

# **PFC CONSULTING LIMITED**

**(A wholly owned subsidiary of Power Finance Corporation Limited -  
A Government of India Undertaking)**



## **BID DOCUMENT FOR**

**DETAILED SURVEY, SOIL INVESTIGATION, SOIL RESISTIVITY MEASUREMENT, PREPARATION OF REPORT FOR CONSTRUCTION OF A NEW 220/33/11 KV GIS SUBSTATION AT LOUTOLIM, GOA AND A D/C TRANSMISSION LINE FROM 400/220 KV SUBSTATION AT DHABHANDRA, GOA TO LOUTOLIM -USING MODERN SURVEY TECHNIQUES.**



**Corporate Office**

**9<sup>th</sup> Floor, A-Wing, Statesman House, Connaught Place, New Delhi- 110001**

**July 24, 2023**

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# **PFC CONSULTING LIMITED**

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## **BID INVITATION LETTER**

**(Online bids are invited in single stage two part system (Technical bid & Price bid)  
only from the firms empaneled by PFCCL under Area Code '3(E)(i) )**

**PFC Consulting Ltd. invites E-Tenders for appointment of Technical Consultant for Detailed Survey, Soil Investigation, Soil Resistivity Measurement and preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a DC Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques**

a)	Tender Id	As displayed on e-procurement portal <a href="https://gem.gov.in">https://gem.gov.in</a>
b)	Opening date of Tender downloading	<b>July 24, 2023 from 18:00 hrs. (IST)</b>
c)	Submission date of E-bids	<b>August 03, 2023 till 18:00 hrs. (IST)</b>
d)	Opening of E-bids (Technical)	<b>August 03, 2023 till 18:30 hrs. (IST)</b>
e)	Opening of E-bids (Financial)	<b>To be intimated to Technically Qualified Bidders</b>

**Note:**

1. Tender Notice and Tender Document are available on PFC Consulting Limited (PFCL) website and can be downloaded from <https://www.pfclindia.com> or from the e-procurement portal <https://gem.gov.in>. All future Information viz. corrigendum /addendum/ amendments etc. for this Tender shall be posted on the PFC Consulting Ltd. website and said e-procurement portal only.
2. The bidder shall bear all costs associated with the preparation, submission of bid, participation in bidding process including cost of registration with the said e-procurement portal, if any. PFCL in no way will be responsible or liable for these costs regardless of the conduct or outcome of the bidding process.
3. Bidders are advised to start the registration process on the e-procurement portal as it may take a few days so as to avoid any delay in bid submission (upload) stage. Bidders may visit the said e-procurement portal for further details.

## BID INVITATION LETTER

Ref: 04/23-24/A-115/GED/TC

July 24, 2023

.....

.....

.....

**Subject: Request for offer for Detailed Survey, Soil Investigation, Soil Resistivity Measurement and preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques**

Dear Sir,

Goa Electricity Department (GED) has appointed PFC Consulting Limited (PFCCL) as Project Management Consultant (PMC) for "Survey, Design, Supply, Erection, Testing and Commissioning of 220/33/11 kV GIS substation at Verna along with associated interconnecting 220kV D/C line from Verna substation to 220/33 kV Cuncolim substation and 220 D/C line from Kadamba substation to Verna substation."

Online bids are invited in single stage two part system (Technical bid & Price bid) only from the firms empaneled with PFCCL under Area Code '3(E)(i)' in respect of survey and preparation of report for Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a DC Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques. The Scope of Work is indicated in Volume-III of this document. The eligibility criteria, deliverables, selection procedure and criteria, terms of payment, terms and conditions etc. are given below:

### 1.0 ELIGIBILITY CRITERIA

- i) The Consulting Organization (Bidder) should have been empaneled with PFCCL under Area Code '3(E)(i)'. The empaneled Consulting Organization with PFCCL shall be evaluated solely on its own credentials for meeting the eligibility/ qualifying criteria and not on the credentials of any other organization.
- ii) The bidder should have successfully executed similar works (**Detailed survey, Soil investigation and Soil resistivity measurement work** and preparation of Reports thereof for Transmission Line & Substation etc.) for **220 kV or higher voltage level of minimum 21 km transmission line length and 220 kV or higher voltage level Substation** during the period from Indian FY 2018-2019 till seven (07) days prior to bid submission date.

## 2.0 CONTENTS OF BID DOCUMENTS

The following documents are enclosed along with this bid invitation letter for your quotation purposes:

- i) Bid Proposal Sheets (Volume- I)
- ii) Conditions of Contract (Volume-II)
- iii) Technical Specification including Scope of Work for Survey and Preparation of Report (Volume-III) for **“Detailed Survey, Soil Investigation, Soil Resistivity Measurement and preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a DC Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques ”**

## 3.0 PERIOD OF ENGAGEMENT

The period of the completion of assignment with respect to deliverables shall be **four (04) weeks** from the date of Letter of Award (LoA), however, the period of engagement would be till the transfer of Packages to Transmission Service Provider (TSP) by PFCCL.

The Consultant is expected to be associated with the project for a period till transfer of Packages to Transmission Service Provider (TSP) by PFCCL and the Consultant should be able to extend its services as and when required till the period of engagement

## 4.0 BASIS OF PRICE OFFER

The price offer shall be for the assignment as per **Schedule-4 of Bid Proposal Sheet** and shall remain firm throughout the period of contract. Quoted price will be on lump sum basis inclusive of taxes and duties, all travel, and stay, out of pocket expenses, cost of producing documents etc. and Employer will not pay and/or reimburse anything over and above the price quoted. However, the applicable Goods and Services Tax shall be paid over and above the basic quoted price at applicable rates on the date(s) of payment(s). TDS shall be deducted as per provision of Income Tax Act and TDS certificate shall be issued to the Consultant by Employer.

All related travel expenses incurred by the Consultant's personnel for journeys to site or Employer's Office or anywhere in connection with the consultancy services/study under Scope will be borne by the Consultant and the Employer will not take any responsibility whatsoever on this account.

## 5.0 SUBMISSION OF BID

- 5.1 Bid shall consist of two parts **"Technical Proposal"** and **"Financial Proposal"** and should be duly submitted online at e-Procurement Portal <https://gem.gov.in/> online from on or before **18:00 hrs. (IST) on July 24, 2023.**

**Note:**

- 5.2 **The following documents shall be necessarily attached along with the Technical Proposal. A bid shall be considered as in-complete/in-responsive in case of non-submission /wrong submission /alteration of any of the following documents and shall be out-rightly rejected.**

- i) Covering Letter on the letter head of the organization/firm as per the Format of **Schedule -1** of Tender Document **duly signed by the authorized signatory**
- ii) Details of Past experience of the firm as per format provided at **Annexure-I to Schedule-2** of Bid Proposal sheets.
- iii) The proposed methodology and work plan in responding to the Scope of Work as per format provided at **Annexure-II to Schedule-2** of Bid Proposal sheets.
- iv) Documentary evidence in support of past experience as mentioned in **Annexure-I to Schedule -2**. (Documents for maximum three eligible assignments may be provided.)
- v) The curriculum vitae of Team Leader and each Team member proposed to be deployed for the assignment as per format provided at **Annexure-III of Schedule-2** of Bid proposal sheets.
- vi) Authorization Letter in favor of the authorized signatory as per format provided at **Schedule-3** of Bid proposal sheets.
- vii) **Duly signed by the authorized signatory** the Performa of Contract Agreement provided at **Schedule -V**.

PFCCL may call for any clarifications/ information if required.

5.3 The Financial Proposal should contain the lump sum price offered for Package and have to be submitted **only** online at e-Procurement Portal <https://gem.gov.in/> and not anywhere in the Technical Bid. If quoted Price Bid is found anywhere on the Technical Bid Document, that Bid shall be out-rightly rejected.

5.4 Bidders are instructed not to approach the PFCCL via e-mail/ fax / telephone or contact any official of PFCCL in regards to the bids after the submission of the bids. Bid of a bidder doing so shall be summarily rejected. However, bidder can respond only in writing/email to the official communications from PFCCL.

