due consideration of various issues raised by the stakeholders. The issues raised have been dealt in detailed in the 'Statement of Reasons ' (SOR) issued by the Commission on 07.07.2020. Many stakeholders requested and suggested to reconsider the useful life and capacity utilization factor (CUF) of Solar thermal and Solar PV projects as proposed in the draft regulation. The Commission acknowledged such requests and suggestions from the stakeholders and addressed in the SOR stating that any change in useful life and CUF of solar thermal and solar PV projects can only be considered after a detailed study.

1.3 It has been decided to engage a consulting agency to conduct a detailed study on Solar thermal and Solar PV projects.

### **2. Objective of the Study**

2.1 To undertake study on the useful life and capacity utilization factor (CUF) of Solar Thermal and Solar PV technologies.

### **3. Scope of work**

The Consultants shall undertake study including detailed consultation with various stakeholders to assess the useful life and CUF of solar thermal and solar PV projects. Some of the key issues as currently identified and to be covered as part of this Study shall be as under:

3.1 Study, analyse and suggest the useful life for solar thermal power projects based on international and national experience for life cycle analysis. The study must cover the type of technologies such as 'Parabolic trough', 'Power Tower', Linear Fresnel or any other technology adopted by solar thermal developers in India and globally.

3.2 Study, analyse and suggest the capacity utilization factor (CUF) of solar thermal and solar PV projects with and without storage. The study must provide in detail the storage technology adopted under different type and size of solar thermal and solar PV projects.

- 3.3 Analyse international references of solar thermal and solar PV projects with specific analysis of their performance on the basis of project life, CUF, project technologies, cost of the projects and construction timelines.
- 3.4 Analyse variation in CUF of solar thermal and solar PV projects (with and without storage) across different regions in India.
- 3.5 Analyse and suggest the suitable solar thermal technologies in India for utility size and small scale projects.
- 3.6 Study solar policies and schemes pertaining to solar thermal and solar PV projects.
- 3.7 The Consultant shall present the detailed findings of the study including recommendations and suggestions for the CUF and useful life of solar thermal and solar PV projects in the report for the approval of the Commission.
- 3.8 Any other task required in pursuance of achieving the above.

#### **4. Deliverables and Duration of Assignments**

- 4.1 All deliverables will be with effect from the date of signing of agreement.
- 4.2 The assignment shall be completed within a period of 120 days.
- 4.3 The Consultant will be required to submit the inception report at the end of 10 days;
- 4.4 Submit first progress report by the end of 30 days;
- 4.5 Submit second progress report by the end of 60 days;
- 4.6 Submit the first draft of the Report by the end of 90 days;
- 4.7 Submit the revised draft Report after discussion with CERC secretariat by the end of 110 days followed by a presentation before Central Electricity Regulatory Commission;
- 4.8 Submit the final Report "Study on solar thermal and solar PV" by the end of 120 days from the date of signing of the agreement or within 60 days from when the report is accepted by the CERC in its meeting, whichever is later.
- 4.9 The timelines for deliverables is to be strictly adhered to. The individual task should be completed in phased manner and overlapping of one or more study shall not be a constraint to adhere to the timelines. In case of delay, the penalty/liquidated damages as per clause 8 of the Agreement will be applicable on the consultant.
- 4.10 Time is essence of the contract. Hence no abnormal delay would be tolerated. In case of any such contingency, the study would be got conducted from alternate source at the cost of the bidder.

## **5. Payment Schedule**

5.1 10% of the professional fee as advance of the total fee of the study at the time of signing agreement. The Consultant shall provide an irrevocable Performance Bank Guarantee of 10% of amount stipulated in the agreement at the time of signing the agreement to be valid till 3(three) month after the expiry of the agreement; In the event of extension of assignment/Contract, the Performance Bank Guarantee shall be suitably extended by the consultant. If advance is not requested by the Consultant, 10% of the fee can be claimed at the end of the contract period on submission of the final report.

5.2 20% of the professional fee on the submission of the inception report of the Study;

5.3 20% of the professional fee on submission of first Draft Report of the study;

5.4 20% of the professional fee on submission of Final Report of the study;

5.5 30% of the professional fee on successful completion and acceptance of the Final Report, at the end of the contract period.

5.6 Performance Bank Guarantee will be kept as performance security and can be invoked to appropriate against breach of any terms of this Agreement or for non-performance

## **6. Qualification Criteria:**

6.1 The Consultant should have completed at least three assignments in the last five years of assisting SERC/CERC/FOR/MNRE on Renewable Energy related matters. The consultant should also have experience in advising on regulatory issues regarding Renewable Energy in general and Renewable Energy Certificate Mechanism in particular.

