

No.: CEA/PLG/PS&LF/1/19<sup>th</sup> EPS/2015/ DATED: 13.12.2017

## CENTRAL ELECTRICITY AUTHORITY

# E-Tender for carrying out the work of 19<sup>th</sup> Electricity Demand forecast of India (Econometric Method) for Central Electricity Authority

MINISTRY OF POWER  
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DECEMBER, 2017

## NOTICE FOR INVITING TENDER

Central Electricity Authority, Ministry of Power, invites online bids through the Central Public Procurement Portal (CPPP) (<http://www.eprocure.gov.in/eprocure/app>) for carrying out the work of **19<sup>th</sup> Electricity Demand forecast of India (Econometric Method)** for Central Electricity Authority at Sewa Bhawan, R. K. Puram, New Delhi-110066.

### IMPORTANT INFORMATION

Bid Documents to be downloaded from	<b><a href="http://eprocure.gov.in/eprocure/app">http://eprocure.gov.in/eprocure/app</a></b>
Bid Publishing, Document download start Date & Time	<b>14.12.2017, 11:00 AM</b>
Clarification Start Date & Time	<b>14.12.2017, 11:30 AM</b>
Bid Submission Start Date & Time	<b>14.12.2017, 11:30 AM</b>
Pre-bid meet	<b>22.12.2017; 11.00 AM</b>
Clarification closing Date & Time	<b>22.12.2017, 01:00 PM</b>
Clarification, corrigendum if any, of pre bid meet to be uploaded	<b>29.12.2017, 05.00 PM</b>
Bid Submission Closing Date & Time	<b>23.01.2018, 04:00 PM</b>
Technical Bid Opening Date & Time	<b>24.01.2018, 04:30 PM</b>
Contact Details	Chief Engineer (PS&LF), Room No.213, 2 <sup>nd</sup> Floor, Central Electricity Authority, Sewa Bhawan, R. K. Puram, New Delhi –66 Phone: 26105546 Email: pslfcea@yahoo.com Website: www.cea.nic.in

Note: The pre-bid meeting will be held on 22.12.2017 in the office of Chief Engineer, Power Survey & Load Forecasting Division, 2<sup>nd</sup> Floor, Sewa Bhawan, R K Puram, New Delhi from 11.00 hrs to 13.00 Hrs.

Disclaimer: The information contained in this Tender Document has been prepared solely for the purpose of providing information to the interested parties and is not in any way binding on Central Electricity Authority. By accessing this Tender Document, you agree that CEA will not be liable for any direct or indirect loss arising from the use of the information and material contained in this Tender Document.

Central Electricity Authority (CEA) reserves the right to annul the bidding process and /or reject all bids, without assigning any reason thereof, at any time prior to awards of contract and without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the ground for this action.

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## Chapter 1: INSTRUCTION TO BIDDER

### 1.1 Checklist for Bid Submission

The following check-list must be filled in and submitted with the bid document.

<b>Technical Bid</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Please Tick</b>	
1.	Have you uploaded the scanned copy of Checklist for bid submission duly filled and signed?	Yes	No
2.	Have you uploaded Prequalification Documents as per clause 2.1 and clause 7.1?	Yes	No
3.	Have you uploaded the scanned copy of Bidder Information duly filled and signed (format as per clause 7.2)?	Yes	No
4.	Have you uploaded Bid Acceptance Letter duly filled and signed (format as per Clause 7.3)?	Yes	No
5.	Have you uploaded the scanned copy of Schedule of deviation duly filled and signed (format as per Clause 7.4)?	Yes	No
6.	Does the bidder have the required experience (details to be furnished as per format in clause 7.5)?	Yes	No
7.	Have you uploaded the scanned copy of details of contracts (relating to electricity/energy) presently under execution duly filled and signed (format as per clause 7.6)?	Yes	No
8.	Have you uploaded the undertaking for Technical Bid (format as per Clause 7.7)?	Yes	No
9.	Does the Domain Expert fulfill the minimum educational qualification and experience criteria (CV along with details as per format in clause 7.8 to be furnished) ?	Yes	No
10.	Does the power sector expert fulfill the minimum educational qualification and experience criteria (CV along with details as per format in clause 7.9 to be furnished)?	Yes	No
11.	Does the software and data base expert fulfil the minimum educational qualification and experience criteria?	Yes	No
12.	Have you uploaded the scanned copy of the Power of Attorney in respect of the Authorized Signatory for the Bid on a Stamp Paper, if any?	Yes	No
13.	Have you uploaded the scanned copy of Bid Security (format as per clause 6.1) or documentary proof of waiver of the same? (Original Bid security or Documentary Proof for waiver of the Bid security shall be submitted to the Client by the date & time of Bid Opening, failing which the bid shall summarily be rejected and technical bid would not be evaluated)	Yes	No
14.	Have you uploaded all relevant documents in support of clause 2.21.5? (For marking of technical bids).	Yes	No
<b>Price Bid</b>			
1.	Have you uploaded the Price Bid as per BoQ_ xxxx?	Yes	No

Note: Original Bid security or Documentary Proof for waiver of the Bid security shall be submitted to the Client by the date & time of Bid Opening, failing which the bid shall summarily be rejected and technical bid would not be evaluated.

## **1.2 Bidding Process**

- 1.2.1 The Bidder shall submit the bids electronically, through the e-procurement system (<http://eprocure.gov.in/eprocure/app>). Any document submitted through any other means shall not be considered as part of the Bid except for the Originals as asked for in this bid.
- 1.2.2 This bid shall follow a two-stage bidding process. The bid shall be submitted in two parts- Technical Bid and Price Bid.
- 1.2.3 In the first stage, Technical Bid only shall be opened online and the same shall be evaluated.
- 1.2.4 The Bid shall be considered responsive provided that it meets all the requirements under this bidding document including Technical Specifications.
- 1.2.5 In the second stage, the Price Bid shall be opened for only those bidders whose technical bids are found to be responsive.
- 1.2.6 Price bid opening date would be intimated separately to those bidders whose technical bid is found to be responsive.

## **1.3 Instruction for Online Bidding Process**

- 1.3.1 The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.
- 1.3.2 More useful information for submitting online bids on the CPP Portal may be obtained at: <http://eprocure.gov.in/eprocure/app>.

## **1.4 Registration**

- 1.4.1 Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <http://eprocure.gov.in/eprocure/app>) by clicking on the link "Online bidder Enrollment" on the CPP Portal which is free of charge.
- 1.4.2 As part of the enrolment process, the bidders shall be required to choose a unique username and assign a password for their accounts.
- 1.4.3 Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 1.4.4 Upon enrolment, the bidders shall be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- 1.4.5 Only one valid DSC shall be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 1.4.6 Bidder then login to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

## **1.5 Searching for Bid Documents**

- 1.5.1 There are various search options built in the CPP Portal, to facilitate bidders to search active bids by several parameters. These parameters could include Bid ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for bids, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a bid published on the CPP Portal.
- 1.5.2 Once the bidders have selected the bids they are interested in, they may download the required documents / bid schedules. These bids can be moved to the respective 'My Bids' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the bid document.

- 1.5.3 The bidder shall make a note of the unique Bid ID assigned to each bid, in case they want to obtain any clarification / help from the Helpdesk.

## **1.6 Preparation of Bids**

- 1.6.1 Bidder should take into account any corrigendum/ addendum published on the CPP Portal related to the bid document before submitting the bid.
- 1.6.2 Bidder is advised to go through the bid document carefully to understand the documents required to be submitted as part of the bid. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the bid document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 1.6.3 To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” or “Other Important Documents” area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

## **1.7 Submission of Bids**

- 1.7.1 Bidder shall log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder shall be responsible for any delay due to other issues.
- 1.7.2 The bidder has to digitally sign and upload the required bid documents one by one as indicated in the bid document.
- 1.7.3 Bidder has to select the payment option as “offline” to pay the BID SECURITY as applicable and enter details of the instrument. Original bid security or documentary proof of waiver of the same to be submitted to the client by the date and time of bid opening.
- 1.7.4 Bidder should prepare the Bid Security as per the instructions specified in the bid document. The original should be submitted as per date & time specified in the bid document, otherwise the uploaded bid shall be rejected.
- 1.7.5 Bidder is requested to note that they should necessarily submit its Price Bid in the format provided and no other format is acceptable. If the Price Bid has been given as a standard BoQ format with the bid document, then the same is to be downloaded and to be filled by all the bidders. Bidder is required to download the BoQ file, open it and fill in their respective financial quotes and other details (such as name of the bidder) in the blue colored cells. No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid shall be rejected.
- 1.7.6 The server time (which is displayed on the bidders’ dashboard) shall be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders shall follow this time during bid submission.
- 1.7.7 All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded bid documents become readable only after the bid opening

by the authorized bid openers.