## **6.0 BID OPENING AND EVALUATION OF PROPOSALS**

### **6.1 Opening of Technical Proposal**

The "**Technical Proposal**" will be opened online on **August 03, 2023 at 18:30 hrs. (IST)** in the presence of the authorized representatives of the bidders, who wish to be present.

#### **i. Technical Proposal Evaluation**

The Technical evaluation would be in two parts:

#### **A. Completeness of bid with respect to the bidding document**

- i) The Technical Proposal should contain all documents mentioned at Para 5.2 above, **duly filled and signed by authorized signatory**.

- ii) There should be no deviations from any or all the contents of the bidding documents or conditional or alternate bids.
- iii) Details of past experience are to be provided in Technical Bid as per format provided at **Annexure-I to Schedule-2 of Bid Proposal Sheet (Volume-I)** along with supporting Documentary evidence (e.g. work Order/Letter of Award/Lol/Purchase Order etc. along with Client's certificate for successful completion of the assignment/ Copy of final milestone invoice & receipt of payment against final milestone) to be provided in support of past experience.

PFCCCL may call for any clarifications/ information if required.

Bid of any firm not meeting any or all the above criteria, the technical evaluation of the firm will not be carried out and the bid shall be rejected out rightly.

#### **B. Evaluation of experience of the firm: Maximum 100 Marks**

- i) No. of eligible assignments completed along with supported documentary evidence as per **Annexure-I to Schedule-2 of Bid Proposal Sheet (Volume-I): Max Marks 70**

The marks will be allocated as follows: **One assignment = 60 marks, Two assignments = 65 marks, Three assignments or more = 70 marks**

**Eligible assignments for evaluation:** Detailed survey, Soil investigation and soil resistivity measurement work for Substation & Transmission line and preparation of report for **220 kV or higher voltage level of minimum 21 km transmission line length along with establishment of 220 kV or higher voltage level Sub-station** during the period from Indian FY 2018-2019 till seven (07) days prior to bid submission date.

- ii) Adequacy of the proposed methodology and work plan in responding to scope of work and deliverables. **Max Marks 30**

**The Bidder obtaining 75 marks or more would be regarded as technically qualified Bidder and considered for opening of "Financial Proposal".** Financial Proposal of non-qualified Bidders will not be opened online.

PFCCCL reserves the right to seek clarifications during the evaluation process of the Technical proposal.

#### **6.2 Opening of Financial Proposal**

The "Financial Proposal" shall be opened online only for the technically qualified bidders. The date and time of opening of the "Financial Proposal" of the technically qualified bidders will be intimated to all technically qualified bidders.

#### **6.3 Financial Proposal Evaluation**

The assignment shall be awarded to the technically qualified bidder who has quoted lowest lump sum price, in Indian Rupees, without condition(s) or alternate price bid. Conditional Financial Proposals will be rejected outright. The applicable Goods and



Services Tax shall be paid over and above the basic quoted price at applicable rates on the date(s) of payment(s).

In case of more than one bidder at L1 price, the Assignment will be offered to the bidder quoting L1 price and obtaining the highest marks in the technical evaluation.

## **7.0 VALIDITY OF BID**

Bidders shall keep their Bids/ Quotations valid up to **120 (One Hundred and Twenty) days** from the date of submission of bid. Bidders may be required to further extend the validity of Bid as per the requirement of PFCCL.

## **8.0 CONTRACT PERFORMANCE GUARANTEE (CPG)**

In the event of an award, the successful bidder, within **Ten (10) days** of receipt of Letter of Award (LoA) from Employer, will be required to arrange submission of CPG in the form of a Bank Guarantee (BG) of **Five (05) Percent** of the contract value. The CPG/ BG should be as per Performa (will be given to the successful bidder) and should be kept valid up to **Twelve (12) months** from the date of issue of Letter of Award (LoA).

## **9.0 CONTRACT AGREEMENT**

- 9.1 In the event of award, the selected bidder ("**Consultant**") will be required to enter in to a Contract Agreement with the PFCCL **within 10 (ten) working days from the date of the Letter of Award (LoA) or within such extended time, as may be granted by the PFCCL.** PFCCL shall provide the pro-forma of the Contract Agreement as per **Schedule -V.**
- 9.2 Formal Contract Agreement will be executed on Non-judicial stamp paper of Rs. 100/- (Rs. One Hundred only) as per the format provided at **Schedule -V.** Two sets of Non-Judicial Stamp papers of Rs.100/- each and water mark papers to be purchased by the Consultant from Delhi State.
- 9.3 The Contract Agreement will be signed in two originals and the Consultant shall be provided with one signed original Contract Agreement.
- 9.4 The date of execution of the Contract Agreement in no case shall alter the date of start or completion period of the work.
- 9.5 Till the time a 'Contract Agreement' is executed, the Letter of Award shall be read in conjunction with the Bidding Documents and shall constitute a binding contract.
- 9.6 The executed Contract Agreement may only be amended or supplemented by a written agreement between the parties.

## **10.0 DELIVERABLES:**

The Consultant is required to submit the following deliverables as per the scope and in line with the time schedule indicated against each deliverables:

- 10.1 The Consultant shall submit weekly progress report for all the works/ studies/ survey as per the format mutually agreed upon.

- 10.2 The Consultant shall submit five (05) copies of the following reports, both in soft and hard copies, in English language within **four (4) weeks from the date of LoA**.
- a) Draft Survey report and Draft Soil investigation and soil resistivity report as per scope
  - b) Final Survey report, Soil investigation and soil resistivity report.
  - c) Bill of Quantity for the Transmission Line
  - d) All raw data for all the studies/ reports/ surveys shall also be submitted.
  - e) All reports shall be submitted in A4 size sheets and all drawings on A0 size sheets. All drawings shall be properly bound and printed on good quality paper.

10.3 Consultant should provide assistance /deliverables as may be required, for successful completion of the assignment. The Consultant shall have to provide assistance /deliverables, as may be desired by PFCCL during the course of the assignment for the successful completion of the assignment to the satisfaction of PFCCL.

#### **11.0 TERMS OF PAYMENT:**

11.1 **Thirty (30%) Percent** of the contract value shall be paid after submission and acceptance by Employer of :

- i. Draft Survey report as per scope,
- ii. Draft Soil investigation and soil resistivity report as per scope
- iii. Estimation of land requirement and identification of alternative sites for substation as per scope
- iv. Draft BOQ of the transmission lines as per scope.

11.2 **Sixty (60%) Percent** of contract value shall be paid after

- i. Submission & acceptance of the Final Survey report,
- ii. Final Soil investigation and soil resistivity report for the Transmission Line and for Substation and
- iii. Final BOQ of the transmission lines as per scope.

11.3 **Ten (10%) Percent** of contract value shall be paid on award of the work to EPC contractor.

#### **12.0 OTHER TERMS & CONDITIONS:**

- i) The financial proposal by the bidders shall be in Indian Rupees as per format enclosed with no escalation at any stage during or after the completion of the assignment for any reason whatsoever.
- ii) The Consultant shall make available the services of the identified personnel as may be required for successful execution of the assignment and or as may be required by PFCCL on specified dates, venues and time in order to meet the obligations of PFCCL.
- iii) All claims shall be raised by the Consultant as per the terms of payment and would be accepted for payment based on satisfactory progress and quality of the work at the sole discretion of the competent authority.