6.2 The bidder is expected to have complete knowledge of Electricity Act ,2003 as well as policies, Rules, Regulations and guidelines issued under the Act.

6.3 The Consultant should have legal and financial background.

6.4 The organization should not be blacklisted/debarred for conducting studies or consultancy services, by any Government/semi-Government/quasi-judicial agency. An undertaking in this regard shall be given by the consultant in the format at Annexure-III.

6.5 The Turnover and Net Worth of the Consultant should be a minimum of Rs.50 lakh.

## **7. Application and Evaluation Criteria**

7.1 The format of application is at Annexure – I and Annexure –II.

7.2 The bidder is required to submit two (2) copies of bids for Technical offer (each of which will be treated as original) along with soft copy (in word format) and one copy of Financial offer, duly sealed in separate envelopes.

7.3 Technical component will carry 70% weightage and financial evaluation will carry 30% weightage.

7.4 The bids of the eligible bidders as per Clause 6 will be scrutinized by Consultancy Evaluation Committee (CEC) and shortlisted bidders will be called for interaction with the CEC (to be supplemented with a presentation not exceeding 6 slides). Their technical performance will be evaluated based on the following criteria:

<b>Technical Parameters</b>	<b>Marks</b>
The Consultants relevant experience for the assignment	30
Understanding of the issues and approach to be followed	10
The qualifications and experience of the key staff (who would actually be working on the project) proposed	40
Quality of presentation made before CEC	20
Total Technical Score	100

7.5 The minimum qualifying marks in the Technical Evaluation is 70% of the total score for technical component.

7.6 Only those bidders, who qualify technically as per Clause 7.5, would be considered for Financial Evaluation.

7.7 Weight for Financial Evaluation Proposal with the lowest quoted price will be given a financial score of 100 and other proposals would be given financial scores that are inversely proportional to their prices.

7.8 The total score will be obtained by weighting the Technical and Financial scores.

7.9 Only successful bidder would be communicated the award of consultancy assignment.

7.10 The right to reject any or all bids rests with the CERC Secretariat without assigning any reason.

7.11 No requests for extension of date for submission of bids will be entertained unless decided so by CERC secretariat.

7.12 The “CERC” will have an option to terminate the contract by giving a notice of one month. In such cases, the Consultant shall be paid fees after taking into consideration the part of work completed prior to such foreclosure, termination or cancellation of the engagement as may be decided by the “CERC”, and the decision of the “CERC” shall be conclusive and binding. The fees so fixed and paid shall be deemed to be final payment in such cases. The consultant shall abide by the terms and conditions of the Agreement as per Annexure –IV.

7.13 The address for submission of the proposal and seeking any clarification (within the due date of submission of the ToR i.e upto **17.00 hrs on 15 December, 2020**) is given below:

**Advisor (Renewable Energy),**

C/o Central Electricity Regulatory Commission,  
Ground Floor, Chanderlok Building,  
36, Janpath, New Delhi – 110001  
Ph: 91-11-23353503 Fax: 91-11-23753923

**DETAILED PROPOSAL FOR STUDY**

**(TECHNICAL)**

**Two (2) copies of the proposal along with project summary to be submitted to Advisor (Renewable Energy), CERC**

**I. GENERAL INFORMATION:**

1. Title of the Proposed Study:
2. Name and address of the Organization/  
Institution
3. Name & Designation of the Key Person:
4. Contact address of the Key Person:(e-mail/fax/telephone)
5. Net-worth/Turnover of the Organization/ :  
Institution
6. PAN No of the Organization/  
Institution

**II. TECHNICAL SPECIFICATIONS:**

7. i. Department(s) of the organization/Institution(s) where the study will be carried out
- ii. Other department(s), if any, which will collaborate in this study
8. Brief review of the state-of-art in the field (National and International)
9. Detailed Approach & Methodology for undertaking the assignment
10. Facilities available for the proposed work in the applicants organization/institution
11. Previous experience of the proposer in this or related field
12. Biographical sketch of the Study Team
  - (i) Name
  - (ii) Designation
  - (iii) Date of Birth
  - (iv) Education and Experience
  - (v) Man days to be spent on this assignment