1.7.8 The uploaded bid documents become readable only after the bid opening by the authorized bid openers.

1.7.9 Upon the successful and timely submission of bids (i.e., after Clicking “Freeze Bid Submission” in the portal), the portal shall give a successful bid submission message & a bid summary shall be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

1.7.10 The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

## **1.8 Assistance to Bidders**

1.8.1 Any queries relating to the bid document and the terms and conditions contained therein shall be addressed to the Client or the relevant contact person indicated in the bid.

1.8.2 Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk 1800 3070 2232.

## **1.9 Bidding Document**

1.9.1 The Bidder is expected to examine all instructions, forms, terms and conditions prequalification and technical requirements in the bidding documents. Failure to furnish any information required in the bid shall be treated as non-responsive and may result in the rejection of the bid.

1.9.2 The Bidder is required to give confirmation of their acceptance of Terms and Conditions of the bid which shall automatically be considered as part of the Contract concluded with the successful Bidder. Failure to do so may result in rejection of Bid submitted by the Bidder.

## **1.10 Bid Document Fee**

1.10.1 The Bid document can be downloaded from the Central Public Procurement Portal (CPPP) free of cost.

## **1.11 Bid Validity Period**

1.11.1 The bid shall remain valid for a period of at least 180 days from the last date of submission of the bid.

## **1.12 Technical Bid**

The Technical Bid shall be complete in all respects and contain all information asked for in this document. The technical Bid shall comprise the following:

1.12.1 Signed & scanned copy of duly filled Checklist for Bid Submission.

1.12.2 Signed & scanned copy of the following documents as per Clause 7.1.

1.12.3 Proof of having an office in India

1.12.4 Signed authorization letter for evidence along with work completion certificates.

1.12.5 Documentary evidence in respect of forecasting work or studies in energy/electricity field as per clause 7.5.

1.12.6 The list of the proposed staff team by specialty and the tasks that would be assigned to each staff team member along with timeline.

1.12.7 Signed CVs of the proposed professional staff and the authorized representative submitting the proposal. Key information should include number of years working for the firm/entity and degree of responsibility held in various assignments. Experience of Domain Expert & Power Sector Experts also to be furnished as per format in clause 7.8 & clause 7.9 respectively.

1.12.8 Undertaking for not being blacklisted by any of Government /PSU on the bidder's letter head.



- 1.12.9 Signed & scanned copies of documents regarding PAN and GST Registration Number.
- 1.12.10 Signed & scanned copy of duly filled Bidder Information as per Clause 7.2.
- 1.12.11 Signed & scanned copy of duly filled Bid Acceptance Letter as per Clause 7.3.
- 1.12.12 Signed & scanned copy of duly filled List of deviation as per Clause 7.4.
- 1.12.13 Signed & scanned copy of documents regarding contracts presently under execution as per Clause 7.6.
- 1.12.14 Signed & scanned copy of duly filled Undertaking for Technical Bid as per Clause 7.7.
- 1.12.15 Signed & scanned copy of the Stamp Paper having Power of Attorney from the Bidder in respect of Authorized Signatory for the Bid.
- 1.12.16 Signed & scanned copy of all relevant Documents in support of clause 2.21.5 (for marking of technical bids). The supporting documents should be clear and concise and should clearly indicate the relevant sub-clause (of clause 2.21.5) to which it pertains.
- 1.12.17 Scanned copy of the Bid security of Rs. 7,50,000/- (Rupees Seven Lakhs Fifty Thousand only) in the form of a Bank Guarantee issued by a Nationalised / scheduled bank as per clause 2.19.1. In case of claiming waiver for Bid Security, scanned copy of the documentary proof as per clause 2.19.2.
- 1.12.18 The Bid Security or Documentary Proof for waiver of the same shall be submitted, in original, by the Bidder by the date & time of Bid Opening.
- 1.12.19 Client reserves the right to verify the uploaded documents with original one.

### **1.13 Price Bid**

- 1.13.1 The Price Bid shall be complete in all respects and contain all information asked for in this document.
- 1.13.2 The Price bid format is provided as BoQ\_XXXX.xls along with this bid document at <http://eprocure.gov.in/eprocure/app>. Bidder is advised to download this BoQ\_XXXX.xls as it is and quote their offer/rates in the permitted column and upload the same in the Price bid. Bidder shall not tamper/modify downloaded Price Bid template in any manner. In case if the same is found to be tampered/modified in any manner, Bid shall be completely rejected and Bid Security would be forfeited and bidder is liable to be banned from doing business with the Client.
- 1.13.3 The amount quoted shall be only in Indian rupees and the prices shall be inclusive of all taxes, duties, cess etc.

### **1.14 No Price Variation**

- 1.14.1 The Price quoted shall be firm. No revision in the price would be considered during the Bid validity period.

### **1.15 Amendment of Bidding Documents by Client**

- 1.15.1 At any time prior to the deadline of submission of the bids, the Client may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding documents by way of Amendments/Addendum/Corrigendum. This shall be notified through CPPP website.
- 1.15.2 Prospective Bidders are advised to visit CEA website <http://www.cea.nic.in> and CPPP website <http://eprocure.gov.in/eprocure/app> for any corrigendum / addendum/ amendment.
- 1.15.3 In order to provide prospective Bidders reasonable time to take the amendment into account for preparing their bids, the Client may, at its discretion, extend the last date & time of the submission of bids.

## **1.16 Modification of Bids by Bidders**

- 1.16.1 A Bidder may modify his bid on the e-procurement portal (<http://eprocure.gov.in/eprocure/app>) till the deadline of the submission of Bid.
- 1.16.2 Modification of the Bid sent through any other means shall not be considered by the Client.

## **1.17 Late Bids**

- 1.17.1 The e-Procurement system shall not allow any late submission of bids after due date and time as per server system.

## **1.18 Opening of Bids**

- 1.18.1 The Client shall open the bids as per electronic bid opening procedures specified in Central Public Procurement Portal (CPPP) at the date and time specified. Bidders can also view the bid opening by logging on to the e-procurement system. Specific bid opening procedures are laid down at <http://eprocure.gov.in/eprocure/app> under the head "Bidders Manual Kit". The bidder shall be at liberty to be present either in person or through an authorized representative at the time of opening of the Bid or they can view the bid opening event online at their remote end. Price Bids of only those Bidders shall be opened whose Technical Bid are found to be responsive.
- 1.18.2 The client shall open the bids in the presence of Bidders' representative who choose to attend at the time, date and venue as mentioned in NIT.
- 1.18.3 No representatives are allowed to attend the Bid Opening without the valid Bid acknowledgement slip received after submission of Bids.
- 1.18.4 In the event of the specified date of bid opening being declared a holiday for client, the bids shall be opened at the specified time and place on the next working day.

## **1.19 Preliminary Examination of Technical Bid**

- 1.19.1 The Client shall examine the Technical Bids to determine their completeness in all respect as per the requirements of this Bid Document.
- 1.19.2 The client may waive any minor informality or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver does not prejudice to affect the relative ranking of any bidder.

## **1.20 Evaluation of Technical Bids**

- 1.20.1 The Client shall evaluate the Technical Bid, based on the documents submitted by the bidder.
- 1.20.2 Client reserves the right to reject the bid under any of the following circumstances:
  - a) Bid is incomplete and/or not accompanied by all required documents.
  - b) Bid is not in conformity with all the terms & conditions stipulated in all the clauses of this document.

## **1.21 Clarifications of Bids**

- 1.21.1 To assist in the examination, evaluation and comparison of bids the client may, at its discretion, ask the bidder for clarification and response shall be in writing through e-mail or fax. Response/clarification shall be submitted by authorized signatory only. In case the bidder fails to submit the desired information/clarification sought by the Client within stipulated time, further evaluation of the bid shall not be carried out and the Client reserves the right to reject the bid.

## **1.22 Contacting the Client**

- 1.22.1 Any clarification / query related to the Bidding document may be addressed to the Nodal officer of the scheme i.e. Chief Engineer (PS&LF Division), CEA, in writing through e-mail or fax as per the details given in this document. Clarification /Queries received only by the date & time mentioned in NIT shall be entertained.
- 1.22.2 Any effort by bidder to influence the client in the client's bid evaluation, bid comparison or contract award decision may result in the rejection of the Bidders' bid.

## **1.23 Evaluation of Price Bid**

- 1.23.1 Price Bid of only those bidders, whose Technical Bids are found responsive, shall be opened and evaluated.
- 1.23.2 Evaluation shall be done based on the total price (inclusive of all the applicable taxes, duties, cess, etc.) quoted as per price schedule given in Chapter 5.

## **1.24 L-1 Bidder**

- 1.24.1 On completion of Price Bid evaluation process, the bidder whose quoted total amount is found to be the lowest would be the L-1 bidder.
- 1.24.2 In case of tie in the lowest quoted price of multiple bidders, the bidder getting highest Technical Score in the first stage of bid evaluation would be declared as L-1 bidder.