- iv) In case there is a delay by the Consultant in accomplishing the deliverables which in the opinion of PFCCL is attributable to the Consultant, PFCCL reserves the right to get such specific work(s) done through any other Agency (ies) at the risk and cost of the Consultant for timely completion of the deliverables.
- v) In case the performance of the proposed team member(s) is not satisfactory, the Consultant will be asked to change/replace the team member(s) within three (03) days of receipt of such request from PFCCL with a member acceptable to PFCCL.
- vi) Any change in the list of key personnel submitted with the bid shall be made only with the prior approval of CEO, PFCCL or as may be requested by CEO, PFCCL.
- vii) PFCCL with the approval of CEO, can cancel the contract at any stage of the work, in case it is found that the knowledge of a team/team member(s) and or his/her performance is not satisfactory, any information given at the time of submission of the bid is found to be incorrect.
- viii) Given the nature of the work being entrusted, the successful bidder firm would have to give an undertaking to the effect that the contents/ essence of any reference/ documents given would not be disclosed to any third person without the express approval of PFCCL, failing which the engagement of the firm would be terminated.
- ix) If due to any reason or decision of the Govt. /Client, the Assignment is dropped and the Consultant is directed to discontinue work, the "Drop Dead Fee" would be limited to the payments received by the Consultant and the claims already raised and accepted by Employer, as per the payment terms relating to the Assignment, till the point of calling off the Assignment or as mutually agreed.
- x) Conflict of Interest: Consulting organization or their Partners / any other Employee or Associate would not be hired for any work whose interests are that in conflict with their prior or current obligations to the other organizations, or that may place them in a position of being unable to carry out the work assigned to them at any point of time during the currency of engagement by PFCCL or above all enable them to pose a threat to PFCCL's consulting business in future. Without limitation on the generality of the foregoing, Consulting organizations would not be hired, under the circumstances set forth below:
  - a) Consulting organizations that have business or family relationship with member(s) of PFC's and/or PFCCL's employees or persons positioned in or on the Board of these two organizations by whatever process would not be engaged. A declaration to this effect would be given by the organization when being engaged, and if found incorrect, the Consulting organizations would be debarred from any further engagement by PFCCL ever.
- xi) The Consultant shall keep PFCCL, both during and after the term of this Contract, fully and effectively indemnified against all losses, damage, injuries, deaths, expenses, actions, proceedings, demands, costs and claims, including, but not limited to, legal fees and expenses, suffered by PFCCL or any Third Party, where such loss, damage, injury or death is the result of a wrongful action, negligence or breach of contract by the Consultant, or

the Consultant's personnel, including the use or violation of any copyright work or literary property or patented invention, article or appliance.

- xii) Offers received in the designated office after the due time and date mentioned above shall not be considered.
- xiii) PFCCL reserve the right to accept or reject any or all Proposals/Offer or annul the bid Process or modify/ change the content of the bid document without assigning any reason.
- xiv) PFCCL shall not entertain any claim of any nature, whatsoever, including without limitations, any claim of expenses in relation to the preparation, submission or any other activity relating to bidding or any other expense till award of contract.

The complete bid document can be downloaded from our website: [www.pfcclindia.com](http://www.pfcclindia.com). For submission of bid it is necessary that Bidders may download complete Bid document from the e-Procurement Portal <https://gem.gov.in/> on or before **August 03, 2023 at 18:00 hrs. (IST)**.

Yours sincerely,

**For and on behalf of PFC Consulting Limited**  
**General Manager**

Encl: As above.

# **PFC CONSULTING LIMITED**

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## **VOLUME – I**

### **BID PROPOSAL SHEETS**

**DETAILED SURVEY, SOIL INVESTIGATION, SOIL RESISTIVITY MEASUREMENT, PREPARATION OF REPORT FOR CONSTRUCTION OF A NEW 220/33/11 KV GIS SUBSTATION AT LOUTOLIM, GOA AND A DC TRANSMISSION LINE FROM 400/220 KV SUBSTATION AT DHABHANDRA, GOA TO LOUTOLIM - USING MODERN SURVEY TECHNIQUES**

# COVERING LETTER

(On the Letter head of the organization/Firm duly signed each page by Authorized signatory)

**Bidder's Proposal Ref. No.** \_\_\_\_\_ **and Date** \_\_\_\_\_

Person to be contacted: .....

Designation: .....

Telephone No.: .....

Email : .....

To

**General Manager**

**PFC Consulting Ltd.**

9<sup>th</sup> Floor, A-Wing, Statesman House,

Connaught Place, New Delhi 110001.

Dear Sir,

- 1.0 We, \_\_\_\_\_ (Name of consulting organization), hereby propose to provide the Consultancy Services for **Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques.**
- 2.0 We have understood the instruction and the Terms & Conditions mentioned in the Bidding Documents furnished by you and have thoroughly examined the specifications/ scope of work laid down by you and are fully aware of nature of consultancy services required.
- 3.0 We herewith enclose Technical & Financial proposal for selection of our organization as consultant on lump sum basis for assisting PFCCCL on Consultancy Services for Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques
- 4.0 We are submitting our bid online consisting of:
  - i) **Part 1- Technical Bid** consisting of:
    - a. Covering Letter on the letter head of the organization/firm as per the Format of **Schedule -1** of Tender Document **duly signed by the authorized signatory**
    - b. Details of Past experience of the firm as per format provided at **Annexure-I to Schedule-2** of Bid Proposal sheets.
    - c. The proposed methodology and work plan in responding to the Scope of Work as per format provided at **Annexure-II to Schedule-2** of Bid Proposal sheets.

- d. Documentary evidence in support of past experience as mentioned in **Annexure I to Schedule -2**. (Documents for maximum three eligible assignments may be provided.)
- e. The curriculum vitae of Team Leader and each Team member proposed to be deployed for the assignment as per format provided at **Annexure-III of Schedule-2** of Bid proposal sheets.
- f. Authorization Letter in favor of the authorized signatory as per format provided at **Schedule-3** of Bid proposal sheets.
- g. **Duly signed by the authorized signatory** the Performa of Contract Agreement provided at **Schedule -5**.

**Note: All the above formats including supporting documents shall be scanned and uploaded as a part of Technical Bid.**

- ii) **Part 2 - Price Offer** (as per format provided at **Schedule 4** of Bid Proposal Sheets) to be submitted only online in Gem portal.

- 5.0 \_\_\_\_\_ [Name and contact information] shall be the Team Leader for the assignment.
- 6.0 We declare that the above basic quoted lump sum price is firm and shall remain valid for the entire period of the consultancy assignment. We further declare that the basic quoted price includes all taxes (including Goods and Services Tax), duties & levies etc. payable by us under this consultancy assignment.
- 7.0 We hereby confirm that if any Income Tax, Surcharge or any other Corporate Tax is attracted under the law, we agree to pay the same to the concerned authorities.
- 8.0 We confirm that the prices and other terms and conditions of this proposal are valid for a period of 120 days from the date of submission of bid.
- 9.0 We declare that the services will be rendered strictly in accordance with the specifications and we do not have any deviation to any of the terms and conditions of the bidding documents.
- 10.0 We confirm our acceptance/compliance to the `Deliverables` and `Terms of payment` clauses as stipulated in the bid documents. We confirm that Contract Performance Guarantee for Three (03) Percent of the total consultancy fee in the form of bank guarantee shall be provided by us as per the prescribed format (to be provided to successful bidder) in case of placement of award.
- 11.0 We hereby declare that only the company, persons or firms interested in this proposal as principal or principals are named herein and that no other company, person or firm other than one mentioned herein have any interest in this proposal or in the contract to be entered into, if we are awarded this contract.
- 12.0 We give our unconditional acceptance/compliance to the Bid Documents issued by PFCL. The proposal is unconditional.

- 13.0 We confirm that we agree and seek no deviations from the 'Scope of Work', 'Time Schedule', 'Deliverables', 'Terms of payment' and all other terms and conditions as contained in the 'Bid Document'. Further, we agree to execute entire scope of work and deliverables of the bid document.
- 14.0 We confirm to execute the Contract Agreement as per the provisions of the Bid Document.
- 15.0 We understand that PFCCL will award the contract to the successful consultant whose offer is substantially responsive and to be the lowest evaluated offer.
- 16.0 We confirm and certify that all the information/ details provided in our bid are true and correct.
- 17.0 We also declare that by taking this assignment we do not have any conflict of Interest with any of our prior or current obligations to other organizations/clients and also do not have business or family relationship with member(s) of PFC's and/or PFCCL's employees or persons positioned in or on the Board of these two organization by whatever process and if found incorrect, we may be debarred from any further engagements by PFCCL forever.
- 18.0 We certify that all the information provided in our bid, including the information regarding the team members, are true. We understand that any willful misstatement in the bid may lead to disqualification or cancellation of award if made or termination of contract. We also understand that in such a case we may be debarred for future assignments with PFCCL for a period of maximum three years from the date of such disqualification.
- 19.0 Further, we undertake that in the event of our appointment as sub consultant, given the nature of the work being entrusted, the contents/ essence of any reference/ documents given would not be disclosed to any third person without the express approval of PFCCL, failing which the engagement of the organization would be terminated.
- 20.0 We hereby confirm and declare that we M/s \_\_\_\_\_, are not blacklisted/ De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.

