

Rural Electrification Corporation Ltd.
(A Government of India Enterprise)
Scope Complex, Core-IV, Lodhi Road
New Delhi-03, India

Invitation of Bids
For
Empanelment of Consulting Organizations as Lender's Engineer

Rural Electrification Corporation Ltd. (REC) is a Navaratna Central Public Sector Enterprise under Ministry of Power. REC intends to empanel Consulting Organizations capable of working as Lender's Engineer for the Generation projects and T&D Projects being financed by Rural Electrification Corporation Limited.

Consultancy firms desirous of empanelling with REC as Lender's Engineer may submit their sealed bids giving the particulars/details as per Forms I to VIII. The Firms that have already empanelled with REC as Lender's Engineer shall also have to submit their bids for re-empanelment.

Scope of Work:

The scope of work of a Lender's Engineer at various stages of Project Execution is given in **Annexure 1 & 2**. The scope of work is indicative only and REC reserves the right to add/change the scope, if found necessary during execution of work.

Minimum Eligibility Criteria:

- The bidder must have minimum 3 (three) years of experience in the field of Project Engg./Execution/O&M/consultancy of either conventional and/or non conventional Power Projects.
- The bidder must have undertaken at least 2 (two) similar assignments in India or Abroad in the relevant field. The detail may be filled up as per format given at **Form-VI**.
- The bidder must have personnel of various categories and experience as given in **Form-VII**.
- Average Annual Financial Turnover of bidder during last 3 years, ending 31st March of previous financial year, should not be less than Rupees 3 Crores (INR Three Crore) per annum.
- Bidder must be having a Registered Office with legal presence in India.
- Bidder must warrant that it is financially solvent and is a profit making company during the last two accounting years based on audited accounts.
- Bidder should be ISO Certified preferably.
- No consortium/subcontracting shall be allowed to/with other firms.

Submission of Bids:

The bidders are requested to submit their competitive offer as per Form I to VIII and **along with duly signed accepted Terms & Conditions enclosed**, which are part and parcel of Bid Forms. The bid for empanelment needs to be accompanied with following :

- i) Demand Draft or Banker's Cheque of Rs.25,000/- towards **non - refundable processing fee**, in favour of "**Rural Electrification Corporation Ltd.**" payable at New Delhi.
- ii) Bids **Form I to VII**.

iii) Financial/Price Bid as per **Form-VIII**

The bid offer with duly signed REC's terms & conditions must be submitted alongwith sealed envelope super scribing the envelope "**Bids for Empanelment of Lenders' Engineer in REC**" and "**DO NOT OPEN BEFORE 5th MAY 2011.**" The envelopes shall be marked as below:

- Envelope-1** - Non refundable Processing Fee of Rs. 25000/-
Envelope-2 - TECHNOCOMMERCIAL Bid
Envelope-3 - PRICE Bid

Time line for bid process

Issue of RFP/NIT	5 th April 2011
Pre-bid meeting	2 weeks from the date of NIT.(18.04.2011)
Last date & time for receipt of bid	5 th May 2011 & 3:00 PM
Date & Time of opening of technical bids	5 th May 2011 & 4:00 PM
Date & Time of opening of Financial bids	To be notified later to eligible bidders.
Place of submission of bids	Tender Box on Ground Floor Rural Electrification Corporation Ltd. Scope Complex, Core-IV, 7, Lodhi Road New Delhi-03, India
Place of Opening of bids	Rural Electrification Corporation Ltd. Scope Complex, Core-IV, 7, Lodhi Road New Delhi-03, India
Address for communication	Additional General Manager(Gen.-I)/Chief Manager (Gen.-I) Rural Electrification Corporation Ltd. Scope Complex, Core-IV, 7, Lodhi Road New Delhi-03, India Phone: 011-43091518. 43091612 Fax: 011-24368554 e - mail: p.baburaj@recl.nic.in & bhupender_g@yahoo.com

Opening of Tenders

Envelope-1 and Envelope-2 of the Bids shall be opened at 4:00 PM on 5th May 2011 in the presence of Authorized representatives of bidders at above mentioned REC Office. The format for Letter of authorization for attending bid opening is enclosed as **Form IX**. Envelope-3 (Price Part) of the tenders of Techno Commercially qualified Bidders shall be opened at a later date with due information to bidders.

Rate Finalization

The price bid of qualified bidders shall be opened in the presence of authorized representative of bidders. After finalization of L-1 bidder. All other bidders shall have right to match their rates with rates quoted by L-1 party, so as to have uniform rates for all parties. **An undertaking to this effect has to be submitted along with their offer for aligning with the rates of the L1.** By doing so, the all prospective Lender's Engineer will get equal chance in getting assignment from REC.

Methodology of award of work

The work will be awarded on priority starting from L1 to Ln. The geographical location benefit will also be taken into consideration and the decision to award the work will be at the sole discretion of REC.

The work will be awarded on rotational basis, i.e. the party awarded the first work will be approached again when the entire cycle is completed.

Extra Work

For any extra/additional work assigned by REC beyond the scope of work, the services shall be payable **per man days basis**.

Important Notes:

- 1) Firms not having minimum relevant experience in the respective field as per Form-VI need not to apply.
- 2) Firms not having minimum number of personnel as per Form-VII would need not to apply.
- 3) Firms not having Service Tax Registration or not having applied for Service Tax Registration before the last date of Receipt of the requests will be rejected.
- 4) REC Ltd. reserves the right to accept or reject any other request for empanelment also without assigning any reason. Firms empanelled will be informed suitably.
- 5) The bid submitted without the acceptance of REC's terms & conditions shall be summarily rejected.
- 6) No further discussions/interface will be granted to bidders whose bids have been disqualified.
- 7) REC reserve the right to accept or reject any or all tenders in part or in total without assigning any reason and REC decision shall be final and binding on all the parties.
- 8) The bid not submitted in the prescribed bid form shall be summarily rejected.
- 9) If the last date of submission and opening of bid is a holiday, the bids shall be opened on the next working day.
- 10) Canvassing in connection with the bids is prohibited and the tenders submitted by the contractor who resort to canvassing are liable for rejection.
- 11) The companies/firms banned or blacklisted by Govt. Institutions in India will not be eligible to participate. An undertaking to this effect signed by authorized signatory has to be submitted.
- 12) If the performance of the assignment found unsatisfactory, REC shall have the right to terminate the work assigned without any further notice/correspondence. No fees will be paid once the notice issued to the party. In case of unsatisfactory service or discontinuation of service by LE, REC will engage alternate LE at the sole risk of the existing LE.