## **1.25 Client's Right to Accept or Reject any Bid or all Bids**

- 1.25.1 The Client reserves the right to accept or reject any bid and/or annul the bidding process and/or reject all bids, without assigning any reason thereof, at any time prior to award of contract and without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the ground for the Client's action.

## **1.26 Letter of Award (LoA)**

- 1.26.1 The L-1 bidder shall be considered for issuing Letter of Award (LoA).
- 1.26.2 The acceptance of the Letter of Award shall be submitted within Ten (10) working days from date of issue of Letter of Award, failing which the Client reserves the right to cancel the Letter of Award.

## **1.27 Signing of Contract**

- 1.27.1 The successful bidder shall be required to enter into a contract as per Clause 6.2 with the Client within **Fifteen (15) working days** from *date of issue* of the Letter of Award on submission of the Performance Security as mentioned in clause 1.28.

## **1.28 Performance Security**

- 1.28.1 A Performance Security (as per format in clause 6.3) in form of bank guarantee from any Nationalized / Scheduled Bank of a value equal to 10% of the total awarded value as indicated in the Letter of Award shall be deposited by the bidder within Fifteen (15) working days from date of issue of Letter of Award.
- 1.28.2 The Performance Security shall be valid for a period of **twenty-four** months from the date of issue.

## **1.29 Sub-Contracting**

- 1.29.1 The Bidder shall not assign, in whole or in part, its obligations to perform under the contract, to other firm except with the Client's prior written consent.

### **1.30 Cost of Bidding**

- 1.30.1 The Bidder shall bear all the costs associated with the preparation and submission of his bid and the Client shall in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

### **1.31 Governing Language**

- 1.31.1 The Bid as well as all correspondences and documents relating to the bid exchanged by the Bidder and the Client, shall be in English language only. Supporting documents and printed literature, if not in English language that are part of the bid document shall be accompanied with a self-certified copy of English translation of the same. The English translation shall govern.

### **1.32 Definitions**

- 1.32.1 '19<sup>th</sup> Electric Power Survey Committee' means 19<sup>th</sup> Electric Power Survey Committee (EPSC) constituted by CEA vide letter No. CEA/Plg/DMLF/PS/2/19EPS/2014 dated: 11.06.2015 to forecast the electricity demand (Utilities) of the country till the year 2036-37.
- 1.32.2 "Advanced Statistical Method" includes Time Series Method- ARIMA, SARIMA, ARIMA-GARCH, ARMAX; State Space models, Neural Network, linear regression models including Panel Data, Fuzzy logic models, Genetic Algorithm, Support Vector Machine.
- 1.32.3 "Awarded Amount," means the amount payable to the Contractor under the Contract.
- 1.32.4 "Authority" means the Central Electricity Authority referred to in sub-section (1) of section 70 of Electricity Act, 2003.
- 1.32.5 'Bidder' means the person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Client and is named as such in the Contract Agreement.
- 1.32.6 "Client" means President of India acting through the Chairperson, Central Electricity Authority (CEA), New Delhi.
- 1.32.7 'Client Office' means Central Electricity Authority office, 2<sup>nd</sup> Floor, Sewa Bhawan, R. K. Puram, New Delhi-110066.
- 1.32.8 'Corrupt Practice' means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the bidding process or in contract execution.
- 1.32.9 'Collusive Practice' means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Client, designed to establish bid price at artificial, non-competitive levels.
- 1.32.10 'Coercive Practice' means harming or threatening to harm, directly or indirectly, person or their property to influence their participation in the bidding process or affect the execution of a contract.
- 1.32.11 "Contract" means the agreement entered into between the Client and the Contractor as recorded in the Contract Agreement Form signed by the Client and the Contractor, including all attachments and annexure thereto and all documents incorporated by reference therein.
- 1.32.12 "Contractor" or "Vendor" means the Bidder selected through bidding process and shall be deemed to include the Contractor's successors, representatives (approved by

the Client), heirs, executors, administrators and permitted assigns, as the case may be, unless excluded by the terms of the contract.

- 1.32.13 'Deadline' means the last date & time.
- 1.32.14 'Fraudulent Practice' means a misrepresentation or omission of facts in order to influence a bidding process or the execution of a contract to the detriment of the Client, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Client of the benefits of free and open competition.
- 1.32.15 'Restrictive Practice' means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the bidding process.
- 1.32.16 "Service" means services to be provided by the Contractor as per the requirements specified in the bid document and any other incidental services and other such obligations of the Contractor covered under the Contract.
- 1.32.17 'Undesirable Practice' means establishing contact with any person connected with or employed by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the bidding process.

## Chapter-2: CONDITIONS OF CONTRACT

### 2.1 Pre Qualifying Requirement

All Bidders shall have to fulfill the following prequalifying terms and conditions:

- 2.1.1 The Bidder shall have an office in India. Documentary proof for the same shall be submitted along with the Technical bid.
- 2.1.2 The Bidder must have carried out forecasting work or studies in energy/electricity field for any Distribution Company or State/UT or on all-India basis or international assignment in energy/electricity field. Details of assignments (forecasting work or studies) pertaining to energy/electricity as successfully completed by the bidder in the past 12 years (starting from 1<sup>st</sup> January, 2006) to be furnished as per clause 7.5.
- 2.1.3 The bidder shall possess qualified manpower and relevant state of art software packages for carrying out the work. *Documentary proof to be provided.* Bidders to ensure that the proposed team members for the work should have experience as follows:

Category	Minimum Qualification	Minimum Nos.
Domain Expert*	<ul style="list-style-type: none"> <li>• Ph.D. Degree in engineering /economics /statistics Or Master's Degree in economics/statistics.</li> <li>• The domain expert must be well versed in regression analysis using panel data for estimation of electricity/energy demand. Documentary proof in support of experience of Domain expert to be furnished along with the bid (as per format 7.8).</li> <li>• Domain expert must have carried out (or must have been the lead person in) at least one medium-term/long-term energy/electricity demand forecasting work by panel data method using economic variables in the past 12 years (starting from 1<sup>st</sup> January, 2006). Documentary proof to be furnished (as per format 7.8).</li> <li>• If any assignment handled by the domain expert is in other than English language, English translation to be provided along with the bid.</li> </ul>	<b>One</b>
Power Sector Experts*	<ul style="list-style-type: none"> <li>• Degree in Electrical Engineering with minimum 8 years of experience in Power Sector (2 Electrical Engineers) and having knowledge of economics/statistics.  Or Degree in Electrical Engineering with minimum 8 years of experience in Power Sector (1 Electrical Engineer) &amp; Economist/ statistician having Master's Degree in economics/statistics with minimum 8 years of experience in regression</li> </ul>	<b>Two</b>  Two (Electrical Engineers)  OR  One (Electrical Engineer) + One (Economist / statistician)

Category	Minimum Qualification	Minimum Nos.
	<p>analysis using advanced statistical techniques (1 Economist/Statistician).</p> <ul style="list-style-type: none"> <li>The (i) Electrical Engineers or (ii) Electrical engineer &amp; economist/statistician, must be well versed in regression analysis using advanced statistical methods/panel-data for estimation of energy/electricity demand. Documentary proof in support of experience of the Power Sector expert (Electrical Engineer /Economist / Statistician) to be furnished along with the tender document (as per format 7.9).</li> <li>Any one of the power sector expert (Electrical Engineer/Economist/statistician) must have successfully completed at least one medium-term/long-term electricity demand forecasting work for any Distribution Company or State/UT or electricity demand forecasting on all-India basis or international assignment on electricity demand forecasting through advanced statistical methods using economic variables. Documentary proof to be furnished (as per format 7.9).</li> <li>If any assignment handled by the power sector expert is in other than English language, English translation to be provided along with the bid.</li> </ul>	
Software and database experts	Bachelor/Master's Degree in Engineering/IT/Computer Applications with minimum 7 years of experience in data handling and analysis.	Two

***\*The team working on the project would preferably remain the same. However, Domain Expert and Power Sector experts cannot be changed during the period of consultancy without the consent of the client.***

- 2.1.4 The Bidder should not have been blacklisted by any of the Government/Public Sector Undertaking (s) (PSUs).
- 2.1.5 The Bidder shall have a valid PAN and GST Registration Number.
- 2.1.6 Annual turnover of the bidder in each of the past three years must be at least 3 crores INR. Certificate duly signed and stamped by statutory auditors to be submitted in this regards. Educational Institutes are exempted from this clause.
- 2.1.7 Submission of scanned copy of the Bid security (format of bid security as per clause 6.1) of Rs.7,50,000/- (Rupees Seven Lakhs Fifty Thousand only) in the form of a Bank Guarantee issued by a Nationalised/ Scheduled bank (as per clause 2.19), in favour of DDO, Central Electricity Authority, Sewa Bhawan, R. K. Puram, New Delhi-110066 valid up to 07.09.2018. In case the bidder claims for waiver of bid security, Documentary Proof for waiver must be provided. Originals to be submitted by the date and time of bid opening.