(a) Academic Qualifications

<b>Degree</b>	<b>University</b>	<b>Field(s)</b>	<b>Year</b>

(b) Experience

<b>Institution</b>	<b>Topic of work done</b>	<b>Period</b>

(v) Field of major interest

(vi) Additional information (if any)

13. Capacity to impart training/transfer of knowledge

14. Whether blacklisted/debarred for conducting studies or consultancy services, by any Government/semi-government/quasi-judicial agency, if so the details thereof:

[Undertaking to be given as per Annexure-III]

**DETAILED PROPOSAL FOR STUDY**

**(FINANCIAL)**

**I. GENERAL INFORMATION:**

1. Title of the Proposed Study:
2. Name and address of the Organization/  
Institution
3. Name & Designation of the Key Person:
4. Contact address of the Key Person:(e-mail/fax/telephone)
5. Net-worth/Turnover of the Organization/  
Institution
6. Certificate of authorization in case of Institutes/other organizations  
(Format enclosed at Appendix-“A”).

**II. Fee Proposed:**

07. Amount of Fee proposed for:

<b>Components</b>	<b>Basis</b>	<b>Amount (in Rs)</b>
(I) Consultant Charges		
(II) Misc./Others (if any) Total		
<b>TOTAL</b>		

(The amount quoted is exclusive of statutory levies and taxes etc.)

(RUPEES \_\_\_\_\_)

Signature of the Principal Investigator/  
Head of the Study Team



**Declaration/Certification**

To

The Advisor (Renewable Energy)  
Central Electricity Regulatory Commission  
Ground Floor, 36, Chanderlok Building  
Janpath New Delhi - 110001

Sir

I have carefully gone through the Terms & Conditions contained in the Terms of Reference (TOR) regarding study on “Study on Solar thermal and solar PV projects”. I hereby declare that my firm has not been debarred/blacklisted by any reputed Government/Semi Government Organizations from conducting Studies or consultancy services within last three years nor is there any pending dispute in this regard. I further certify that I am an authorised signatory of my company/firm and therefore competent to make this declaration.

Yours sincerely

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Company/firm: \_\_\_\_\_

Address: \_\_\_\_\_

**CERTIFICATE**

The undersigned agree to abide by the conditions of the grants and certify that available facilities for proposed work shall be extended to the investigator/study team.

Signature of Executive Authority  
Investigator/of the Organisation

Signature of the Principal  
Head of the Study Team

Name and Designation  
Date

Name and Designation  
Date

Signature of Co-investigator  
Name and Designation  
Date

Official Stamp of  
Organisation/Institution

**On 50 Rs. Stamp Paper**

**AGREEMENT**

This agreement made on this day of [here give the date of the agreement] at New Delhi BETWEEN [here give the Name and address of the consultant or Professional Expert] hereinafter referred to as “the consultant/professional expert” of one part and the **Central Electricity Regulatory Commission, 3<sup>rd</sup> and 4<sup>th</sup> Floor Chanderlok Building, 36 Janpath, New Delhi -110001** (herein after called "the CERC") of the otherpart.

WHEREAS

(A) the CERC, on being satisfied that there is a need to appoint a [**Corporate consultant or Professional Expert**] to conduct a study on “**Solar Thermal and Solar PV Projects**” invited quotations vide notice [here give the No and date of the notice]

(B) the [consultant/Professional Expert] responded to the above notice and submitted his quotations vide his letter [here give the No and date of the quotation of the consultant]

(C) the CERC, on scrutiny of the responses received in response to its above-mentioned notice dated [here give the date of the notice inviting quotations] including the one received from the [consultant/professional Expert] has decided to engage the consultant/professional expert for the above said assignment.

(D) the consultant/professional expert has agreed, to take up the above said assignment

NOW THIS AGREEMENT WITNESSETH AS UNDER:

That the Parties to this Agreement have agreed to terms and conditions mentioned below:

**1. Definitions:**

(i) “Confidential information” means any and all information communicated to the consultant by the CERC duly marked so.

(ii) “Person” shall include any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person;

(iii) “Secretary” means the Secretary of the CERC.