Chief Manager (Generation-I)

REC Ltd., New Delhi

Enclosures :

- 1) Form I to VII
- 2) Form VIII (Form for Price Bid)
- 3) Authorization Letter (Form IX)
- 4) Broad Scope of Work (Annexure 1 & 2)
- 5) REC Broad Terms & Conditions (Annexure-3).
To be submitted by bidders to REC along with Bid.

FORM-I

APPLICATION FOR EMPANELMENT OF LENDERS ENGINEER

To,

Chief Manager(Generation-I)

Rural Electrification Corporation Ltd. Core- 4, Scope Complex,
7, Lodhi Road, New Delhi- 110003

Sir,

We undersigned offer to apply for empanelment with REC Ltd. as a Lender's Engineer as per details enclosed.

We agree to abide by this bid offer for the period upto six month from the date of opening of Price Bid and the conditions of this offer shall remain effective & binding upon us for the acceptance at any time before the expiry of the said period.

We understand that REC reserves the right to accept /reject any bid, without assigning any explanation or reason and decision of REC management on the subject shall be final and binding on all the bidders.

Name of the Organisation	
Year of Establishment	
Affiliates / Collaborators*	
Head Office Address , E-mail & Contact Nos. with Name of Contact Person **	
Experience in Power Sector in the fields of System Engineering, Project Monitoring and Execution and Equipment Specification and Design (no. of years)	
Service Tax registration copy / Acknowledgement of Service Tax Application	To be enclosed
Availability of	Yes/No (Attach CVs as per Form II)

Minimum No. of Personnel for Various Categories (As per Form VII)			
Specific Type and Categories, applied for empanelment.	: To be enclosed as per Form - V		
Annual Turnover (last 3 financial years)	Year: (Rs. In lakhs	Year: (Rs. In lakhs)	Year: (Rs. In lakhs)
Key Personnel with relevant experience (Professionals with Relevant Experience)	Number (Brief of qualifications/experience of each of the personnel to be enclosed as per Form – II)		
Category Wise Professional Experience of the Organization in System Engineering, Project Monitoring and Execution, Equipment Specifications and Design	To be enclosed as per Form – III (Fill separate forms for different categories applied for)		
Brief of Major Assignments (Category Wise) undertaken i) As Lender’s Engineer ii) As Owner’s Engineer iii) In the fields of System Engineering, Project Monitoring and Execution, Equipment Specifications and Design (Role to be clearly stated)	To be enclosed as per Form – IV (Fill separate forms for different categories applied for)		
Latest Audited Annual Accounts	: To be enclosed		
ISO or any other relevant certification :	: To be enclosed		
Any other Documentary Evidence in support of the application may be enclosed with the application. If such evidence is not			

enclosed , and is deemed necessary REC reserves the right to ask for such evidence at any stage	
--	--

- * Details of Collaborators and Collaboration Agreements to be given separately
- ** Similar Details for all Regional/Other Main Offices should be given separately

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

FORM - II
BRIEF CVs OF KEY PERSONNEL WITH RELEVANT
EXPERIENCE

Name

Date of Birth

Academic Qualifications

Employment Record: (Starting with present position list in reverse order every employment held. List all positions held giving dates, names of employer, and location of assignments. For experience in last ten years, also give types of activities performed and owners' references, where appropriate.)

Detailed Tasks Assigned: _____

Relevant Consultancy assignments worked on in the Power Sector and in Infrastructure sector along with, title of assignment, clients name, location & scope of work in not more than two lines each : _____

Membership of Professional Societies : _____

Total experience in Number of years : _____

Years with Present Firm : _____

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

FORM - III

CATEGORY WISE PROFESSIONAL EXPERIENCE OF THE FIRM

Category (As per Form V) :
Experience In years :
Collaborations/JVs (if any) :
Areas of Professional experience : **Range of Services Offered**

Experience in India:

- No. of Assignments undertaken as Lender's Engineer:
- List of assignments with clients name & location against each assignment, Duration in Months. :
- No. of assignments undertaken as Owner's Engineer:
- List of assignments with clients name & location of assignment, :
Duration in months
- No. of assignments undertaken in the fields of System Engineering, Project Monitoring and Execution, Equipment Specifications and Design:
- List of assignments with clients name & location of assignment, :
Duration in months

Experience in Abroad :

- No. of Assignments undertaken as Lender's Engineer:
- List of assignments with clients name & location against each assignment, Duration in Months. :
- No. of assignments undertaken as Owner's Engineer:
- List of assignments with clients name & location of assignment, :
Duration in months
- No. of assignments undertaken in the fields of System Engineering, Project Monitoring and Execution, Equipment Specifications and Design:
- List of assignments with clients name & location of assignment, :
Duration in months

Other Experience Relevant to Lender's Engineer Role (Please see Form-VI)

Summary:

- Total No. of assignments undertaken in India:
- Total No. of assignments undertaken abroad:

Major Legal Cases / Disputes pending against the firm and steps being taken to resolve them

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

FORM - IV

CATEGORY WISE BRIEF ON RELEVANT ASSIGNMENTS.

Not more than a total of 10 in last 10 financial years (please fill separately for each of the 10 assignments)

Category applied for: As per Form V

Size: _____ MW (Unit Size * No. of Units) / _____ kV

Project Details

Project Name & size with configuration	Location details	Owners Name & address	Lead Lenders Name & Address	Commissioning Date/ In case of ongoing project the likely commissioning date & the percentage of project completed as on date.....	Scope of Work Please list out all the major works taken up	Work order No. & date with Value in Rs. (Enclose copy of work order)

Service Details: Role: Lender's Engineer/Owner's Engineer/ Others like System Engineering, Project Monitoring and Execution, Equipment Specifications and Design (Specify)

(Strike out whichever is not applicable)

Start date of Assignment	End date of Assignment	In case of ongoing project the likely end date	Total Man Months	Names of the Key Persons associated & no. of persons	Name of associated firms (if any)	Approx. value of services (in Rs.)

Note: Experience if any, in handling projects with Unit Sizes larger than 500 MW (i) with or (ii) without super critical technology must be highlighted separately in the scope of work.