## 2.2 Completion Schedule

- 2.2.1 The time period for carrying out the electricity demand forecast by econometric method would be Nine Months. In case of unforeseen circumstances, the extension of time for completing the work is at client's discretion. The following timelines for deliverables and milestones for the consultancy, assuming that the engagement starts at time T (Issuance of Letter of Award), would have to be adhered to.

Sl. No.	Deliverables	Timelines
1	Inception Report	T+7 Days
2	Preparation & Submission of detailed plan of action	T+14 Days
3	Collection of Data & Data processing	T+4 Months
4	Modeling of the data for various scenarios using appropriate statistical software and working out electricity demand forecast	T+5 Months
5	Submission of Draft report to Chief Engineer (PS&LF), CEA and Member Secretary of 19 <sup>th</sup> Electric Power Survey Committee (EPSC).	T+ 6 months
6	Submission of final report after incorporation of views/suggestions of 19 <sup>th</sup> Electric Power Survey Committee (EPSC) Members to the satisfaction of the committee members.	T+ 9 months

Progress Reports to be submitted every 15 days indicating the activities remaining / completed as against the scheduled tasks / activities.

## 2.3 Terms of Execution

- 2.3.1 The Bidder shall complete the work of electricity demand forecasting by econometric method and submit the draft Report titled "19<sup>th</sup> Electric Power Survey of India (Econometric Method)" within six months from the date of issuance of the Letter of Award.
- 2.3.2 The final Report, incorporating comments of members of 19<sup>th</sup> EPS Committee to be submitted within nine months from the date of issuance of the Letter of Award.
- 2.3.3 The client reserves the right to extend the deadline of submission of final report in case the comments from the 19<sup>th</sup> Electric Power Survey Committee members/stakeholders on the draft report is delayed.
- 2.3.4 The bidder shall provide support in respect of queries raised by the stakeholders for a period of six months after acceptance of the Report by Members of the "Authority" which may take 2-3 months from the date of submission of Final Report.

## 2.4 Payment Terms

- 2.4.1 No advance payment shall be made against Letter of Award.
- 2.4.2 Payment shall be made in Indian Rupees only.
- 2.4.3 30% of the awarded value as per the contract agreement shall be released after submission of the Draft Report.
- 2.4.4 40% of the awarded value as per the contract agreement shall be released after submission of the Final Report.
- 2.4.5 Balance 30% of the awarded value as per the contract agreement shall be released after acceptance of the Final Report by Members of the "Authority".
- 2.4.6 The Liquidity Damages, if any, shall be deducted from this payable amount.



## **2.5 Taxes**

- 2.5.1 The bidder shall be entirely responsible for payment of all the taxes and duties as per Government norms.
- 2.5.2 Income Tax, as per the relevant provision of the Income Tax Act, shall be deducted at source from the amount payable to the Bidder.

## **2.6 Amendment of Contract**

- 2.6.1 No variation or modification of the terms of the Contract shall be made, except by written amendment signed by both the parties i.e. the Contractor and the Client.

## **2.7 Use of Bid Documents and Information**

- 2.7.1 The Bidder shall not, without the client's prior written consent, make use of any document or information provided by client in Bid document or otherwise except for purposes of performing contract, if any.
- 2.7.2 Any document, other than the Contract itself, shall remain the property of the Client and shall be returned (in all copies) to the Client on completion of the Contractor's performance under the Contract, if so required by the Client.

## **2.8 Intellectual Property Rights**

- 2.8.1 All Intellectual Property Rights (IPR) for the data collected for the studies/works performed by the contractor shall be with the client. Electricity Demand Forecast/Results obtained should not be published elsewhere in the form of research papers/technical papers/thesis/books etc.

## **2.9 Termination of Contract**

- 2.9.1 The Client, without prejudice to any other remedy for breach of Contract, by giving one month written notice to the Contractor, may terminate this Contract in whole or in part, if the Contractor fails to perform any obligation(s) under the Contract.
- 2.9.2 The Client may at any time terminate the Contract by giving one month written notice to the Contractor, if the Contractor becomes bankrupt or otherwise insolvent. In this event, termination shall be without compensation to the Contractor, provided that such termination shall not prejudice or affect any right of action or remedy, which has accrued or shall accrue thereafter to the Client.
- 2.9.3 No payment by the Client shall be made for the remaining period of Contract from the date of the termination of the contract.
- 2.9.4 In the event of the termination of this Contract for any reason, or in the event the Contractor is discharged of its obligations as per provisions of this Contract, all the amounts outstanding towards balance period under this Contract shall be payable by either party as due.
- 2.9.5 The Bidder may terminate the contract in case of non-resolution of the dispute through arbitration with reference to payment by giving a notice of one month.
- 2.9.6 In case of the Termination of the Contract due to default on part of Contractor, the Performance Security submitted by the Contractor shall be encashed by the Client.

## **2.10 Force Majeure**

- 2.10.1 The terms and conditions of the orders shall be subject to force majeure. Neither bidder nor Client shall be considered in default of its obligation under this contract, if such performance is prevented or delayed because of war, hostilities, revolution, civil commotion, sabotage, strikes, lock outs, fires, floods, explosions, epidemics, accidents, freight embargoes on export or import to India, Acts of God, Acts of Government, shall one or both parties be prevented from fulfilling their actual obligations by the state of force majeure lasting continuously for a period of 3 months the two parties shall consult

each other regarding future implementation of the contract.

2.10.2 Bidder shall promptly notify the Client in writing of such conditions and the cause thereof within thirty days of occurrence of such event. Unless otherwise directed by the Client in writing the bidder shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

2.10.3 If works are suspended by force majeure conditions lasting for more than two months, the Client shall have option to cancel the contract in whole or part thereof at his discretion.

## **2.11 Governing Law and Disputes**

2.11.1 The Client and the Contractor shall make every effort to resolve amicably by direct informal negotiations, any disagreement or disputes, arising between them under or in connection with the Contract.

2.11.2 In case of any dispute relating to this contract which may arise during or after the execution of the contract, the case shall be referred to the arbitrator appointed by the Chairperson, CEA, whose decisions shall be final and binding on both the parties. The proceedings of the arbitration shall be carried out in New Delhi only.

## **2.12 Standards of Performance**

2.12.1 The Bidder shall perform the Services and carry out its obligations under the Contract with due diligence, efficiency and economy, in accordance with generally accepted standard & procedures, techniques and practices used in the industry. It shall employ prudent technical and engineering practices. It shall employ advanced and latest technology and safe and effective equipment, machinery, material and methods. The Bidder shall always act, in respect of any matter relating to this Contract, as faithful advisors to the Client and shall, at all times, support and safeguard the Client's legitimate interests in any dealings with Third Parties.

## **2.13 Corrupt and Fraudulent Practices**

The Client requires that Bidders/Bidder observe(s) the highest standard of ethics during the bidding process and during the execution of the Contract. In terms hereof, the Client:

2.13.1 shall reject the Bid of a Bidder including the Selected Bidder if he determines that the Bidder has engaged in corrupt or fraudulent or collusive or coercive, or undesirable or restrictive practices in competing for the award of Work in question.

2.13.2 shall declare a Bidder ineligible, either indefinitely or for a stated period of time, from participation in any bid or bidding process or for award of a contract/contracts or continuing with it after award if it, at any time, determines that the Bidder has engaged in "corrupt or "fraudulent" or "collusive" or "coercive" or undesirable or restrictive practices in competing for, or in participating the bidding process or in executing, the Contract.

## **2.14 Data Security**

2.14.1 The confidentiality of data and results must be ensured while carrying out the electricity demand forecast exercise as well as after the completion of work. Data collected will be the sole property of CEA and should not be divulged in any form to any external agency without the written consent of CEA. Any breach of this clause will tantamount to blacklisting of the firm/bidder.

## **2.15 Delays in the Bidder's Performance**

2.15.1 Work shall be completed as per time schedule specified in the Letter of Award. Any delay in performing the obligation by the bidder shall attract liquidated damages as per clause 2.16 and/or termination of contract as per clause 2.9.

## **2.16 Liquidated Damages (LD)**

- 2.16.1 Notwithstanding the Client's right to cancel the order, liquidated damages at @ 0.5% of the awarded value per week, shall be charged for every week's delay in successful execution of work mentioned in clause 2.3.1 and 2.3.2 subject to maximum 5% of the contract value.
- 2.16.2 In case the amount of LD reaches the maximum limit of 5% as specified above, the Client reserves the right to terminate the contract.
- 2.16.3 Part of week shall be treated as a week for this purpose.
- 2.16.4 However, the Client may, at its discretion, waive off the liquidated damages in case the delay is not attributable to the Bidder.

## **2.17 Payment Conditions**

- 2.17.1 The payment shall be made only in Indian Rupees as per Clause 2.4, subject to deduction of Liquidity Damages, if any, as per Clause 2.16.