2. **Nature of work:** The consultant/professional expert shall be engaged as [**Corporate consultant or Professional Expert**] to conduct a study on “**Solar Thermal and Solar PV Projects**” [hereafter called the “**Agreement**”] on the following areas but not limited to (individually for States if needbe):-

- 2.1 Study, analyse and suggest the useful life for solar thermal power projects based on international and national experience for life cycle analysis. The study must cover the type of technologies such as ‘Parabolic trough’, ‘Power Tower’, Linear Fresnel or any other technology adopted by solar thermal developers in India and globally
- 2.2 Study, analyse and suggest the capacity utilization factor (CUF) of solar thermal and solar PV projects with and without storage. The study must provide in detail the storage technology adopted under different type and size of solar thermal and solar PV projects.
- 2.3 Analyse international references of solar thermal and solar PV projects with specific analysis of their performance on the basis of project life, CUF, project technologies, cost of the projects and construction time lines.
- 2.4 Analyse variation in CUF of solar thermal and solar PV projects (with and without storage) across different regions in India.
- 2.5 Analyse and suggest the suitable solar thermal technologies in India for utility size and small scale projects.
- 2.6 Study solar policies and schemes pertaining to solar thermal and solar PV projects.
- 2.7 The Consultant shall present the detailed findings of the study including recommendations and suggestions for the CUF and useful life of solar thermal and solar PV projects in the report for the approval of the Commission.
- 2.8 Any other task required in pursuance of achieving the above.

3. **Commencement and duration of assignment:** The above assignment shall commence with effect from [the date of this agreement] and shall be valid for a period of 120 days.

**4. Obligations of the Consultant:**

(i) The consultant shall adhere to the time-frame and submit the deliverables to the Secretary as follows:

- a) Submission of Inception Report at the end of 10 days from the date of signing of agreement
- b) Submission of first progress report by the end of 30 days from the date of signing of the agreement;
- c) Submission of second progress report by the end of 60 days from the date of signing of the agreement;
- d) Submission of first draft of the Report by the end of 90 days from the date of signing of the agreement;

- e) Submission of revised report by the end of 110 days followed by a presentation before the Central Electricity Regulatory Commission.
- f) Submission of Final report at the end of 120 days from the date of signing of agreement or within 60 days from when the report is accepted by the CERC in its meeting, whichever is later.
- (ii) The consultant shall make presentations before the CERC
- (iii) The consultant shall ensure that findings of the study and the contents of the reports to the CERC are not disclosed to any person unless expressly authorized by CERC.

## **5. Entitlements of the Consultant:**

- (i) The consultant/professional expert shall be entitled to Rs. [Here give the amount payable and the schedule of payment and any other provision such as TDS,etc.]
- (ii) The consultant/professional expert shall be paid as per the conditions specified below
  - a. 10% of the professional fee as advance of the total fee of the study at the time of signing agreement.
  - b. 20% of the professional fee on the submission of the inception report of the Study;
  - c. 20% of the professional fee on submission of first Draft Report of the study;
  - d. 20% of the professional fee on submission of Final Report of the study;
  - e. 30% of the professional fee on successful completion and acceptance of the Final Report, at the end of the contract period.

If advance amount is not requested by the Consultant, 10% of the fee can be claimed at the end of the contract period on submission of the final report.

- (iii) The consultant/professional expert shall not be entitled to any other remuneration or reimbursement or perquisites or facilities.

## **6. Restrictive terms:**

- (i) The consultant further affirms and confirms that the current assignment is not and shall not be, in conflict with any of its present obligations to any party with whom he/she/it has association.
- (ii) The consultant further affirms and confirms that he/she/it shall hold all Confidential Information in confidence and with the same degree of care he/she/it uses to keep his/her/its own similar information confidential, but in no event shall it use less than a reasonable degree of care; and shall not, without the prior written consent of CERC, disclose such information to any person for any reason at anytime;

(iii) The CERC shall be entitled to, without prejudice to any other right for civil or criminal proceedings, receive from the consultant/ professional expert a compensation for the damages for violation by him/her/it of any of the terms of the agreement which shall be limited to the total fee of the assignment.

## **7 Performance Guarantee**

The Consultant shall furnish an irrevocable Performance Bank Guarantee of 10% of value amount stipulated in the agreement at the time of signing the agreement and shall be kept valid for 3(three) month after the expiry of the agreement; In the event of extension of assignment/Contract, the Performance Bank Guarantee shall be suitably extended by the consultant. The Performance Bank Guarantee and/or the extended Bank Guarantee shall be kept as security for performance of the contract/work and shall if need be, invoked for breach of any of any of the terms of this Agreement and/or for non-performance.

## **8. Liquidated Damages**

The timelines for deliverables as per clause 4, above shall be strictly adhered by the consultant. The tasks should be completed in a phased manner and overlapping of one or more study shall not be a constraint for adherence to the timelines specified. In case of any delay in adhering to the timelines of completion of study and error/variation in submitted report, liquidated damages shall be levied in the following manner.