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

FORM - V

Project Type and Category Applied for Empanelment

Project Type:

- 1) Thermal
- 2) Hydro (above 25 MW)
- 3) Wind, Bio mass, Solar and Other renewable including Hydro upto 25 MW.
- 4) Transmission

Categories

1. Thermal

- 1.1 Project Size Upto 250 MW
- 1.2 Project Size Above 250 - 1000 MW
- 1.3 Project Size Above 1000- 2000 MW
- 1.4 Project Size Above 2000 MW

2. Hydro

- 2.1 Project Size Above 25-250 MW
- 2.2 Project Size Above 250- 1000 MW
- 2.3 Project Size Above 1000 MW

3. Wind, Bio mass, Solar and other renewable including Hydro upto 25 MW.

4. Transmission

- 4.1 Upto 400 kV
- 4.2 Above 400 kV

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

Minimum Qualifying Requirement for Lender's Engineer

Type	Category	Experience of Firm in Power Sector	Experience of Firm in relevant category	Number of assignment undertaken in India	Number of assignment undertaken abroad
Thermal	Project Size Upto 250 MW				
	Project Size Above 250 - 1000 MW				
	Project Size Above 1000-2000 MW				
	Project Size Above 2000 MW				
Hydro	Project Size Above 25-250 MW				
	Project Size Above 250-1000 MW				
	Project Size Above 1000 MW				
Renewable	Wind				
	Bio Mass				
	Solar				
	Hydro upto 25 MW				
	Others, if any				
T&D	Upto 400 kV				
	Above 400 kV				

Minimum Standard Set For Various Categories of Personnel*

Generation Projects including Renewable Energy Projects

Category of Personnel	Total Experience	Minimum Experience in relevant field	Relevant Qualification	Minimum (No) Required
A. Specialist (Mechanical)	15 years	10 years	BE or equivalent (Mech.)	3
B. Specialist (Electrical)	15 years	10 years	BE or equivalent (Elec.)	3
C. Specialist (Control & Instrumentation)	10 years	5 years	BE or equivalent (Elec./Electronics/C&I)	2
D. Contracts (Specialist)	5 Years	3 Years	Law Grad./M.B.A/B.E	2
E. Specialist (Civil)	15 Years	10 Years	BE(Civil)	3

Transmission Projects

Category of Personnel	Total Experience	Minimum Experience in relevant field	Relevant Qualification	Minimum (No) Required
A. Specialist (Mechanical)	15 years	10 years	BE or equivalent (Mech.)	1
B. Specialist (Electrical)	15 years	10 years	BE or equivalent (Elec.)	3
C. Contracts (Specialist)	5 Years	3 Years	Law Grad./M.B.A/B.E	2
D. Specialist (Civil)	15 Years	10 Years	BE(Civil)	3

****Attach CVs of above personnel as per Form II***

**Rural Electrification Corporation limited
(A Government of India Enterprise)**

PRICE BID FORM

(The Bidders should submit their offer only in Price Bid Form for the acceptances of REC)

The project shall be categorized as mentioned in Form-V as per its type and the prospective Lender's Engineer has to quote their rates minimum lump sum rates against each category for items Sr. No. A(i), A(ii) & A(iii):

(A)	Category / Project Size----->			
(i)	Techno Economic Appraisal	Lump Sump Charges		
(ii)	Construction Monitoring & Drawdown Review of each drawdown	Lump Sump Charges for each review /for each drawdown		
(iii)	Operational Review after COD	Lump Sump Charges for each review		
(B)				
(i)	PG Test/Repeat Test for any specific additional requirement of the client (to be quoted in man days charge only)			

Note:

- The prices should be quoted for complete scope of work. The taxes and duties will be as per actual over and above the quoted price.
- Rates for item A(i), A(ii) and A(iii) to be quoted considering two units as standard configuration for capacity range upto 1500 MW and three units above 1500 MW station capacity in case of thermal/hydro power station. Percentage variation of the charges may also be mentioned for variation of no. of each additional or reduction of unit above/below 2 or 3 units applicable.
- In Combine Cycle Power Project (CCPP), the units module combination of 1 GT+1 ST or 2 GT+ 1 ST will be considered as a single unit or module. Rates for item A(i), A(ii) and A(iii) to be quoted considering two modules as standard configuration for the above mentioned capacity range upto 1000 MW and 3 units above 1000 MW station capacity in case of CCPP stations. Percentage variation of the charges may also be mentioned for variation of no. of each additional or reduction of module for a given station capacity.

(Signature of duly authorized person on behalf of the bidder)

(Affix official seal of Signatory)

LETTER OF AUTHORIZATION FOR ATTENDING BID OPENING
(To be submitted at the time of bid opening)

To,
AGM(Generation-I)
Rural Electrification Corporation Ltd,
Core -4, SCOPE Complex,
7 Lodi Road,
New Delhi -110003.

Subject: Authorization for attending bid opening on in the Tender “**Empanelment of Consulting Organizations as Lender’s Engineer for Generation and T&D Projects.**”

Following persons are hereby authorized to attend the bid opening for the tender mentioned above on behalf of in order of preference given below:

Order of Preference	Name	Specimen Signatures
I.		
II.		
Alternate Representative		

Signatures of bidder
Or
Officer authorized to sign the bid Documents on behalf of the bidder.

Note:

1. Maximum of two representatives will be permitted to attend bid opening. In cases where it is restricted to one, first preference will be allowed. Alternate representative will be permitted when regular representatives are not able to attend.
2. Permission for entry to the hall where bids are opened may be refused in case authorization as prescribed above is not recovered.