## **2.18 Order Cancellation**

- 2.18.1 If the Bidder fails to execute the work as per Clause 2.3 within the stipulated time schedule or the extended date communicated by the Client, if any, it shall be treated as breach of contract.
- 2.18.2 The Client reserves its right to cancel the order in the event of breach of contract.
- 2.18.3 The Client may terminate the contract in case of non-resolution of dispute through Arbitration with reference to payment by giving one month notice.

## **2.19 Bid Security**

- 2.19.1 The Bidder shall deposit bid security (in the format given in clause 6.1) of **Rs. 7,50,000/- Lakh (Rupees Seven Lakhs Fifty Thousand only)** in the form of Bank Guarantee from any Nationalized/Scheduled bank in favour of DDO, Central Electricity Authority, Sewa Bhawan, R. K. Puram, New Delhi-110066, valid up to **07.09.2018**.
- 2.19.2 In case the Bidder claims for waiver of Bid Security, he shall provide documentary proof of being registered with the Central Purchase Organization, National Small Industries Corporation (NSIC) or the concerned Ministry or Department, as per Rule 170 of GFR 2017, of Government of India, as amended from time to time. The registration must remain valid till the Bid Validity period.
- 2.19.3 The scanned copy of the Bid Security / Documentary Proof for waiver of the Bid Security, shall be uploaded at the time of Bid submission.
- 2.19.4 The original Bid Security or Documentary Proof for waiver of the Bid Security shall be submitted to the Client by the date & time of Bid Opening, failing which the bid shall summarily be rejected and the Technical Bid shall not be evaluated.
- 2.19.5 The Bid Security not in conformity in all respects with the requirements as per clause 2.19.1 and 2.19.2 shall summarily be rejected.
- 2.19.6 No interest shall be payable on the Bid Security amount.

## **2.20 Fortification of Bid Security**

- 2.20.1 The Bid security shall be forfeited if the bidder:
  - a) Withdraws the bid during bid validity period.
  - b) Hides/ mis-represents facts.
  - c) Refuses to accept Letter of Award.

- d) Fails to sign the Contract within the stipulated time.
- e) Tamper / Modifies the Price Bid Template in any manner.
- f) Is found to be involved in any Corrupt, Collusive, Coercive or Fraudulent Practices.
- g) The Bid Security of unsuccessful Bidders shall be returned at the earliest after expiry of the final bid validity and latest on or before 30<sup>th</sup> day after the award of contract to successful bidder.
- h) The Bid Security of successful Bidder shall be returned on receipt of performance security.

## 2.21 Selection Procedure for Bidder & Evaluation Criteria

- 2.21.1 The selection of bidder shall be made on the basis of two part bid comprising of Technical Bid and Price Bid.
- 2.21.2 Technical bids of only those bidders who qualify the pre-qualifying requirements of the tender shall be evaluated.
- 2.21.3 Technical evaluation would be carried out prior to opening of price bids.
- 2.21.4 Evaluation Criteria does not absolve the bidder from not performing the task assigned as per TOR.
- 2.21.5 Technical Bids of only those bidders meeting the prequalifying requirements would be graded on a scale of 100 points as detailed below.

Sl. No.	Evaluation Criteria (Documentary evidence to be provided)	Maximum Sub- Points	Maximum Points
2.21.5.1	Specific experience of the bidder related to the assignment		30
2.21.5.1.1	Electricity Demand Forecast carried out for Distribution Company, State/UT, electricity demand forecasting on all-India basis in the past 12 years (starting 1 <sup>st</sup> January, 2006) (i) 1 project (9 points) (ii) 2-3 projects (10 points) (iii) More than 3 projects (12 points)	12	
2.21.5.1.2	Electricity Demand Forecast carried out outside India (International assignments) in the past 12 years (starting 1 <sup>st</sup> January, 2006) (i) 1 project (8 point) (ii) 2-3 projects (9 point) (iii) More than 3 projects (10 point)	10	
2.21.5.1.3	Forecasting work or studies carried out in energy field (excluding electricity) or in the past 12 years (starting 1 <sup>st</sup> January, 2006) (i) 1 project (6 points) (ii) 2-3 projects (7 points) (iii) More than 3 projects (8 points)	8	
2.21.5.2	Adequacy of the proposed work plan and methodology in responding to the scope of work, covering (power point presentation to be made): <ul style="list-style-type: none"> <li>• Gist covering all aspects of consultancy through a presentation up to 20 slides in Power Point.</li> <li>• Presentation would be judged by an expert committee.</li> <li>• The date and time of presentation will be intimated to the bidders who meet the prequalifying requirements.</li> <li>• Presentation should broadly cover the following:</li> </ul>		20

Sl. No.	Evaluation Criteria (Documentary evidence to be provided)	Maximum Sub- Points	Maximum Points
2.21.5.2.1	Details of energy/electricity Demand Forecast carried out for Distribution Company, State/UT, on all-India basis or international assignments along with comparison of forecast with actuals.	3	
2.21.5.2.2	Proposed Work Plan including Methodology to be adopted, Man Power to be assigned to the job etc.	8	
2.21.5.2.3	Independent variables likely to be adopted in the forecasting exercise.	3	
2.21.5.2.4	Availability of data/ sources from which data would be collected.	3	
2.21.5.2.5	Incorporation of various policies and programmes of Government in the forecast viz. Power for all Initiative, aggressive DSM etc.	3	
2.21.5.3	Qualifications & competence of the key professional staff for the assignment		50
2.21.5.3.1	Domain Expert	25	
2.21.5.3.1.1	Domain Expert- Electricity Demand Forecast carried out using Panel Data method: (i) Number of electricity demand forecast exercise carried out <ul style="list-style-type: none"> <li>• 1 exercise- 8 points</li> <li>• 2-3 exercises- 10 points</li> <li>• More than 3 exercises- 12 points</li> </ul>	12	
2.21.5.3.1.2	Domain Expert - Energy Demand Forecast carried out using Panel Data method: (i) Number of energy demand forecast exercise carried out <ul style="list-style-type: none"> <li>• 1 exercise- 7 points</li> <li>• More than 1 exercises- 8 points</li> </ul>	8	
2.21.5.3.1.3	Domain Expert- Years of experience (i) Years of experience <ul style="list-style-type: none"> <li>• Upto 6 years: 3 points</li> <li>• 6-12 years : 4 points</li> <li>• More than 12 years : 5 points</li> </ul>	5	
2.21.5.3.2	Power Sector Experts	20 (10 points for each)	
2.21.5.3.2.1	Power Sector Expert - Experience in electricity demand forecasting by advanced statistical methods using economic variables: (i) Number of electricity demand forecast exercise carried out (6 points) <ul style="list-style-type: none"> <li>• 1 exercise - 4 points</li> <li>• 2-3 exercises - 5 points</li> <li>• More than 3 exercises - 6 points</li> </ul> (ii) Years of experience (4 points) <ul style="list-style-type: none"> <li>• 8-10 years - 3 points</li> <li>• More than 10 years - 4 points</li> </ul>	10	
2.21.5.3.2.2	Power Sector Expert - Experience in energy/electricity demand forecasting by advanced statistical methods using economic variables:	10	

<b>Sl. No.</b>	<b>Evaluation Criteria (Documentary evidence to be provided)</b>	<b>Maximum Sub- Points</b>	<b>Maximum Points</b>
	(i) Number of energy/electricity demand forecast exercise carried out (6 points) <ul style="list-style-type: none"> <li>• 1 exercise- 4 points</li> <li>• 2-3 exercises- 5 points</li> <li>• More than 3 exercises- 6 points</li> </ul> (ii) Years of experience (4 points) <ul style="list-style-type: none"> <li>• 8-10 years - 3 points</li> <li>• More than 10 years- 4 points</li> </ul>		
2.21.5.3.3	Software and database experts (two) <ul style="list-style-type: none"> <li>(i) 7-8 years experience (1.5 points each)</li> <li>(ii) More than 8 years' experience (2.5 points each)</li> </ul>	5 (2.5 marks for each software and database expert)	
	Total Points		100

2.21.6 All relevant Documents in support of clause 2.21.5 to be submitted along with the technical bid. The supporting documents should be clear and concise and must clearly indicate the supporting sub-clause.

2.21.7 Minimum qualifying Technical marks is 55. In case no bidder gets the qualifying marks of 55, the client reserves the right to relax the qualifying marks by 5 points i.e. to 50 marks.

2.21.8 Price bids of only the technically qualified bidders would be opened in the second stage.

## Chapter 3: SCHEDULE OF REQUIREMENTS

Scope of work is given in Chapter 4.