**Signature of Authorized Person  
Name, Designation & Company seal**

Date:  
Place:

**Note:** Details not provided as per format shall be considered as non-responsive and shall not be considered for bid evaluation.



(On the Letter head of the Organization/Firm)

**THE PROPOSED METHODOLOGY AND WORK PLAN**

Bidder's Name & Address

.....  
.....  
.....  
.....

To :

**General Manager,**  
**PFC Consulting Ltd.**  
9<sup>th</sup> Floor, A-Wing, Statesman House,  
Connaught Place, New Delhi – 110001

Dear Sir,

We hereby enclose the proposed methodology and work plan to be adopted for Consultancy Services for **“Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques** as per the following Annexures to this schedule:

1. Organizational set up of the Company/ Institute as per **Annexure-I of Schedule-2.**
2. Past assignments completed with successful completion certificate should be submitted as per **Annexure-I of Schedule-2.**
3. List of Assignments in hand as per **Annexure-I of Schedule-2.**
4. Write up about the proposed methodology & work plan as per **Annexure-II of Schedule-2.**
5. Composition of Team to be deployed as per **Annexure-III to Schedule-2 (Page 1 of 2).**
6. The curriculum vitae of each team member as per **Annexure-III to Schedule-2 (Page 2 of 2).**

**Signature of Authorized Person**  
**Name, Designation & Company seal**

Date:  
Place:

**Note:** Details not provided as per format shall be considered as non-responsive and shall not be considered for bid evaluation.

**On Company's Letter Head**  
**EXPERIENCE OF ORGANIZATION**

**1. Brief Description of the Organization along with Organizational set up of the Company/ Institute:**

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**2. Outline of Experience:**

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**3. No. of Survey & Project Report for transmission lines and substations along with documentary evidence**

(The bidder's relevant experience during the period from Indian FY 2017-18 including the current Financial Year till seven (07) days prior to bid submission date.):

S. No.	Name of Assignment*	Name(s) of member(s) associated with the assignment	Brief description / Scope of the assignment	Name of the Client	Work Order No.& date	Date of		Details of Documentary evidence attached #	Work Order/Letter of Award/Lol/ Purchase enclosed (Yes/No)	Proof of Completion enclosed (Yes/No)
						Start	Finish			
1.										
2.										
3.										

4. List of Assignments in hand:

S. No.	Name of Assignment	Name(s) of member(s) associated with the assignment	Brief description/ Scope of the assignment	Name of the Client	Work Order No.& date	Date of Start	Expected date of Finish
1.							
2.							
3.							

1. It is hereby certified that the above mentioned details are true and correct.
2. It is hereby certified that our company has actually carried out and completed the above mentioned work/assignments

**Signature of Authorized Person**  
**Name, Designation & Company seal**

Date:

Place:

- \* If the Survey & Project Reports for Transmission System are done for more than one section in one Work Order, it shall be considered as one only. Assignments of Survey & Project Reports for **“Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques** shall only be considered for evaluation purpose.
- # Documentary evidence: e.g. Copy of work Order/Letter of Award/Lol/Purchase Order etc. along with Client’s certificate for successful completion of the assignment/ Copy of final milestone invoice & receipt of payment against final milestone) to be provided in support of past experience.

**Write up about the proposed methodology and work plan**

(On the Letter head of the Organization/Firm)

Bidder's Name & Address

.....  
.....  
.....

To:

**General Manager,**

**PFC Consulting Limited**

9<sup>th</sup> Floor, A-Wing, Statesman House,  
Connaught Place, New Delhi – 110001

Dear Sir,

We hereby submit a brief write up on the proposed methodology to be adopted for Consultancy Services for Survey and Preparation of Report for “**Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques.** Indicating the Approach Methodology and Work Plan in response to scope of work and deliverables as under:

*(Brief write up on the proposed methodology)*

**Signature of Authorized Person  
Name, Designation & Company seal**

Date:

Place:

On Company's Letter Head

## COMPOSITION OF TEAM AND THE TEAM LEADER TO BE DEPLOYED

S. No.	Name	Experience in survey related works (in Years)	Task Assigned in Team
	Team Leader		
1			
	Other Members		
2			
3			
4			
5			
6			

Signature of Authorized Person  
Name, Designation & Company seal

Date:

Place:

**Note:** Signed Curriculum Vitae of the Personnel listed above should be enclosed as per the suggested format at Page 2 of 2 of **Annexure-III to Schedule 2**.

**SUGGESTED FORMAT OF CURRICULUM VITAE FOR EACH MEMBER OF CONSULTANTS TEAM**

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

Profession/ Present Designation: \_\_\_\_\_

Total post qualification experience: \_\_\_\_\_

Years with organization: \_\_\_\_\_

**Educational Qualification:**

(Under this heading, summarize college/ university and other specialized education of staff member, giving names of colleges, etc. degrees obtained and Year of Passing/obtaining the qualification.)

**Experience:**

(Under this heading, list of positions held by staff member since graduation, giving dates, names of employing organization, title of positions held and location of assignments. For experience in last ten years also give types of activities performed and client references, where appropriate.)

**Language:**

(Indicate proficiency in speaking, reading and writing of each language by 'excellent', 'good' or 'poor').

**Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any willful mis-statement described herein may lead to disqualification of the firm.

.....

**Signature of the Team Member**

**Name:** .....

**Designation:** .....

.....

**Signature of Authorized Person**

**Name:** .....

**Designation:** .....

**Company Seal:** .....

**Date:**

**Place:**

**SCHEDULE-3**

### **AUTHORISATION LETTER**

(On the Letter head of the Organization/Firm)

I \_\_\_\_\_ certify that I am \_\_\_\_\_ of the Organization, organized under the laws of \_\_\_\_\_ and that \_\_\_\_\_ who signed the above Proposal is authorized to bind the organization by authority of its governing body.

**Signature:**

**Full Name:**

**Address:**

**(Company Seal)**

**SCHEDULE OF PRICE BID**

The Lump sum quoted price for Package **to be submitted online on GeM portal only.**

The Lump sum quoted price for Detailed Survey, Soil Investigation (8 Nos. Approx.), Soil Resistivity Measurement, Preparation of Report as per Scope Work and Technical Specification to be submitted online on GeM portal only. The lump sum price quoted shall be inclusive of Goods and Service Tax. Consultants should not quote Price Bid anywhere in Technical Bid. The lump sum price quoted shall be **inclusive of Goods and Service Tax.**

Consultants **should not quote Price Bid anywhere in Technical Bid. If quoted Price Bid is found anywhere on the Technical Bid Document, that Bid shall be out-rightly rejected.**



## CONTRACT AGREEMENT

This CONTRACT (hereinafter, together with all Appendices attached hereto and forming an integral part hereof, called the "Contract") is made this \_\_\_\_day of the month of \_\_\_\_\_ 2022, between:

**PFC Consulting Limited** (a wholly owned subsidiary of Power Finance Corporation Limited, a Government of India Company) incorporated under the Indian Companies Act 1956, having its registered office at first Floor 'Urjanidhi' 1-Barakhamba Lane, Connaught Place New-Delhi-110001 hereinafter referred to as "Employer" (which expression shall unless repugnant to the context or the meaning thereof include its successors and permitted assigns)

AND

\_\_\_\_\_, Firm/Company incorporated under the Indian Companies Act, 1956, having its registered office at \_\_\_\_\_ hereinafter called the 'Consultant' (which expression shall unless repugnant to the context or the meaning thereof include its successors and permitted assigns)

WHEREAS the Employer is in the process of selection of a firm for **Consultancy Services for "Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim using Modern Survey Techniques** . (hereinafter to be referred as Project)

AND WHEREAS the Employer is intending to hire an experienced and qualified Consultant who has undertaken similar projects and is capable of providing consultancy services in conjunction with other specialist consultants, and personnel for providing "Services" and advice in regard to the "Consultancy Service" for the Project.