BROAD SCOPE OF WORK FOR LENDER'S ENGINEER (INDICATIVE)
FOR GENERATION PROJECTS INCLUDING RENEWABLE ENERGY PROJECTS

PHASE I: DUE DILIGENCE (Pre Financial Closure)

1 Critical Review of Project System Design and Agreements covering :

- 1.1 Conceptual Design
- 1.2 Power Purchase Agreement
- 1.3 Turnkey / Package/ Sub package Contracts including non-EPC items for Engineering, Procurement, Construction, Start-up
- 1.4 Ash Utilization Plan
- 1.5 Adequacy of power evacuation arrangements
- 1.6 Fuel Supply and Transportation Agreement(s), if applicable
- 1.7 Infrastructure availability & adequacy
- 1.8 Environmental issues, if any

The above review would also include:

- a. Comment on additional infrastructure requirements, if any; land requirement & availability, adequacy & suitability of backward (fuel, water etc.) & forward linkages (evacuation) of the project so as to perform as per design and envisaged project completion schedule. This would cover among other things the review of following:
 - Review and certify the adequacy and suitability of land, including the land required for ash disposal, raw water pump house, raw water pipeline, power evacuation etc.
 - The quality and quantity of reserves and production in the nominated mines, if any, as per the coal linkage for the Project and its status for matching the Project requirement for the entire tenure of loan
 - Fuel Supply Agreement, to ensure that it is satisfactory and adequate regarding the quantities and schedules for fuel supply, the agreements for delivery of fuel, specification of fuel quality and quantity, procedure for setting base price and adjustments to price for deviations from specifications, and the terms of liquidated damages and other obligations.
 - Review the adequacy of the water availability and requirement for the project, sourcing plans, etc. Review the route alignment for water pipeline and in the event of the route intersecting railway line, required permission from railway authorities. Review the ROW for the water pipeline from concerned authority
- b. Review the adequacy of permits and licenses required for construction and operation of the project. Review of documentation consistency (provisions of various technical contracts, conformance with PPA, TEC etc & operating/licensing requirement).
- c. Assessment of major components and systems with regards to their suitability and adequacy to perform with respect to project capacity, regulatory compliance and environmental stipulations.
- d. Review and comment on the selection and design of the equipment with respect to their effect on the anticipated service life of the facility, the degree of maintenance needed to meet performance requirements,

long term availability and anticipated performance degradation against the Company's obligation under the PPA over the term of the Lenders' interest in the project.

- e. Comment on completeness of the scope of contracts, (including EPC / non EPC / package contracts, FSA and FTA, others), and schedule for their award in line with the project implementation schedule, inconsistencies or flaws among agreements, if any (PPA vis a vis EPC / non EPC / package contracts, PPA vis a vis FSA and FTA, PPA vis a vis evacuation agreement), that would impair the technical performance of the Project, or the satisfactory and efficient operation of the Project and its economic viability. The appropriate risk mitigation measures to overcome the above inconsistencies shall also be suggested. Included in this responsibility will be an analysis of the capabilities of the sponsors, contractors and primary subcontractors to satisfactorily perform their contractual obligations.
- f. Review of the contractual arrangements for execution (awarded EPC contract / non-EPC contracts / package contracts for BTG, civil works and Balance of Plant specifying amongst others performance guarantees, completion schedules, liquidated damages and payment terms) to ensure that it is in line with the parameters of the project and conditions of sanction of financial assistance. Reasonability of the contract prices and adequacy of the payment terms of the EPC contract / package contracts with regards to the industry norms. Comments on adequacy of the inspection and testing procedures of the contract documents for acceptance of plant & machinery. Review the competence of all such contractors. Review and certify the LDs, including caps on LDs, provided in the EPC contract are in line with the industry standards and should be covering at least one year debt servicing obligations. Comment on enhancement of the same, if required.
- g. Adequacy of project schedule vis-à-vis the contract provisions for guaranteed completion, associated liquidated damages, other penalty amounts, mechanisms and their comparison with the likely loss of revenue for the project in case of their occurrence and additional mitigation measures required if any. Review the schedule for award of Project contracts adhering to or improving upon the envisaged implementation schedule for the Project
- h. Critical review, covering compliance / readiness status, on compliance of the special conditions of sanction (those specified by LENDER, including pre-commitment, pre-disbursement and other special conditions) for achieving financial closure by the envisaged date and their impact on the project implementation, if any.
- i. Critical review on the procurement procedure followed by the Company
- j. O&M plan
- k. Review the reasonableness of the cost incurred for preliminary and preoperative expenses.
- l. Review the adequacy of the insurance contracts
- m. Review the envisaged scope of the Project for its adequacy for successful completion, successful operation during the repayment period with respect to project capacity, regulatory compliance and environmental stipulations.
- n. Review the battery limits of the power plant, the common facilities and the cost break up.
- o. Review tie up of the balance requirement of coal for the project
- p. Review the NOC/Forest clearance from MoEF/competent authority and Right of way from competent authority for the transmission lines if required
- q. LE shall vet the cost of project. LE will also examine the reasonability of the contract prices
- r. Review contracts for evacuation facilities, railway siding and associated facilities. Shall vet these contracts including provision for LDs and performance guarantees. Examine the reasonability of the contract prices
- s. Review the power evacuation scheme for the project and the power evacuation facilities to be in place to facilitate synchronization, tests and evacuation commensurate with the commissioning schedule

- t. Review the O&M arrangements and agreement for the same with the O&M contractor. Review the competence and experience of the contractor.
- u. Review of plant design requirement specifically for Hydro Projects covering Site suitability, Hydrology, Geotechnical Investigations, Infrastructure requirements etc.
- v. Review of technical inputs to the project financial model and model sensitivities.

2.0 Review and acceptance of disbursement schedule

This shall include,

- 2.1 Comment on the practicability of the envisaged implementation schedule
- 2.2 Review of project schedule clearly indicating the likely monthly physical progress to be made by the project and the corresponding monthly requirement of funds. This shall also include review of the dispatch schedules for various items covered under the scope of EPC / non-EPC / package contracts.
- 2.3 Review of schedules for scrutinizing inspection certificates for main equipment.
- 2.4 Review of disbursement schedules indicating the monthly-anticipated debt draw down requirement for the project consistent with the project implementation schedules and dispatch schedules under the scope of EPC / non-EPC / package contracts.