### 3.1 Deliverables

The deliverables would be in the form of a comprehensive report on electricity demand projection using econometric method, with full explanations with respect to selection of explanatory variables, forecasting models and results etc. Title of the Report would be “19<sup>th</sup> Electric Power Survey of India (Econometric Method)”. The Report would broadly cover the following:

- 3.1.1 Brief literature survey covering methodology used by various countries for electricity demand projection using econometric method.
- 3.1.2 Electricity Demand forecasting methodology with assumptions used.
- 3.1.3 Historical trend of independent variables.
- 3.1.4 Effect of various independent variables on state-wise/UT-wise/Region-wise/All India Electricity Demand used for various scenarios.
- 3.1.5 Detailed analysis of model selected for the forecast and simulation subjected to diagnostic tests for statistical consistencies and robustness.
- 3.1.6 The study should clearly bring out the total demand and demand on Utilities (viz. total demand excluding the demand met by Captive Power Plants) for each State/UT/Region and on all-India basis. The forecast should be year-wise for the period 2016-17 to 2036-37.
- 3.1.7 The report shall cover comparisons of the forecast obtained by partial end use method (as brought out by CEA) and Econometric method (for Utility) and graphs highlighting the same for all States/UTs/Region & all-India.
- 3.1.8 Conclusions and Recommendations.
- 3.1.9 Brief write up on the source of data used for the demand forecast exercise should be included in the Report. Referencing of the data must be provided in the Report.
- 3.1.10 Both hard copy and soft copy of data used for the electricity demand forecast exercise must be provided to CEA. Source of data used for the studies must be clearly brought out.
- 3.1.11 The Bidder shall submit 100 copies of draft report (Color print), 10 copies (Color print) of final report and 300 copies of approved report (Color print) approved by “Authority”. The contents of the report should be finalized in consultation with Central Electricity Authority (CEA).
- 3.1.12 Soft copy of draft Report, Final Report and approved report in MS-Word & PDF Format shall be provided to Central Electricity Authority (CEA).

## Chapter 4: SPECIFICATION AND OTHER TECHNICAL DETAILS

### 4.1 Scope of Work

4.1.1 The scope of work is given below:

- a) Identifying economic parameters that affect electricity demand forecast.
- b) Obtaining data for States/UTs/Regions/all- India for the electricity demand forecast exercise and preparing it in the formats required for electricity demand forecast.
- c) Perform multiple regression analysis using Panel Data and estimate electricity demand (in MU as well as in MW) for state/UT/Regions & all-India.
- d) Prepare a detailed report on electricity demand forecast using econometric method containing full explanations with respect to selection of explanatory variables, the forecasting models, results of forecast etc.

### 4.2 Details of Work

- 4.2.1 Year-wise forecast of total electricity demand for all States/UTs/Regions & all-India for the year 2016-17 to 2036-37 by econometric method under various scenarios. The electricity demand forecast would be in both energy (MU) and peak load (MW) terms.
- 4.2.2 Year-wise forecast of electricity demand to be met by Captive power plants as a function of various independent variables exogenously for all States/UTs/Regions & all-India for the year 2016-17 to 2036-37 by econometric method under various scenarios.
- 4.2.3 Year-wise forecast of electricity demand for utilities (excluding demand met through captive generation) for all States/UTs/Regions & all-India for the year 2016-17 to 2036-37 under various scenarios. The electricity demand forecast would be in both energy (MU) and peak load (MW) terms.
- 4.2.4 Collecting/obtaining data for the past about 20 years for all- India/States/UTs, including data of captive power plants, and preparing it in the formats required for electricity demand forecast exercise. The entire responsibility of collecting /obtaining data for the electricity demand forecasting exercise and preparing it in the formats required for electricity demand forecast lies with the bidder. Electricity related data readily available with CEA would be provided to the bidder. In case of new States which have been carved out from some of the states (eg. Jharkhand, Uttarakhand, Chhattisgarh, Telangana), data from the date from which the states came into existence is to be used.
- 4.2.5 Identify at least eight independent variables preferably economic and demographic having co-relation with Electricity Demand and regression shall be carried out using at least four independent variables after analyzing these variables using various statistical tests. Variables can be linear or log transformation form as may be required. The selected independent variables would not include dummy variables or lag/serial correlation variables. All economic independent variables should be expressed in real terms, deflated by the Consumer Price Index. Conduct statistical analysis technique on selected independent variables using multiple regression on panel data and estimate the all-India, Region-wise and state/UT-wise electricity demand correlated with likely key econometric drivers of demand after studying the historical trends and trends between cross-sectional units viz. States/UTs. The selected regression variables must pass all statistical tests. Scenario analysis studies shall be conducted wherever necessary.
- 4.2.6 Perform multiple regression analysis using Panel Data and estimate electricity demand (in MU as well as MW) for all-India, Regions and state/UT's incorporating factors mentioned above. In case of non-convergence of the model for state wise forecasts, alternative methods in conjunction with Panel Data like simulation, ARIMA etc. could be adopted. In this case, non-economic independent variables could also be identified for regression, if required.
- 4.2.7 Consider the effect of DSM (Demand Side Management), energy conservation and efficiency improvement measures in the model. The forecast has to be worked out with and without the consideration of DSM, energy conservation and efficiency improvement measures. This could be incorporated exogenously in the model, if required, through



simulation methods.

- 4.2.8 Various policy initiatives and programmes of Government of India/State Governments which impact the electricity demand forecast are to be considered while estimating the electricity demand. The electricity demand forecast should factor in the increase in electricity demand on account of - 24x7 Power for All initiative of Government of India, Make in India Initiative, Electric Vehicles, Dedicated Freight Corridor.
- 4.2.9 Prepare and submit a detailed report covering details of electricity demand forecast using econometric method containing full explanations with respect to selection of explanatory variables, the forecasting models, results of forecast etc. The title of report would be “19<sup>th</sup> Electric Power Survey of India (Econometric method)”. The report would be finalized after deliberations with the 19<sup>th</sup> Electric Power Survey Committee (EPS).
- 4.2.10 Use latest state of the art statistical software for the consultancy work. CEA officers would be associated at every stage viz. in the selection of variables, formulation of model, finalization of the report etc. The internal working of the model and the final equations obtained for various scenarios of the model to be shared with and explained to the officers associated with the work.
- 4.2.11 Replying to queries/clarifications raised by members of 19<sup>th</sup> Electric Power Survey (EPS) Committee/stakeholders during the period of consultancy and six months after the completion of the consultancy work.

**Chapter - 5: PRICE SCHEDULE**  
(TO BE UTILIZED BY THE BIDDERS FOR QUOTING THEIR PRICE)

**5.1 Bill of Quantity**

Sl. No.	Item Description	Quantity	Unit	Price (inclusive of all taxes, duties, cess etc.) In Figures To be entered by the Bidder (Rs.)	Total Price Inclusive of All Taxes (Rs.)	Total Price in Words
1	2	4	5	13	53	55
1	19 <sup>th</sup> Electricity Demand forecast of India (Econometric method)	1	No.			
	<b>Total in Figures</b>					
	<b>Quoted amount in Words</b>					

1. The above mentioned Price bid format is provided as BoQ\_XXXX.xls along with this bid document at <https://eprocure.gov.in/eprocure/app>. Bidders are advised to download this BoQ\_XXXX.xls as it is and quote their offer/rates in the permitted column and upload the same in the Price Bid. **Bidder shall not tamper/modify downloaded price bid template in any manner.** In case if the same is found to be tempered/modified in any manner, bid shall be completely rejected and Bid Security would be forfeited and bidder is liable to be banned from doing business with the Client.
2. The rates shall be quoted in Indian Rupee only.
3. In case of any discrepancy in the total price indicated in Figure and total price indicated in Word, the total price indicated in word shall be considered for evaluation.
4. In case of any discrepancy in calculation, the total price quoted in words shall be considered for computation.
5. The quoted rates shall remain firm throughout the validity period of the bid and no revision in price is permissible for any reason.
6. The quoted price for the Bid shall be the total price worked out after considering discrepancies, if any.
7. The quoted price shall be inclusive of all taxes and duties. The quoted price shall not be affected by any subsequent revision in the statutory taxes, duties, etc.

## Chapter-6: CONTRACT FORMS

### 6.1 Format of Bid Security - Format

(Sample Format – To be executed on a non-judicial stamped paper of requisite value)

To

DDO,  
Central Electricity Authority,  
Sewa Bhawan, R. K. Puram,  
New Delhi-110066.