AND WHEREAS the Consultant, have represented to the Employer that they have the requisite experience, professional skills, adequate manpower and technical resources and personnel, to render the Services required by the Employer in a timely and efficient manner.

AND WHEREAS based on above representations of the Consultant, the Employer has agreed to appoint the Consultant to render services on the terms and conditions hereafter contained:

NOW THEREFORE THIS AGREEMENT WITNESSES THAT, IN CONSIDERATION OF THE PREMISES AND THE MUTUAL COVENANTS HEREIN CONTAINED, IT IS AGREED BETWEEN THE PARTIES AS FOLLOWS:

## **1.0 GENERAL PROVISIONS**

### **1.1 Definitions**

Unless the context otherwise requires, the following terms whenever used in this Contract, Appendices, Schedules and Exhibits shall have the following meanings:

- (a) "Approvals" shall mean all consents, licenses and approval of any local, municipal, State or National Authority necessary to carry out the services for each and every phase of the Project.
- (b) "Contract" means this Contract together with all Appendices, Attachments, Exhibits and Schedules and including all modifications made in accordance with the provisions of Clause 12 hereof between the Employer and the Consultant.
- (c) "Consultant" means Company/firm and also includes any other consultants or sub-consultants as may be appointed by the Consultant herein with the written approval of the Employer, for providing of the services to the Employer in execution of the Project.
- (d) "Confidential Information" means any material, proprietary, non-public information acquired, developed, disclosed or exchanged among the parties pursuant to this Agreement.
- (e) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause 3.1 hereof;
- (f) "Personnel" means persons hired by the Consultant or by his Sub-consultant as employees, for the purposes of rendering services or any part thereof; Personnel includes:
  - (i) "Local Personnel" mean such persons who at the time of being so hired have their domicile in India and;
  - (ii) "Foreign Personnel" mean such persons who at the time of being so hired had their domicile outside India
- (g) "Parties" means the Employer or the Consultant, as the case maybe;
- (h) "Contract time" means the duration of time of the Contract as referred to Clause 3.
- (i) "No claim Certificate" means certificate issued by the Employer after the Contract has expired and the consultant has performed all his Services as per the terms and conditions envisaged in this Contract and all undisputed payments of remuneration and reimbursable expenditures payable by the Employer to the Consultant has been

made.

- (j) "Project" means "Consultancy Services for Survey & Preparation of Project Report for "Transmission System for Evacuation of Power from RE Projects in Solapur (1500 MW) SEZ in Maharashtra".
- (k) "Services" means the works to be provided/performed by the Consultant and/or, the Sub-Consultants for completion of various tasks as described in Letter of Award hereto;
- (l) "Starting Date" means the date referred to in Clause 3.3 hereof;
- (m) "Sub Consultant" means any person/entity to whom the Consultant subcontracts for any part of the Services in accordance with the provisions of Clause 5.5 hereinafter; and
- (n) "Third Party" means any person or entity other than the Employer, the Consultant or his Sub- consultant.

## **2.0 LOCATION FOR PERFORMANCE OF THE SERVICES:**

- (a) The Consultant shall render/perform services at **Delhi** and at the Project site of **"Detailed Survey, Soil Investigation, Soil Resistivity Measurement, preparation of report for construction of a new 220/33/11 kV GIS substation at Loutolim, Goa and a D/C Transmission line from 400/220 KV Substation at Dhabhandra, Goa to Loutolim."**
- (b) The Consultant also undertakes to perform/render services at other location or elsewhere as required for the execution of project or as specified by the Employer from time to time. The Employer shall not bear any extra expenses/cost if, any, incurred by the consultant for providing services at other location.

## **3.0 COMMENCEMENT, COMPLETION, AND TERMINATION OF CONTRACT**

### **3.1 Commencement of Contract**

This contract shall come into force from the date ("effective date") on which the Employer and the Consultant have signed the present contract.

### **3.2 Termination of Contract for Failure to Become Effective**

- a) If this Contract has not become effective within **15 days** from effective date the Employer has the right to declare the same to be null and void, and in the event of such a declaration the consultant shall not have any claim against the Employer.

- b) In case the contract is rendered null and void on account of failure/inaction on the part of the consultant, the consultant shall be liable to pay damages to the Employer.

### **3.3 Commencement of Services**

The Consultants shall begin carrying out the Services immediately viz. from the date of issue of Letter of Award (the "Starting Date"), or on such date as the Parties may agree in writing

### **3.4 Expiration of Contract**

Unless terminated earlier pursuant to Clause 10 hereof, this Contract shall expire after the consultant has performed all his Services as per the terms and conditions envisaged in this Contract and the Employer has issued a 'No claim Certificate' to the Consultant.

The Employer shall issue the 'No claim certificate' after being satisfied that the Consultant has performed/rendered all the services to the satisfaction of the Employer, as per the contract and all undisputed payments of remuneration and reimbursable expenditures payable by the Employer to the Consultant has been made.

## **4.0 CONTRACT PERFORMANCE GUARANTEE**

- 4.1 The Consultant within **10 days** from the date of issue of Letter of Award shall furnish a Performance Guarantee in the form of Bank Guarantee as per Performa attached as Section-2 of bid document, from any Bank towards performance of the Contract. The guarantee amount shall be equal to Five **(05) percent** of the contract price in accordance with the terms and conditions specified in the contract and in the Bid Documents. The guarantee shall be valid until after expiry of a period **twelve (12) months** from the scheduled date.

- 4.2 The Contract Performance Guarantee is intended to secure the performance of the entire contract and shall not be construed as limiting the damages stipulated in other clauses in the Bid Documents.

- 4.3 The Performance Guarantee will be returned to the Contractor without any interest at the end of the Guarantee Period.

## **5.0 OBLIGATIONS OF THE CONSULTANTS**

### **5.1 Standard of Performance**

The Consultant shall perform the Services and carry out his obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted techniques and practices used with professional engineering and consulting standards recognized by professional bodies, and shall observe sound management, and technical and engineering practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods in execution of project. The Consultant shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Employer, and shall at all times support and safeguard the Employer's legitimate interests in any dealings with Consultants/Sub- consultants or Third Parties.

## **5.2 Compliance with Rules and Regulations**

The Consultant agrees that it shall be responsible and liable to comply with and also undertakes to ensure and be responsible for compliance by the Sub consultants, agents of the Consultants and Sub-consultants and Personnel, with all the rules and regulations of various concerned government authorities and departments for the services rendered under this agreement.

## **5.3 Conflict of Interest**

Consulting organization or their Partners / any other Employee or Associate would not be hired for any work whose interests are that in conflict with their prior or current obligations to the other organizations, or that may place them in a position of being unable to carry out the work assigned to them at any point of time during the currency of engagement by PFCCL or above all enable them to pose a threat to PFCCL's consulting business in future. Without limitation on the generality of the foregoing, consulting organizations would not be hired, under the circumstances set forth below:

Consulting organizations that have business or family relationship with member(s) of PFC's and/or PFCCL's employees or persons positioned in or on the Board of these two organizations by whatever process would not be engaged. A declaration to this effect would be given by the organization when being engaged, and if found incorrect, the Consulting organizations would be debarred from any further engagement by PFCCL ever.

## **5.4 Benefit from Commissions, Discounts etc.**

Payment to the Consultant shall constitute the Consultant's only payment in connection with this Contract or the Services, and the Consultant shall not accept for their own benefit any trade commission, discount, or similar payment in

connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Consultant shall use their best efforts to ensure that the Personnel, any Sub-Consultants, and agents of either of them similarly shall not receive any such additional benefits.

#### **5.5 Consultants and Affiliates not to be otherwise interested in Project**

The Consultant agrees that, during the term of this Contract, the Consultant, Sub Consultant, Personnel and/or any entity affiliated with the Consultant or Sub-Consultant shall not provide services resulting from or directly related to the Consultant's Services for the preparation or implementation of the project to any third party. In the event of breach of the aforesaid condition the Employer shall be entitled to disqualify such Consultant or the Sub Consultant or any of their Personnel from providing services to the Employer and further claim damages for breach.