PHASE II: IMPLEMENTATION

Post financial closure, the Lenders' Engineers shall:

- 1 Monitor the physical progress of the project on a frequency as desired by LENDER (preferably on a quarterly basis), identify hurdles if any and suggest measures required thereof to ensure progress of the project as per schedule and submit reports to LENDER.
- 2 Review the draw - down requests during the construction phase by keeping a track of the project progress and invoicing. The LE shall identify and verify the legitimacy of items covered under the scope of contract against which the draw down will take place for the coming quarter and shall advise the TRA agent for the project under intimation to LENDER. The LE shall identify the various heads and explode them to detail the items for which the invoicing is projected to be done. Any deviation existing in the draw down schedule for the coming quarter from the disbursement schedule (item wise) prepared at the time of due diligence shall be immediately brought to the notice of LENDER.
- 3 Issue drawdown certificate as per prescribed format in the Loan Agreement for every drawdown request submitted by the borrower. Further, compliance status for each and every condition precedent to first draw down and subsequent drawdown as existing in the Loan Agreement while issuing drawdown certificate.
- 4 Review of non EPC/ package contracts including inter-alia evacuation arrangements, railway siding and associated facilities etc. for reasonability of the contract prices, adequacy of liquidated damages and performance guarantee, implementation schedule amongst others in line with LENDER's terms of sanction.
- 5 Co-ordinate with the Lenders' Financial Advisor as may be necessary and as advised by Lenders for carrying out the tasks assigned under its scope.
- 6 Scrutinising of Inspection Certificate of main equipment as per schedule and submission of a report thereon.
- 7 Report on all the disbursement, made since the last monitoring visit, incorporating the items on which it was utilised for the project and to report on the disbursement schedule for the next two/three months.
- 8 Carry out periodic site visits (as desired by LENDER) to ensure that the developer's project management team is adequately protecting the Lenders' interests.

- 9 Witness site performance and efficiency tests and to certify their compliance with the guaranteed parameters including comment on accuracy of Contractor's test report and any discrepancies or errors noted.
- 10 Monitor and oversee start up, commissioning and certify when project's provisional and final completion is achieved.
- 11 Review of the Operations and Maintenance Plans
 - 11.1 Review of O&M Plan for meeting commitments in the PPA.
 - 11.2 Review the annual O&M budget for the plant including- routine maintenance expenses, establishment and insurance cost, spares etc. vis-à-vis the allowable limits for O&M expenses in the PPA or reasonable provision of the same (in case PPA does not provide for it).
 - 11.3 Review of major overhaul plans indicating the major activities, their schedules.

PHASE III: POST COMMISSIONING

Lenders' Engineers shall submit

- 1 A signed Project Completion Certificate. Completion Report to include:
 - Facility Design versus actual installation,
 - Adequacy of facility interconnection for fuel, power, water and other requirements.
 - Compliance with the regulatory (permits and licences) and environmental stipulations
 - Confirmation that required permits and licenses have been obtained for operation
- 2 A report immediately after the completion of the first three months operation of the project, which shall include the results of the performance guarantee tests and reasons for deviations in the performance, if any, from the guaranteed performance parameters, it's technical & financial implications on the project in respect of various agreements. Suggest remedial measures if any from Lenders' point view.
- 3 Design of a reporting system for the operation of the project including procedures and report formats.
- 4 Review of the O&M budget for the first two years of the operation of the plant.
- 5 Any change in the major overhaul plans for the project indicating the operating time between major overhauls and projected cost for these overhauls.
- 6 The LE shall also make a performance assessment report of the project till 2nd year of operation since commissioning at a frequency (quarterly/half yearly) decided by Lenders after completion of PG test etc.

OTHER TASKS

The Engineer will report on any other issues detected that might jeopardize the effective construction and operation of the plant as conceived by the Developers. For all issues raised, the Engineer will attempt to suggest mitigation measures that will allow the project to proceed as formulated. At a minimum, the LE shall also:

- 1 Attend (as needed) Lenders' syndication and negotiation meetings
- 2 Attend (as needed) meetings between Lenders' and Borrowers.
- 3 Assist the Lenders' Insurance Adviser/ Legal Counsel/Lenders Financial advisors

SCOPE OF WORK FOR LENDER'S ENGINEER – TRANSMISSION (INDICATIVE)

The Scope of Work is divided into three phases:

Phase I: Project Review and Assessment (Before Financial Close)

Phase II: Construction Monitoring and Performance Test Monitoring and Certifications

Phase III: Annual Operational Review

Detailed Scope of Work

The services to be provided by Lender's Engineer will cover, but will not be limited to, the following tasks:

Phase I: Project Review and Assessment (Before Financial Close)

The Lender's Engineer (LE) shall provide professional engineering consultancy services to the Lenders or other party so designated by the Sponsors and approved of by the Lenders in writing (the "Client"). The LE's review and recommendation (where appropriate) shall include, but will not be limited to, the following:

- 1. System Design Requirements:** The Lender's Engineer will assess the compatibility of the design basis with:
 - Requirement of Bulk Power Transmission Agreement/ Implementation Agreement (BPTA/IA)
 - System operating requirements
 - Site characteristics and its acceptability for the development proposed.
 - Standard industry norms
 - Industry Regulations

- 2. Design of Project Elements:** The Lender's Engineer will review the conformance of Design of the Project components as specified in the bid document. Major equipment components and systems will be reviewed by mechanical, electrical, civil/structural, and environmental engineers with regard to:
 - Capability of design to perform as required in all anticipated operating modes meeting all health and safety standards.
 - Capability of design to meet system availability and reliability requirements.
 - Conformance of design with "Prudent Utility Practice", i.e., industry standards.
 - Any major equipment component or system design feature that does not appear to meet design, performance or operating requirements or fails to adhere to good engineering practice will be identified. The Lender's Engineer will provide an opinion on the quality of the design and equipment with respect to their effect on the anticipated service life of the facility, the degree of maintenance needed to meet performance requirements, long-term availability, and anticipated performance degradation over the term of the Client's interest in the Project.
 - The extent to which each major equipment component proposed for the Project has been operating commercially under similar conditions and comment on the anticipated impact of limited operating experience, where applicable, on system performance including expected system degradation.

der's Engineer will note the significant issues requiring review, which could not be addressed at this time.

The purpose of this review would be to determine if the equipment can meet the project requirements and to identify any risks associated with the Project as planned.

3. *BulkPower Transmission Agreement/ Implementation Agreement:*

Review the BPTA/IA and technical annexes and comment on their appropriateness given the technologies utilized. Review and comment on the Project's ability to meet contracted capacity and comment on forced / maintenance outages. Evaluate the dispatch arrangements and overall system compatibility with the Project. Assess any other preconditions required and to be taken care of by PGCIL including any transmission line extensions or substation reinforcements. Review force majeure conditions and comment on their consistency with other Project contracts/documents.