Ref: \_\_\_\_\_

Date \_\_\_\_\_

Bank Guarantee No. \_\_\_\_\_

1. WHEREAS ..... (Name of Bidder) (hereinafter called the ‘the Bidder’) has undertaken, in pursuance of the Bid (.....) for the “**carrying out electricity demand forecast of states/UT’s/ Regions/all-India by econometric method**” (hereinafter called the ‘the Bid’) to you.
2. AND WHEREAS, it has been stipulated by you in the said Bid that the Bidder shall furnish you with a Bank Guarantee from a Nationalized/ Scheduled Bank for the sum specified therein, as security for the Bid in accordance with the Bid.
3. AND WHEREAS we ----- (Name of the Bank) having its registered office at ---- and inter alia a branch office situated at ----- have agreed to give a Bid Security of Rs. 7,50,000/- (Rupees Seven Lakhs Fifty Thousand only) (hereinafter called as the Guarantee Amount) on behalf of the Bidder.
4. We ----- (Name of the Bank) further undertake not to revoke and make ineffective the guarantee during it’s currency except with the previous consent of the Central Electricity Authority (hereinafter called as the Client).
5. We ----- (Name of the Bank) do hereby unconditionally and irrevocably undertake to pay to the Client without any demur or protest, merely on demand from the Client, an amount not exceeding the Guarantee Amount by reason of any breach of the terms of the Bid dated ----- by Bidder. We hereby agree that the decision of the Client regarding breach of the terms of the Bid shall be final, conclusive and binding on us.
6. We do hereby guarantee and undertake to pay forthwith on demand to the Client a sum not exceeding the Guarantee Amount and we undertake to pay you upon your first written demand declaring the Bidder to be in default under the Bid and without cavil or argument, any sum or sums within the limit of the Guarantee Amount as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.
7. We, the Bank, further agree that the Client shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents listed hereinabove, and the decision of the Client that the Bidder is in default, as per the Bid Document, shall be final and binding on us, notwithstanding any differences between the Client and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

8. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.
9. Our obligation to make payment under this Guarantee shall be a primary, independent and absolute obligation and we shall not be entitled to delay or withhold payment for any reason.
10. This guarantee is valid until **<date>** and a claim in writing is required to be presented to us on or before **<date>** failing which all your rights shall be forfeited and we shall be relieved of and discharged from all our liabilities mentioned hereinabove.

Signature and Seal of Guarantors (Bidder's Bank)

.....

Date.....

Address .....

.....

.....

In presence of

WITNESSES (Name & Address)

1.

2.

Note: The bid security in favour of DDO, Central Electricity Authority has to be submitted to Chief Engineer (PS&LF), Central Electricity Authority, Room No.213, 2<sup>nd</sup> Floor, Sewa Bhawan, R. K. Puram, New Delhi-110066.

## 6.2 Contract Agreement-Format

[The successful Bidder shall fill in this form in accordance with the instructions indicated]

THIS AGREEMENT made

the [ insert: **number** ] day of [ insert: **month** ], [ insert: **year** ].

BETWEEN

- (1) [ insert complete name of Client ], a [ insert description of type of legal entity, for example, an agency of the Ministry of .... of the Government of { insert name of Country of Client }, or corporation incorporated under the laws of { insert name of Country of Client } ] and having its principal place of business at [ insert address of Client ] (hereinafter called “the Client”), of the one part, and
- (2) [ insert name of Bidder ], a corporation incorporated under the laws of [ insert: country of Bidder ] and having its principal place of business at [ insert: address of Bidder ] (hereinafter called “the Bidder”), of the other part :

WHEREAS the Client invited bids for **carrying out electricity demand forecast of states/UT’s/ Regions/all-India by econometric method** viz., [insert brief description of Services] and has accepted a Bid by the Bidder for the supply of those Services.

The Client and the Bidder agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other contract documents.
  - (a) the Bid Document
  - (b) the Letter of Award
  - (c) the uploaded Bid by the Bidder on the CPP portal.
  - (d) the Addenda / Corrigenda Nos.\_\_\_\_\_ (if any)
  - (e) the Specifications covered in the Contract
  - (f) the completed Annexures (including Price Bid (BOQ))
  - (g) any other document listed in the Conditions of Contract as forming part of the Contract
3. In consideration of the payments to be made by the Client to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Client to provide the services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Client hereby covenants to pay the Contractor in consideration of the provision of the services and the remedying of defects therein, the Contract Amount or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of [insert the name of the Contract governing law country] on the day, month and year indicated above.

For and on behalf of the Client

Signed: *[insert signature]*

in the capacity of *[ insert title or other appropriate designation ]*

in the presence of *[insert identification of official witness]*

For and on behalf of the Contractor

Signed: *[insert signature of authorized representative(s) of the Contractor]*

in the capacity of *[ insert title or other appropriate designation ]*

in the presence of *[ insert identification of official witness]*

**6.3 Performance Security-Format**

To

DDO,  
Central Electricity Authority,  
Sewa Bhawan, R. K. Puram,  
New Delhi-110066.

Ref: \_\_\_\_\_

Date \_\_\_\_\_

Bank Guarantee No. \_\_\_\_\_

1. Against contract Acceptance of the Bid No: \_\_\_\_\_ covering \_\_\_\_\_ (hereinafter called the said 'contract') entered into between the President of India acting through The Chairperson, Central Electricity Authority, New Delhi - 110066 or its authorized representative (hereinafter called the Client) and \_\_\_\_\_ (hereinafter called the Contractor) this is to certify that at the request of the Contractor we \_\_\_\_\_ (Name of the Bank), are holding in trust in favour of the Client, the amount of \_\_\_\_\_ (write the sum here in words) to indemnify and keep indemnified the Client against any loss or damage that may be caused to or suffered by the Client by reason of any breach by the Contractor of any of the terms and conditions of the said contract and/or in the performance thereof. We agree that the decision of the Client, whether any breach of any of the terms and conditions of the said contract and/or in the performance thereof has been committed by the Contractor and the amount of loss or damage that has been caused or suffered by the Client, shall be final and binding on us and the amount of the said loss or damage shall be paid by us forthwith on demand and without demur to the Client.

2. We \_\_\_\_\_ (Name of the Bank), further agree that the guarantee herein contained shall remain in full force and shall be effective till \_\_\_\_\_ hereinafter called the said date and that if any claim accrues or arises against us \_\_\_\_\_ (Name of the Bank), by virtue of this guarantee before the said date, the same shall be enforceable against us \_\_\_\_\_ (Name of the Bank). Payment under this letter of guarantee shall be made promptly upon our receipt of notice to that effect from the Client.

3. It is fully understood that this guarantee is effective from the date of the said contract and that we \_\_\_\_\_ (Name of the Bank), undertake not to revoke this guarantee during its currency without the consent in writing of the Client.

4. We undertake to pay to the Client any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present bond being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our

liability for payment there under and the Contractor shall have no claim against us for making such payment.

5. We \_\_\_\_\_ (Name of the Bank), further agree that the Client shall have the fullest liberty, without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Client against the said Contractor and to forbear or enforce any of the terms and conditions relating to he said contract and we, \_\_\_\_\_ (Name of the Bank), shall not be released from our liability under this guarantee by reason of any such variation or extension being granted to the said Contractor or for any forbearance by the Client to the said Contractor or for any forbearance or omission on the part of the Client or any other matter or thing whatsoever, which under the law relating to sureties, would, but for this provision, have the effect of so releasing us from our liability under this guarantee.

6. This guarantee shall not be discharged due to the change in the constitution of the Bank or the Contractor.

Place \_\_\_\_\_

Signature \_\_\_\_\_

Witness \_\_\_\_\_

Printed name \_\_\_\_\_

(Bank's common seal)

Date \_\_\_\_\_



## Chapter - 7: OTHER STANDARD FORMS

### 7.1. Compliance sheet for Eligibility criteria - Format

Sl.No	Pre-Qualification Requirement (as per Clause 2.1)	Compliance (Yes/No)	Details of proof attached
1.	Proof of having office in India		
2.	Proof of being authorized partner. Authorization letter from the original developer/Bidder shall be submitted.		
3.	Details of forecasting work or studies in electricity/energy field as carried out by the bidder in the past twelve years (starting from 1 <sup>st</sup> January, 2006). Duly filled in format 7.5 to be attached.		
4.	Proof of having adequate manpower as specified in clause 2.1.3 to carry out the electricity demand forecast. Duly filled in format 7.8 & format 7.9 also to be attached.		
5.	Signed CVs of the proposed professional staff and the authorized representative submitting the proposal.		
6.	Undertaking for not being blacklisted by any of Government Organizations/PSUs on the letter head.		
7.	Details of valid PAN and GST registration.		
8.	Certificate duly signed and stamped by statutory auditors regarding annual turnover of the bidder in the last three years. Separate certificate to be provided for each year.		

Signature of the Bidder with Seal

**7.2 Bidder Information-Format**

1. Name of the Bidding firm		
2. Full Address & Contact Details of the firm		
3. Name of the Authorized Signatory for this Bid		
4. Bidder's proposal number and date		
5. Name & address of the person to whom all references shall be made regarding this bid:		
(a) Telephone		
(b) Fax No.		
(c) E-mail		
(d) Mobile		
<b>Bidder</b>		
Signature of the Authorized Signatory		
Name:		
Designation:		
Date:		
Company Seal:		
<b>WITNESSES</b>		
	<b>Witness 1</b>	<b>Witness 2</b>
Signature:		
Name:		
Address:		
Date:		

Signature of the Bidder with Seal

### 7.3 **Bid Acceptance Letter-Format**

(To be given on Bidder Letter Head)

To,

Date:

Chief Engineer (PS&LF),  
Central Electricity Authority,  
Room No.213, 2<sup>nd</sup> Floor,  
Sewa Bhawan, R. K. Puram,  
New Delhi – 110 066.