#### **5.6 Prohibition of Conflicting Activities**

The Consultant shall not engage, and shall cause their Personnel as well as their Sub-Consultants and their Personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict with the activities assigned to them under this Contract.

#### **5.7 Insurance to be taken out by the Consultant**

The Consultant shall take out and maintain, and shall cause its Sub-Consultants to take out and maintain, at their own cost, insurance against risks etc.

#### **5.8 Liability of the Consultants**

The Consultant and each of his Members (consultant personnel, sub-consultant, sub-consultant personnel) shall be jointly and severally liable to the Employer for the performance of the Services under this Contract and further for any loss suffered by the Employer as a result of a default of the Consultant or his members in such performance, subject to the following limitations:

- (a) The Consultant shall not be liable for any damage or injury caused by or arising out of the act, neglect, default or omission of any persons other than the Consultants, its Sub-consultants or the Personnel of either of them; and
- (b) The Consultant shall not be liable for any loss or damage caused by or arising out of circumstances of Force Majeure.

## **5.9 Consultant Action Requiring Employer's Prior Approval**

The Consultant shall obtain the Employer's prior approval in writing before taking any of the following actions:

- (a) appointing personnel to carry out any part of the Services, including the terms and conditions of such appointment;
- (b) entering into a subcontract with the Sub consultant for the performance of any part of the Services, it being understood:
  - (i) That the selection of the Sub-consultant and the terms and conditions of the subcontract shall have been approved in writing by the Employer prior to the execution of the subcontract, and
  - (ii) That the Consultants shall remain fully liable for the performance of the Services by the Sub-consultant and its Personnel pursuant to this Contract;

## **5.10 Reporting Obligations**

The Consultant shall submit to the Employer the reports and documents specified in **Letter of Award** hereto, in the form, in the numbers and within the time periods set forth in the said **Letter of Award**, including any supporting data required by the Employer.

## **5.11 Documents Prepared by the Consultants to Be the Property of the Employer**

All plans, drawings, specifications, designs, reports and other documents prepared by the Consultants in performing the Services shall become and remain the property of the Employer, and the Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Employer, together with a detailed inventory thereof.

## **6.0 CONSULTANT'S PERSONNEL**

### **6.1 Agreed Personnel**

The Consultant hereby agrees to engage the personnel and sub-consultants listed by title as well as by name in Annexure III to Schedule-2 in order to fulfill his contractual obligations under this contract.

### **6.2 General**

The Consultants shall employ and provide such qualified and experienced Personnel as are required to carry out the Services.

### **6.3 Description of Personnel**

- (a) The titles, job descriptions, minimum qualifications and estimated period of engagement in the carrying out of the Services of each of the Consultants' Personnel are described in **Letter of Award**.
- (b) If required to comply with the provisions of **Clause 5.4** of this Contract, adjustments with respect to the estimated periods of engagement of Personnel set forth in may be made by the Consultant by written notice to the Employer, provided:
  - (i) that such adjustments shall not alter the originally estimated period of engagement of any individual by more than 10% or one week, whichever is larger.
  - (ii) that the aggregate of such adjustments shall not cause payments under this Contract to exceed the ceilings set forth in **Clause 8** of this Contract. Any other such adjustments shall only be made with the Employer's written approval.
- (c) If additional work is required beyond the scope of the Services specified in **Letter of Award**, the estimated periods of engagement of Personnel set forth in **Letter of Award** may be increased by agreement in writing between the Employer and the Consultants, provided that any such increase shall not, except as otherwise agreed, cause payments under this Contract to exceed the ceilings set forth in **Clause 8** of this Contract.

### **6.4 Removals and/or Replacement of Personnel**

- a) Except as the Employer may otherwise agree, no changes shall be made in the Personnel. If, for any reason beyond the reasonable control of the Consultants, it becomes necessary to replace any of the Personnel, the Consultants shall forthwith provide as a replacement a person of equivalent or better qualifications.
- b) If the Employer:
  - i) finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, or
  - ii) has reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Consultants shall, at the Employer's written request specifying the grounds therefore, forthwith provide as a replacement a person



with qualifications and experience acceptable to the Employer.

- c) The new personnel provided as a replacement shall be governed by the same the terms and conditions of employment as the replaced personnel.
- d) The Consultants shall bear all additional travel and other costs arising out of or incidental to any removal and/or replacement.

## **7.0 OBLIGATIONS OF THE Employer**

In consideration of the Services performed by the Consultants under this Contract, the Employer shall make to the Consultants such payments and in such manner as is provided by Clause 8 of this Contract.

## **8.0 PAYMENTS TO THE CONSULTANTS**

8.1 The Lump-sum cost of services payable in Indian Rupees is set forth in **Schedule 4**.

### **8.2 Mode of Payment**

Payments will be made by the Employer to the consultant in accordance with the terms of payment as per Letter of Award. Any deviation in the payment terms is not permitted.

8.3 The Consultant shall submit the bills in **duplicate** to the Employer on printed bill forms indicating the work done by him during the period for which payment is sought.

8.4 The Employer shall cause the payment of the Consultant as per the above given schedule of payment within **sixty (60) days** of the receipt of the bills raised along with supporting documents. However, it is agreed between the parties that the Employer may restrict or withhold the payment if the performance or progress of the services rendered by the Consultant or his members (sub consultants) is not satisfactory and not in accordance with the work program/schedule.

8.5 The final payment under this Clause shall be made only after satisfactory completion of the activities mentioned in the **Terms of Reference (as per Letter of Award)** and after the issuance of No Claim Certificate.

8.6 All payments under this Contract shall be made to the account of the Consultants with: Account No. \_\_\_\_\_ Bank Name \_\_\_\_\_

## **9.0 SUSPENSION**

The Employer may, by written notice of suspension to the Consultants, suspend all payments to the Consultant and invoke Performance Bank Guarantee hereunder:

- a) if the Consultant fails to perform any of its obligations under this Contract, including carrying out of the Services, provided, that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultants to remedy such failure within a period not exceeding **thirty (30) days** after receipt by the Consultant of such notice of suspension

**or**

- b) if at any stage it is found that the Consultant has provided any wrong information/ false information/ mis-represented the fact.

## **10.0 TERMINATION**

### **10.1 By the Employer**

- (a) The Employer may terminate this contract, by issuing a written notice not less than **thirty (30) days**, from the date of occurrence of any of the events as specified in sub clause (a) to (e) of this Clause.
- (b) The Employer may terminate this contract, by issuing a written notice not less than **sixty (60) days**, from the date of occurrence of the event as specified in sub clause (f) of this Clause.
- (c) if the Consultants fail to remedy a failure in the performance of their obligations hereunder, as specified in a notice of suspension pursuant to Clause 9 hereinabove, within thirty (30) days of receipt of such notice of suspension or within such further period as the Employer may have subsequently approved in writing;
- (d) if the Consultant fail to comply with any final decision reached as a result of arbitration proceedings pursuant to **Clause 19** hereof;
- (e) if the Consultant submit to the Employer a statement which has a material effect on the rights, obligations or interests of the Employer and which the Consultants know to be false;
- (f) if, as the result of Force Majeure, the Consultants are unable to perform a material portion of the Services for a period of not less than **sixty (60) days**; or
- (g) if Consultant become Bankrupt and the company has been wound up through liquidation proceedings.

- (h) if the Employer, in its sole discretion and for any reason whatsoever, decides to terminate this Contract.

## **10.2 Cessation of Rights and Obligations**

Upon termination of this Contract pursuant to Clauses 10 hereof, or upon expiration of this Contract pursuant to Clause 3 hereof, all rights and obligations of the Parties hereunder shall cease, except

- (a) such rights and obligations as may have accrued on the date of termination or expiration,
- (b) the obligation of confidentiality set forth in Clause 16 hereof,
- (c) any right which a Party may have under the Applicable Law.

## **10.3 Cessation of Services**

Upon termination of this Contract by notice to pursuant to Clauses 10 hereof, the Consultants shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum.