4. *Interconnection with Grid:* Review the plans for interconnecting the transmission lines with the grid system as specified under the Implementation Agreement

5. *Construction Contracts:* The Lender's Engineer will review the following elements relating to construction contracts for different phases of the projects:

- Contractor's scope of supply
- Terms and conditions
- Technical provisions associated with Contractor's and Owner's responsibilities.
- Provisions for qualifying and selecting subcontractors.
- Provisions for liquidated damages
- Limits on total liability and individual liability caps.
- Change order procedures.
- Scheduling and laydown provisions for interconnecting to off-site (out-of-scope) facilities.
- Evaluation of project schedule for different phases and potential for delays, damages or force majeure provisions for spares.

6. *Construction Schedule:* The Lender's Engineer will review the proposed construction milestone schedule for each phase of the Project and determine that adequate provisions have been made for the following:

- Design
- Equipment procurement
- Equipment fabrication
- Shipment / Transportation
- Installation
- Start-up
- Testing
- Unknown or variable elements in the schedule

7. *Total Project Cost Estimate:* The Lender's Engineer will review the following:

- Scope of supply of construction contracts and corresponding cost estimate methodology for each phase of the project.

onstruction contracts and cost impact, if any.

- The cost estimate for all remaining facilities outside the Contractor's scope of supply to assess the methodology used to develop the total Project cost estimate.
- Compare the total Project cost estimate to that of similar projects.
- Evaluate to what extent cost items are based on estimates versus an actual fixed price and identify those items that are not fixed price along with the possible risk associated with these variables.
- Opine on the adequacy of the contingency and total project cost estimate.

8. *Draw down Schedule:* The Lender's Engineer will review the draw down schedule and comment on whether each cash draw down amount is consistent with the Project schedule and construction contracts requirements.

9. *Review Performance Guarantees:* The Lender's Engineer will review and comment on the guarantees provided by the contractors for the project to assess the potential for compliance with the applicable Project contracts, IA, BPTA and permits.

10. *Review Performance Testing Criteria:* The Lender's Engineer will review the system performance test criteria as proposed by the contractors and comment on the following:

- Review of the Performance Test plans and procedures.
- Reasonableness of performance criteria.
- Ability of the test to unambiguously demonstrate performance of the systems, ability of the transmission system to withstand adverse impacts, and other characteristics of the Project to determine whether contractor's guarantees are met.
- Adequacy of the test design.
- Ability to extrapolate test results over the expected life of the Project.
- Conformance of test procedures to established codes and standards for testing transmission system equipments.

11. *Operation and Maintenance:* Review and comment on the proposed arrangements for operation of the Project. Also review:

- the operation and maintenance programme of the Project Company and comment on whether it is an appropriate structure including O&M fee structure and start up procedures;
- spare parts, maintenance reserve requirements and maintenance schedule regarding scheduled and forced outage requirements in a timely and cost effective manner;
- staffing arrangements and any proposed operator training programmes;
- the adequacy of the proposed budget for O&M costs; and
- compensation, bonus, and penalty systems regarding whether they may be cost effective and appropriate for a long-term operation plan;

12. *Technical Input to the Project Pro Forma:* The Lender's Engineer will review and comment on all inputs to the Proforma which have a technical content, including but not limited to the following:

- The technical data input to the Client's or the Owner's Project Pro Forma.
- The model used to estimate annual operating costs and annual revenues from the

y accounts for variation in, but not limited to, ambient temperature, estimated system availability etc.

- How well the assumptions and projections made in the Pro Forma are supported by contract guarantees, performance testing, quality of the design and equipment, and the experience of the Project participants.
- That the model accurately reflects the performance requirements of the Project documents (to include, but not limited to the IA, BPTA, the construction contracts, and O&M agreement).

13. Project Pro Forma Sensitivities: The Lender's Engineer will conduct analysis on the Project Pro Forma as directed by the Client. The analysis shall include, but not be limited to, the following:

- Performance shortfalls compared to liquidated damages payments.
- Determination of acceptable levels of End Finance requirements

14. Review of Permits and Licenses: The Lender's Engineer will review the approvals, permits and licenses required for the construction and operation of the Project to confirm that Project an operate in full compliance with the permits. Lender's Engineer will:

- Assess the capability of the Project as designed to meet the technical requirements specified in the Project's permits licenses.
- Identify what major permits have not been obtained and comment on the likelihood that they may or may not be able to be obtained in a timely manner to support the Project schedule.

15. Consistency of Project Document: Review all the Project contracts/documentation to identify missing, inconsistent and unresolved issues. Review and assess the consistency of various contract provisions within each project contract. Evaluate the Project's capability, as designed, to meet the Project's operating, contractual, and licensing requirements.

16. Other: Report on any other issues detected that might jeopardize the effective construction and operation of the power transmission lines as conceived by the Project Company. For all items raised, suggest mitigation measures for any deficiencies that have been identified. Consider the potential for any unforeseen risks on the Project that could lead to possible cost or time overruns.

17. Reports: Prepare a Preliminary Report for the Lenders' and the Project Company's review. The report will include the LE's professional opinions concerning each area of review. The report would also include an Executive Summary. Copies of the draft report will be simultaneously provided to the Lenders and the Owner for review and comments. The final report will be prepared and submitted on receipt of all comments from Lender & Project Company.

18. Process: The Preliminary Report and OI List will be circulated to the Lenders and the Owner within a timeframe agreed at the outset of the assignment. Following circulation of the LE's preliminary report, the LE will meet with Lenders and the Owner to clarify and the findings contained in the Preliminary Report. Once the Lender's concerns and comments have been resolved to the satisfaction of the Lender, the LE will prepare the Final Report. The Owner and the Sponsors guarantee that they will not influence

port and the Final Report.

- 19. Additional Support:** The LE will provide the Lead Lender additional support in responding to the questions of the other Lenders' advisors and to the questions of prospective lenders during the syndication of the financing.