Sub: **Acceptance of Terms & Conditions of the Bid**

Bid Name & Reference No:

Dear Sir,

1. I/ We have downloaded / obtained the Bid Document(s) for the above mentioned 'Bid' from the web site(s) namely: \_\_\_\_\_ as \_\_\_\_\_ per your advertisement, given in the above mentioned website(s).
2. I / We hereby certify that I / we have read the entire terms and conditions of the Bid Documents from Page No. \_\_\_\_\_ to \_\_\_\_\_ (including all documents like annexure(s), etc.), which form part of the contract agreement and I / we shall abide hereby by the terms / conditions / clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organization too have also been taken into consideration, while submitting this acceptance letter.
4. I/We hereby unconditionally accept the Bid conditions of above mentioned Bid document(s) / corrigendum(s) in its totality / entirety.
5. I/We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/Public sector undertaking.
6. I/We certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said Bid Security deposit absolutely.

Yours Faithfully,

Signature of the Bidder with Seal

#### **7.4 List of Deviations-Format**

**(Please note that Client will not evaluate any deviation mentioned elsewhere in the bid except as mentioned hereunder)**

We have carefully gone through the bid document and hereby confirm that all the requirements of specifications contained in the bid document are agreed by us expect for the following deviations:

<b>Sr. No.</b>	<b>Clause No. / Page No.</b>	<b>Bid Requirement</b>	<b>Deviation</b>
1.			
2.			
3.			
4.			
5.			
6.			

(If left blank it will be construed that there is no deviation from the Terms & Conditions of the bid document)

Signature of the Bidder with Seal

**7.5 Details of Work Experience- Format**  
(refer clause 2.1.2)

Details of forecasting work or studies as carried out by the bidder in energy/electricity field for any Distribution Company or State/UT or on all-India basis or international assignment in energy/electricity field in the last 12 years (starting from 1<sup>st</sup> January, 2006).

Sl. No.	Name and address of the client including e-mail, phone, fax etc.	Date of award of Contract	Date of Completion	Whether the work relates to energy (excluding electricity) or electricity ?	Scope of work
1					
2					
3					
4					
5					
.					
.					
.					

Note:

- 1 Necessary documentary evidence in respect of above e.g. letter of award, work completion certificate along with relevant pages of Report submitted (in support of the work carried out) by to the client shall be enclosed along with the tender document.
- 2 All the supporting documents must be uploaded as part of technical bid. It should not be mentioned in the technical bid that supporting documents would be provided on request.
- 3 Supporting documents and printed literature, if not in English language that are part of the bid document shall be accompanied with a self-certified copy of English translation of the same. The English translation shall govern.

Signature & Seal of the Bidder

**7.6 Details of Contracts (relating to energy / electricity) presently Under Execution-  
Format**

Sr. No.	Name of Organization	Date of award of contract & Period of Contract	Contact details of the client including e-mail, phone, fax etc.
1			
2			
3			
4			
5			
.			
.			
.			

Signature & Seal of the Bidder

## **7.7 Undertaking For Technical Bid-Format**

(On the letter head of the firm submitting the bid)

Bid No.....

To,

Chief Engineer (PS&LF),  
Central Electricity Authority,  
Room No.213, 2<sup>nd</sup> Floor,  
Sewa Bhawan, R. K. Puram,  
New Delhi –  
110066

Dear Sir/Madam,

1. I/We have examined and have no reservations to the Bidding Documents, including Corrigenda /Addenda issued.
2. I/We meet the eligibility requirements and have no conflict of interest.
3. I/We have not been suspended nor declared ineligible in India.
4. I/We offer to carry out the work in conformity with the Bidding Documents;
5. I/We offer to carry out the work as listed in the Bidding Documents at the price given in the said Price Bid and agree to hold this offer open for a period of 180 days from the deadline for the submission of the Bid.
6. I/we shall be bound by a communication of acceptance issued by you.
7. I/We have understood the Bidding Document and have thoroughly examined the specifications quoted therein and am/are fully aware of the nature of the work required and my/our offer is to carry out the work strictly in accordance with the specifications and requirements.
8. I/we shall submit the Bid Security (in original) amounting to Rs. 7,50,000/- (Rupees Seven Lakhs Fifty Thousand only) in the form of Bank Guarantee from any Nationalized/Scheduled bank with validity for at least 45 (Forty Five) Days beyond the validity period of the bid. Further, I/we understand that if I/we do not submit the original bid security by the date and time of opening of technical bid, as mentioned in the tender document, my/our bid would be summarily rejected.
9. Certified that the bidder is:
  - a) A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,  
**Or**
  - b) A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney.  
**Or**
  - c) A bidder and the person signing the document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions shall invariable be duly attested by the person authorized to sign the bid document).

10. We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof shall constitute a binding contract between us.
11. If our bid is accepted, we commit to submit a performance security in accordance with the Bidding Documents.
12. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf shall engage in any type of fraud and corruption.

Name of the Bidder\* \_\_\_\_\_ **[insert complete name of person signing the Bid]**

Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* **[insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid **[insert complete title of the person signing the Bid]**

Signature of the person named above \_\_\_\_\_ **[insert signature of person whose name and capacity are shown above]**

Date signed **[insert date of signing]** day of **[insert month]**, **[insert year]**

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\* : Person signing the Bid shall have the power of attorney given by the Bidder and the same shall be attached.

Yours faithfully,

(Signature & Seal of the bidder)

Dated this day of \_\_\_\_\_

Address:.....

Telephone No. : \_\_\_\_\_



**7.8 Experience of Domain Expert in Energy/ Electricity Demand Forecasting - Format**

*(refer clause 2.1.3)*

7.8.1 Details of research articles/papers on electricity/energy demand forecasting published in journals/conference proceedings

Sr. No.	Title of the article	Name of the journal/conference in which published	Year of publication	Whether the article relates to Energy (excluding electricity) or Electricity?	Economic variables considered in the forecast	Whether the forecast had been carried out by Panel Data method? If yes, give details of panel data method used
1						
2						
3						
.						
.						

7.8.2 Details of electricity demand forecasting carried out for any Distribution Company/ State/UT/ Utility in India/ electricity demand forecasting on all-India basis including details of International assignments

Sr. No.	Name and address of the client including e-mail, phone, fax etc.	Date of award of Contract	Date of Completion	Scope of work	Economic variables considered in the forecast	Details of Statistical method used for the electricity demand projection	Whether the forecast had been carried out by Panel Data method? If yes, give details of panel data method used
1							
2							
3							
.							
.							

7.8.3 Details of demand forecasting in energy sector in India including details of International assignments carried out by panel data method.

Sr. No.	Name and address of the client including e-mail, phone, fax etc.	Date of award of Contract	Date of Completion	Scope of work	Economic variables considered in the forecast	Details of panel data method used
1						
2						
3						
.						
.						

Note: Supporting documents and printed literature, if not in English language that are part of the bid document shall be accompanied with a self-certified copy of English translation of the same. The English translation shall govern.

Signature & seal of the Bidder

**7.9 Experience of Power Sector Expert in Energy/Electricity Demand Forecasting -Format**

*(refer clause 2.1.3)*

**7.9.1 Details of research articles/papers on electricity/energy demand forecasting published in journals/conference proceedings**

Sr. No.	Title of the article	Name of the journal/conference in which published	Year of publication	Whether the article relates to Energy (excluding electricity) or Electricity?	Economic variables considered in the forecast	Whether the forecast had been carried out by Panel Data method? If yes, give details of panel data method used
1						
2						
3						
.						
.						

**7.9.2 Details of electricity demand forecasting carried out for any Distribution Company/ State/UT/ Utility in India/ electricity demand forecasting on all-India basis including details of international assignments**

Sr. No.	Name and address of the client including e-mail, phone, fax etc.	Date of award of Contract	Date of Completion	Scope of work	Economic variables considered in the forecast	Details of Statistical method used for the electricity demand projection	Whether the forecast had been carried out by Panel Data method? If yes, give details of panel data method used
1							
2							
3							
.							
.							

7.9.3 Details of demand forecasting work in energy sector in India including details of International assignments carried out by panel data method.

Sr. No.	Name and address of the client including e-mail, phone, fax etc.	Date of award of Contract	Date of Completion	Scope of work	Economic variables considered in the forecast	Details of panel data method used.
1						
2						
3						
.						
.						

Note: Supporting documents and printed literature, if not in English language that are part of the bid document shall be accompanied with a self-certified copy of English translation of the same. The English translation shall govern.

Signature & seal of the Bidder