## **10.4 Payment upon Termination**

Upon termination of this Contract pursuant to **Clause-10** hereof, the Employer shall make the following payments to the Consultant:

- (a) remuneration pursuant to **Clause 8** hereof for Services satisfactorily performed prior to the effective date of termination;
- (b) reimbursable expenditures pursuant to Clause 8 hereof for expenditures actually incurred prior to the effective date of termination; and
- (c) except in the case of termination pursuant to paragraphs (a) to (b) of **Clause 10.1** hereof, reimbursement of cost duly supported by the documentary evidence incident to the prompt and orderly termination of the Contract.
- (d) If due to any reason or decision of the Client/ Govt./ the Regulator, the Assignment is dropped and the Consultant is directed to discontinue work, the "Drop Dead Fee" would be limited to the payments received by the Consultant and the claims already raised, as per the payment terms relating to the Assignment, till the point of calling off the Assignment or as mutually agreed.

## **11.0 FORCE MAJEURE**

### **11.1 Definition**

- (a) For the purposes of this Contract, "Force Majeure" means an event or circumstance or combination of events and circumstances, the occurrence of which is beyond the reasonable control of either party and which materially affects the performance by either Party of its obligations under this agreement, provided such material and adverse effect could not have been prevented, overcome or remedied in whole or in part by the affected party and includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the Party invoking Force Majeure to prevent), confiscation or any other action by government agencies.
- (b) It is however agreed that "Force Majeure" shall not mean or include:
  - (1) any event caused by the negligence or intentional action of a Party or such Party's Sub-consultants or agents or employees, nor
  - (2) any event which a diligent Party could reasonably have been expected to take into account at the time of the execution of this Agreement, and avoid or overcome in the carrying out of its obligations hereunder.
- (c) The Consultant shall not be paid /reimbursed any further price or cost or any additional cost in re-activating the services after the end of Force Majeure event.

### **11.2 No Breach of Contract**

Neither party shall be responsible or be liable for, or deemed to be in breach hereof because of any failure or delay in complying with its obligations under or pursuant to this Agreement due to one or more events of Force Majeure or its effects or any combination thereof, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract. However it is agreed that in no event shall Force Majeure shall exclude any Party's obligation to pay monies under this Agreement.

### **11.3 Measures to be taken**

- (a) A Party affected by an event of Force Majeure or any combination of events shall take all reasonable measures to remove such Party's inability to fulfill its obligations

hereunder with a minimum of delay.

- (b) A Party affected by an event or any combination of events of Force Majeure shall notify the other Party of such event as soon as possible, and in any event not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give notice of the restoration of normal conditions as soon as possible.
- (c) The Parties shall take all reasonable measures to minimise the consequences of any event of Force Majeure.

#### **11.4 Extension of Time**

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

#### **11.5 Consultation**

Not later than thirty (30) days after the Consultant, as the result of an event of Force Majeure, have become unable to perform a material portion of the Services, the Parties shall consult with each other with a view to agreeing on appropriate measures to be taken in the circumstances.

### **12.0 AMENDMENT/MODIFICATION**

This Agreement may not be altered, modified, revoked or cancelled in any way unless such alteration, modification or cancellation is in writing and duly signed by or on behalf of the parties which shall not be effective until the consent of the parties has been obtained. However, it is agreed between the parties that each Party shall give due consideration to any proposals for modification made by the other Party.

### **13.0 AMICABLE SETTLEMENT**

The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or the interpretation thereof. Any dispute between the parties as to matters arising pursuant to this Contract which cannot be settled amicably shall be resolved as per the Indian Arbitration Act, 1996 as amended from time to time.

### **14.0 FAIRNESS AND GOOD FAITH**

#### **14.1 Good Faith**

The Parties hereunder undertake to act in good faith with respect to their performance, obligations and rights under this Agreement and further undertake, during the tenure of this Agreement, to take all reasonable measures, to ensure the achievement/realization of the objectives of this Agreement.

#### **14.2 Operation of the Contract**

The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but on failure to agree on any action pursuant to this clause shall give rise to a dispute subject to arbitration in accordance with clause 18 hereof.

#### **15.0 TAXES AND DUTIES/ CHANGE IN LAW**

It is hereby agreed between the parties that the Consultant and its personnel shall pay the taxes, duties, fees, levies and other impositions levied under the existing, amended or enacted laws during life of this contract and the Employer shall deduct the taxes, duties and levy whatsoever as may be lawfully imposed.

#### **16.0 CONFIDENTIALITY**

The Consultant, their Sub-consultants and the Personnel of either of them shall not, either during the term or within two (2) years after the expiration of this Contract, disclose any proprietary or Confidential Information relating to the Project, Services, under this Contract or any information pertaining to the Employer's business or operations without the prior written consent of the Employer.

#### **17.0 LAW GOVERNING CONTRACT**

This Agreement, its meaning and interpretation, and the relation between the Parties shall be governed by Indian Laws or any statutory modifications thereof, and shall be subject to the exclusive jurisdiction of the Courts of **Delhi** in any matter arising under this Agreement and or in matters pertaining to the conduct of arbitration, enforcement of the award or obtaining of interim relief(s) etc.

#### **18.0 SETTLEMENTS OF DISPUTES/ARBITRATION**

18.1 The parties shall endeavour to resolve amicably, in the first instance, all disputes,

controversies or differences which may arise between the Parties, out of or in relation to or in connection with this Agreement, or for breach thereof.

- 18.2 In the event, the parties are unable to resolve such dispute/difference amicably within **ninety (90)** days after the same has arisen then the dispute shall be referred to arbitration in accordance with the Rules of Arbitration of the Indian Council of Arbitration and such arbitration shall be conducted in accordance with the rules of ICA. The place of arbitration shall be New Delhi or any other place mutually agreeable by the parties and the language of arbitration shall be English

The Arbitration shall be conducted by panel of 3 Arbitrators, one to be appointed by each party and third Arbitrator to be appointed by two Arbitrators as the Chairman of the Tribunal.

The Parties agree that the arbitrator's decision shall be final and conclusive. The costs of arbitration (including without limitation, those incurred in the appointment of the arbitrators) shall be borne equally by the Parties hereto; however each Party shall pay its respective legal charges. The Award shall be final and binding and non-appealable. Judgment on the award may be entered and enforced in any court of competent jurisdiction. By execution and delivery of this Agreement, each Party agrees and consents to the jurisdiction of the aforesaid arbitration panel and solely for the purpose of enforcement of an arbitral award, as referred to hereinabove, in any court of competent jurisdiction for itself and in respect of its property and waives in respect of both itself and its property, any defense it may have to or based on sovereign immunity, jurisdiction, improper venue or inconvenient forum.

## **19.0 GENERAL PROVISIONS**

### **19.1 Language**

This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

### **19.2 Headings**

The headings shall not limit, alter or affect the meaning of this Contract.

### **19.3 Notices**

Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized

representative of the Party to whom the communication is addressed, or when sent by registered mail, or facsimile to such Party at the following address:

1. For the Employer: **PFC Consulting Limited (A Subsidiary of Power Finance Corp. Ltd.)**, 9<sup>th</sup> Floor, A-Wing, Statesman House, Connaught Place, New Delhi - 110001

Attention: Mr. \_\_\_\_\_

Facsimile: 011- \_\_\_\_\_,

2. For Consultants:

Attention:

**Facsimile:**

**Email:**

19.4 Notice will be deemed to be effective as follows:

- (a) in the case of personal delivery or registered mail, on delivery;
- (b) in the case of facsimiles, forty eight (48) hours following confirmed transmission.

19.5 A Party may change its address for notice hereunder by giving the other Party notice of such change pursuant to this Clause.

#### **19.6 Authority of Consultant in Charge**

The Consultant hereby authorize: Mr./ Ms. \_\_\_\_\_ to act on their behalf in exercising all the Consultants' rights and obligations towards the Employer under this Contract, including without limitation the receiving of instructions and payments from the Employer.

#### **19.7 Authorised Representatives**

Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract, may be taken or executed:

- (a) on behalf of the Employer by \_\_\_\_\_ or his designated representative;
- (b) on behalf of the Consultant by \_\_\_\_\_ or his designated representative;

#### **19.8 WAIVER OF RIGHT**

The failure of either party to enforce at any time or for any period of time, the provisions hereof shall not be construed to be waiver of any provision or of any right and shall not preclude such party from subsequently enforcing such provisions or right.