Phase II. Construction Monitoring and Performance Test Monitoring and Certifications

- 1. Project Implementation Status and Site Visits:** Visit the site every 3 months during the construction period and during the commissioning and test run period to perform the following monitoring tasks:

- Observe the Sponsor's construction supervision program and whether there is adequate construction supervision staff on site; and whether the contract management and control team is sufficiently experienced and qualified, to the best of LE's knowledge and belief.
- If requested, review the most important or critical factory tests and inspections for major plant equipment. The LE shall review results of factory testing.
- Evaluate the Project implementation progress through field inspections and reviewing Project progress reports;
- Evaluate the observed quality of completed works, and review quality control reports;
- Review whether the construction work is performed in accordance with the approved design;
- Determine whether construction, environmental, health and safety standards are being enforced and are as per the existing laws of India;
- Issue certificates of disbursement as per the loan agreements that shall confirm, to the best of LE's knowledge and belief that observed construction progress matches the cash disbursement schedule, that agreed-upon environmental, health and safety and social measures are in place, that construction and contract management is in place, and that operator recruitment and training is underway; and
- Prepare a written report with support photographs after each site visit and distribute the completed report within 10 calendar days after such visit.

- 2. Change Orders:** Review and consider for approval any construction variation or change order in excess of such threshold as may be specified in the financing documents and report these on a cumulative basis in the semi-annual site visit reports. Assess impact of proposed change on operational and maintenance costs, whether change in cost is reasonable and the impact on project completion.

- 3. Schedule and Cost Deviations:** Identify and report to the Lenders any known changes or events that could lead to deviations of the Project schedule and costs from the agreed targets, due to unforeseen events such as: foundation conditions, accidents, disputes between contracting parties, design flaws, political events, unusual weather, equipment failures, factory strikes, construction labour disputes, and other similar events that might impact the Project.

- 4. Monitoring and Certification of Disbursements:**

Review the contractor's milestone or drawdown requests and supporting documentation. Certify progress claimed through the achievement of milestones on each cash drawdown

each drawdown). Monitor and report in the quarterly reports on the disbursement of Project funds disbursement program, Project implementation schedule, and budgeted drawdown schedule.

5. **Review of PunchLists:** Three months prior to the completion of Project construction period, participate in the final "punch" lists and facility walk down to record all work requiring completion and known defects needing correction, and monitor the completion of all outstanding work to ensure the achievement of a fully completed Project of high quality.
6. **Performance Tests:** Review testing methodology and schedule based on the performance testing Procedures specified in the construction contracts, IA, BPTA and other documents. Workings Lender's LE, review, as reasonably required, in such performance tests that relate directly to plant performance and reliability, including; (a) the site performance tests of the major equipment components; (b) testing of the complete plant upon completion. The results of all performance tests will be reviewed by the LE and reported in a special Lenders overall performance test report, separate from the quarterly reports within the time period requirements of the construction contracts. The LE shall issue, in accordance with the loan agreements, certificates of project partial completion and project completion known to LE. These completion certificates would not necessarily correspond to those in the individual construction contracts.
7. **Lender's Engineer Certificates & Construction Completion:** Provide written certificates to the Lenders confirming when the Project has achieved Physical completion, provisional acceptance, substantial completion, and final acceptance (as such of each terms are defined in the Construction Contracts, IA and BPTA). Confirm the acceptability of the Punch list and the completion list created under the construction contracts and provide any other written certificates contemplated under the construction contracts and Loan Agreements of the Lenders. In addition, certify that the transmission lines have been fully accepted and have entered commercial operation.
8. **Reports:** The written reports to be prepared by the LE include (a) quarterly implementation progress reports during the targeted construction period and (b) special visit reports related with the Performance Test Report encompassing the site component and unit testing activities that will serve as a permanent reference document. All reports would include an executive summary. The Performance Test report will be submitted in draft form to the Lenders for their review and comments before issuing in final form. The Final Report will also be submitted to the Project Company to the extent the LE believes these should be noted. The Project Company and the Sponsors guarantee that they will not influence the LE's conclusions in the Preliminary Report and the Final Report. All other reports will be prepared and issued in final form, with incorporation of all relevant feedback in subsequent progress reports. Sufficient copies of all reports will be sent to the Lenders and the Project Company.

Phase III: Annual Operational Review

During operation period, the LE will:

- Review the O&M manuals and comment on their completeness and compatibility to those of similar facilities. In particular, the scheduled maintenance, preventive maintenance, and spare parts programs will be reviewed.
- Review the O&M training program and the O&M manuals, periodically monitoring actual classroom and hands-on instruction and reporting to lender on the training programs.
- Review the actual system performance and line availability will be compared to expected performance. Causes for equipment component and system forced outages will be assessed. Conformance with scheduled maintenance, preventive maintenance, and spare parts programs will be evaluated.
- Conduct yearly periodic site visits to assess overall operation. During each visit, the operation would be reviewed. The station outage records, and any planned modifications for the period since the last visit would be reviewed. One of the site visits will be scheduled to coincide with the annual system maintenance outage to review the condition of the facility while the system is shut down. Submit periodic report to the Client, noting recurring problems along with recommendations for improving system operations.
- Review the budget and actual expenditure to ensure that operational parameters are generally following the assumptions in the project pro-forma.

Empanelment of Consulting Organizations as Lender's Engineer

Broad Terms & Conditions of REC

i. Charges/ Fees:-

The project shall be categorized as per its type (as mentioned in Form-V) and the prospective Lender's Engineer has to quote their rates as minimum lump sum rates against each category for items Sr. No. A(i), A(ii) & A(iii) of **Form-VIII**.

Note:

- The prices should be quoted for complete scope of work. The taxes and duties will be as per actual over and above the quoted price.
- The LE can also mention annual escalation in the rates during the tenure of the project if required.
- Rates for item A(i), A(ii) and A(iii) to be quoted considering two units as standard configuration for capacity range upto 1500 MW and minimum three units above 1500 MW station capacity in case of coal/hydro power station. Percentage variation of the charges may also be mentioned for variation of no. of each additional or reduction of unit above/below 2 or 3 units applicable.
- In Combine Cycle Power Project (CCPP), the units module combination of 1 GT+1 ST or 2 GT+ 1 ST will be considered as a single unit or module. Rates for item A(i), A(ii) and A(iii) to be quoted considering two modules as standard configuration for the above mentioned capacity range upto 1000 MW and 3 units above 1000 MW station capacity in case of CCPP stations. Percentage variation of the charges may also be mentioned for variation of no. of each additional or reduction of module for a given station capacity.
- Parties should use separate rate schedule format for quoting rates of coal, Gas, Hydro, renewable and Transmission Projects as applicable.

ii. Terms of Payment:

The terms of payment of fees is suggested as follows:

- | | | | |
|------|---|---|----------------------|
| i. | <u>Techno- economic Appraisal Fee</u> | | |
| | Inception Report after site visit | : | 20% |
| | Submission of Draft Report | : | 50% |
| | Acceptance of final report | : | 30% |
| ii. | <u>Construction Monitoring Fee</u> | | |
| | Payment upon submission of Quarterly site visit report | : | 100% for each review |
| iii. | <u>Operational Review Fee</u> | | |
| | Payment upon submission of each semi annual review report | : | 100% |

Note: Payment will be made as per above payment schedule subject to satisfactory completion of events/submission of final report/review. The payment for the PG test/repeat test will be paid as under:

- a) The review of test procedure will be one time activity unless otherwise a change in test procedure is envisaged. The number of man days permissible will be as per actual subject to maximum of 21 man days (One Mechanical, one Electrical & one C&I Engineer each for 7 days)
- b) Witness of the Performance Test at Site will be for actual number of man days spent by LE's Engineer outside their Home Office.
- c) The report review will be one time activity for each successful test of each unit and number of man days permissible for each report review will be as per actual subject to maximum of 21 man days (One Mechanical, one Electrical & one C&I Engineer each for 7 days).
The review at a) and c) shall be carried out at Site/LE's in house office.
- d) The payment for a) above will be made after submission of the review report of the test procedures and balance payment for b) & c) above will be released after submission of final report.

The draft report of Techno Economic Appraisal has to be submitted within 30 days from the date of submission of all the documents by borrower and final report to be submitted within 15 days after communication of observations by REC on draft report.

iii. Visits :-

The LE has to undertake the following Nos. of site visit:-

- Phase- I** 1-2 visit (Engineering/ Techno Economic Evaluation)
- Phase- II** visit every quarter (Execution/ Construction Monitoring)
- Phase- III** visit every six month (only in 1st yr- post COD/ Operation review)

The No. of persons per site visit will be maximum of 2(two). If r any further requirement arises, it has to be with prior permission of REC. The team of LE shall comprise of two professionals for the work and among the two; one should have atleast 15 years of experience in the relevant field and other preferably 7 to 10 years experience. During the award of the work the LE has to intimate the details of the professional in the team. Site monitoring report has to be submitted with in 15 days after site visit.

iv. Traveling Entitlement will be as follows:

By Economic Class in Air
IInd AC- Train
AC car- Road

v. Stay/ Accommodation:

Guest house/ accommodation shall be made available at project site. If not available, hotel accommodation (4 Star) subject to actual, to a maximum Rs. 5000/- per day.

Daily Allowance will be Rs. 1500/- per day per person , subject to a maximum of 4 days per visit including traveling time.

vi. Deliverables:-

- Due diligence of enquiries and all contract packages, 3 copies of each report
- Schedules/ drawdown details & review

In case of delay in commissioning of the project, the period of delay shall be dealt as follows:

- Delay up to 6 months - NIL
- Beyond six months - payment shall be restricted on pro-rata basis in the Construction Monitoring

vi. Validity

The rates will be valid for **Two years** from the date of letters intimating empanelment of the bidder and thereafter annual escalation of rates @ 9% maximum shall be allowed for each subsequent years till completion of Project assigned and completion of PG test/Repeat Test as per NIT terms.

vii. Methodology for Rate Finalization

The Financial bids of qualified bidders shall be opened in the presence of authorized representative of bidders. Rates of all the qualified bidders shall be disclosed after opening of financial bids. After finalization of L-1 bidder, all other bidders shall have right to match their rates with the rates quoted by L-1 bidder, so as to have uniform rates for all the bidders. The willing bidders have to submit an **undertaking along with their offer for aligning with the rates of the L1**. By doing so, the all prospective Lender's Engineer will be eligible for getting assignment from REC.

viii. Methodology of award of work

The work will be awarded on priority starting from L1 to Ln. The geographical location benefit will also be taken into consideration and the decision to award the work will be at the sole discretion of REC.

The work will be awarded on rotational basis, i.e. the party awarded the first work will be approached again when the entire cycle is completed.

ix. LE eligible for more than one category

The parties who are eligible for more than one category may submit different rates / charges for hydro, thermal, renewable and T&D Projects. For the cyclic award of work they will be considered separately for all eligible categories.

x. Service tax/ duties

The service tax shall be reimbursed at actuals on submission of documentary evidence of payment of service tax. Statutory variation in taxes, duties and levies during the tenure of the contract shall be reimbursed.

REC shall be entitled to deduct taxes at source from all the payments to be made to the LE in accordance to with the Indian Income Tax Laws and Rules applicable from time to time and deposit it with concerned Govt. Authorities within the prescribed time. The necessary certificate about deduction of tax in accordance with law shall be furnished to the LE.

xi. Other terms and conditions

1. Firms not having minimum relevant experience in the respective field as per **Form-VI** need not to apply.
2. Firms not having minimum number of personnel as per **Form-VII** would need not to apply.
3. Firms not having Service Tax Registration or not having applied for Service Tax Registration before the last date of Receipt of the requests will be rejected.
4. REC Ltd. reserves the right to accept or reject any other request for empanelment also without assigning any reason. Firms empanelled will be informed suitably.
5. The bid submitted without the acceptance of REC's terms & conditions shall be summarily rejected.
6. No further discussions/interface will be granted to bidders whose bids have been disqualified.

7. REC reserve the right to accept or reject any or all tenders in part or in total without assigning any reason and REC decision shall be final and binding on all the parties.
8. The bid not submitted in the prescribed bid form shall be summarily rejected.
9. If the last date of submission and opening of bid is a holiday, the bids shall be opened on the next working day.
10. Canvassing in connection with the bids is prohibited and the tenders submitted by the contractor who resort to canvassing are liable for rejection.
11. The companies/firms banned or blacklisted by Govt. Institutions in India will not be eligible to participate. An undertaking to this effect signed by authorized signatory has to be submitted.
12. If the performance of the assignment found unsatisfactory, REC shall have the right to terminate the work assigned without any further notice/correspondence. No fees will be paid once the notice issued to the party. In case of unsatisfactory service or discontinuation of service by LE, REC will engage alternate LE at the sole risk of the existing LE.
13. The report to be submitted shall be self content with all required information and supporting documents.