### **8.1 Liquidated Damages for delay**

In case of delay in completion of Report/Services in each deliverables/schedule as per clause 4, liquidated damages not exceeding an amount equal to 0.5% (zero point five per cent) per day of the Agreement Value, subject to a maximum of 10% (ten per cent) of the Agreement Value will be imposed and shall be recovered from the payments to be made as per schedule. However, in case of delay due to reasons beyond the control of the Consultant, suitable extension of time with no additional financial commitment shall be granted.

### **8.2 Liquidated Damages for error/variation in thereport**

In case any error or variation is detected in the reports submitted by the Consultant and such error or variation is the result of negligence or lack of due diligence on the part of the Consultant, the consequential damages thereof shall be quantified by CERC in a reasonable manner and shall be recovered from the Consultant by way of liquidated damages from the payment to be made as per clause 5(ii) above, subject to a maximum of 50% (fifty per cent) of the Agreement Value.

In addition to the liquidated damages as specified above, warning may be issued to the Consultant for minor deficiencies noted by CERC. In the case of non-completion of study/ assignment within the stipulated time or extended time, CERC shall have the right to get the study / assignment completed at the risk and cost of the Consultant. In the case of significant deficiencies in services causing adverse effect on the Project or on the

reputation of CERC, other penal action including debarring for a specific period may also be initiated

## **9. Termination of contract:**

At the option of the CERC:

(i) Without any notice: The assignment may be terminated by the CERC, any time, with immediate effect, under following circumstances.

(a) It has come to notice that the consultant/professional expert has been convicted for an offence involving moral turpitude or unethical professional practices. In such context, Performance Bank Guarantee amount will be invoked and encashed. Further legal action may also be taken against consultant.

(ii) With one-month notice: The assignment may be terminated by the CERC, under any of the following circumstance, by giving one months notice and after providing an opportunity to the consultant/professional expert to offer explanation. In case the explanation is not satisfactory, the Performance Bank Guarantee amount will be invoked/encashed:

(a) It has come to the notice of the CERC that the consultant/professional has resorted to fraud or suppression of material information or submission of false information or unethical means to secure the assignment.

(b) It has come to the notice of the CERC that there is a material change in the circumstances of the Consultant based on which the assignment was awarded to the consultant/professionalexpert.

(c) The consultant/professional expert has failed, without any valid justification, to adhere to the time-frame specified by the CERC in the assignment.

(d) The consultant has violated any of the provisions of the agreement.

(iii) The CERC and the Consultant have the option to terminate the assignment on mutual consent by giving notice of one month to the other. This is however subject to adjustment of Liquidated Damages imposed if any for error/variation or delay in completion of the work schedule in that event.

## **10. Effect of termination:**

On pre-mature termination of the assignment any time under the circumstances other than above mention in para 8.1 and 8.2 above, the CERC shall pay the consultant/professional expert, the remuneration for the work performed by him/her/it till the date of termination of the Contract subject to any Liquidated Damage imposed by CERC as per Clause 8 of the agreement.

Provided that in case of any dispute as to what is the entitled remuneration for the work the matter shall be referred to arbitration under the provisions of this agreement.

11. **Notice:** Any notice between the parties shall be in writing and posted to the other party to the last known address.

**12. Arbitration:**

(i) Any difference, dispute, claims which may arise between the parties hereto as to the construction or true intent and meaning of any of the terms and conditions herein contained or as to any payment to be made in pursuance hereof or as to any other matter arising out or as to any other matter arising out of or connected with or incidental to these presents or as to the rights, duties and obligations of any of the parties, such difference, dispute or claim shall be mutually settled amicably by the parties failing which the parties must resort by arbitration in terms of the Arbitration and Conciliation Act 1996 as amended from time to time. In the event of arbitration, CERC shall appoint sole arbitrator which shall be binding on the Consultant.

(ii) The venue of the arbitration will be Delhi/New Delhi and the language shall be English.

13. **JURISDICTION:** In respect of any legal proceedings arising as a result of or relating to or incidental to this agreement, the courts in Delhi/New Delhi alone shall have exclusive jurisdiction.

IN WITNESS WHEREOF, the Parties above named have executed this Agreement of the day, month and year mentioned hereinabove.

Signed by:

Signed by:

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[The consultant/Professional  
CERC]  
party or on his behalf of]

[on behalf of the

in the presence of [witness]  
[witness]

the presence of

Signature.....

Signature.....

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Name.....

Name.....

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