**19.9 SEVEREABILITY CLAUSE**

If any provision of this Agreement shall be determined to be void or unenforceable, such provision shall be amended or deleted in so far as is reasonably consistent with the provisions of this Agreement and to the extent necessary to conform to applicable law and the remaining provision of this Agreement shall remain valid and enforceable in accordance with their terms.

19.10 The Consultant shall post two field engineers at the project site for successful completion of the assignment.

19.11 This Agreement may be executed in any number of counterparts which together shall constitute a single agreement.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day.....Month..... and year..... first above written.

**FOR AND ON BEHALF OF [EMPLOYER]**

By: Authorized Representative

**FOR AND ON BEHALF OF [CONSULTANTS]**

By: Authorized Representative

# **PFC CONSULTING LIMITED**

(A wholly owned subsidiary of Power Finance Corporation Ltd. -  
A Government of India Undertaking)



## **VOLUME – II**

### **CONDITIONS OF CONTRACT**

**DETAILED SURVEY, SOIL INVESTIGATION, SOIL RESISTIVITY MEASUREMENT, PREPARATION OF REPORT FOR CONSTRUCTION OF A NEW 220/33/11 KV GIS SUBSTATION AT LOUTOLIM, GOA AND A D/C TRANSMISSION LINE FROM 400/220 KV SUBSTATION AT DHABHANDRA, GOA TO LOUTOLIM - USING MODERN SURVEY TECHNIQUES .**

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## **1.0. DEFINITION OF TERMS**

- 1.1 Unless defined otherwise, the following terms used in this document shall have the meanings.
- 1.2 “Employer” or “PFCCL” or Client” shall mean PFC Consulting Limited, New Delhi, India (a wholly owned subsidiary of Power Finance Corporation Ltd.) and shall include their legal representatives, successors and permitted assigns.
- 1.3 “Project In-charge” shall mean the officer appointed in writing by the Employer to act as “Coordinator” from time to time on behalf of Employer in all matters pertaining to this Contract.
- 1.4 “Specification” shall mean the Technical Specifications and the Conditions of Contract together with Bid Proposal Sheet forming a part of the bid documents and contract and such other schedules and drawings as may be mutually agreed upon.
- 1.5 “Notice of Award of Contract” / Letter of Award” shall mean the official intimation from the Employer notifying the successful bidder that its proposal has been accepted and that the bidder is required to sign the Contract Agreement.
- 1.6 “Date of Contract” shall mean the date on which both the parties have signed the Contract Agreement or any other date mentioned in the Contract/Letter of Award, as the effective date of Contract, whichever is earlier.
- 1.7 A “week” shall mean a continuous period of seven (07) days.
- 1.8 “Indian Rupees” or “Rs.” shall mean the mean the currency of the Government of India.
- 1.9 The “Government” shall mean the “Government of India” or an authorized representative/agency/department of the “Government of India”.
- 1.10 The words imparting singular shall also include the plural and vice-versa where the context so requires.
- 1.11 “Final Report” or “Report” will mean the final report or document prepared by the successful Bidder as per Employer’s Specification.
- 1.12 “Starting Date” shall mean the date from which the periods specified for various activities are measured and asset forth in the completion schedules. The starting date for each schedule, unless otherwise agreed, shall be as indicated in the respective schedule.
- 1.13 “Month” shall mean calendar month.
- 1.14 “Day or “Days” unless herein otherwise expressly defined shall mean calendar day or day of 24 hours each. Working days in a month shall be as defined by Consultant in its offer.

- 1.15 The title or heading shall not alter or affect the intent or scope of the clause or articles of the Documents
- 1.16 The Date of Completion of Contract, unless otherwise terminated under the provisions of any other relevant clause of the document, Contract shall be deemed to have been completed after issuance of the certification from Project In-charge that there is no demand outstanding against the Consultant and all liabilities under the contract have been satisfactorily fulfilled by the Consultant.
- 1.17 The “Final Acceptance of Work” provided by the Consultant under the Scope will be given by Employer as hereinafter defined, six (06) months after successful completion of the Consultancy assignment and submission of all documents, reports etc. to the Employer and acceptance of the reports by the concerned statutory Authorities, Government of India and upon certification by the Project In-charge.
- 1.18 Words imparting “Person” shall include firms, companies, corporations and association or bodies of individuals, whether incorporated or not.
- 1.19 “Consultant” or “Technical Specialist” or “Contractor” shall mean the bidder whose bid has been accepted by the Employer for the award of the work and shall include his legal representatives, successors and permitted assigns.
- 1.20 “Consultancy Assignment” or “Work” or “Study” or “Assessment” or “Services” shall mean the complete study as prescribed in the Specification / Terms of Reference.
- 1.21 “Contract” shall mean the Contract Agreement entered into between the Employer and the Consultant, together with the Contract documents referred to therein; they shall constitute the Contract and the term “Contract” shall in all such documents be construed accordingly.

## **2.0 VALIDITY**

The proposal shall be on firm price basis and valid for acceptance for at least 120 days from the date of submission of bid.

## **3.0 CURRENCY OF BID**

All prices quoted in the Schedules of the Bid Proposal Sheets should be in Indian Rupees and all payments shall be made in Indian Rupees.

## **4.0 THE BID DOCUMENTS**

- 4.1 This document is meant for exclusive purpose of submitting the offer by the bidder against the specification and shall not be transferred, reproduced or otherwise used for purposes other than for which it is specifically issued.
- 4.2 PFCCCL does not bind themselves to accept the lowest or any offer or to give reasons for their decision. PFCCCL reserves the right to reject any or all offers without assigning any reason.

## 5.0 CONTRACT PERFORMANCE GUARANTEE

The successful bidder, within **ten (10) days** of from the date of Letter of Award, will be required to arrange submission of CPG in the form of a Bank Guarantee (BG) or equivalent mode like Demand Draft to **Three (03) Percent** of the contract consideration. The CPG/BG should be as per Performa provided by the Employer and should be kept valid up to **Twelve (12) months from the date of Letter of Award** which would be extended till completion of the assignment, whichever is later.

The Contract Performance Guarantee is intended to secure the performance of the entire contract and shall not be construed as limiting the damages stipulated in other clauses in the Bid Documents.

The Performance Guarantee will be returned to the Contractor without any interest at the end of the Guarantee Period.

## 6.0 UNDERSTANDING AND CLARIFICATIONS ON DOCUMENTS AND SPECIFICATIONS

The bidder is required to carefully examine the specifications and documents and fully inform himself as to all the conditions and matters which may in any way affect the works or the cost thereof. If any bidder finds discrepancies or omissions in the specifications and documents or is in doubt as to the true meaning of any part, he shall seek clarification from Employer at once but in no case later than **Seven (07) days** prior to the deadline for submission of bids prescribed by the Employer. After receipt of such interpretations and clarifications, the bidder may submit his offer but within the time and date as specified. All such interpretations and clarifications shall form an integral part of the specifications and documents and accompany the consultant's proposal.

Verbal clarifications and information given by the Employer or its employee (s) or its representatives(s) shall not in way be binding on the Employer.

## 7.0 DISCREPANCIES AND ADJUSTMENT OF ERRORS

- 7.1 The Bid documents are mutually explanatory of one another. If there are varying or conflicting provisions made in any one of the bid documents, Employer shall be deciding authority with regard to the intention of the document.
- 7.2 Any errors in description, quantity or rate in Schedules or any omission there from shall not vitiate the Contract or release the Consultant from the execution of the whole or any part of the works comprised there in according to drawings and specifications or from any of his obligations under the contract.
- 7.3 If on checking any difference is found between the rates given by the consultant in words and figures or in the total amount worked out by him in the Schedules in the proposal, the same shall be rectified in accordance with the following rules:
  - i) In the event of discrepancy between description in words and figures quoted by bidder, the description in words shall prevail.

ii) In the event of an error occurring as a result of wrong extension of the unit rate and quantity, the unit rate shall be regarded, as firm and extension shall be amended on the basis of the rate.

iii) All errors in totaling in the amount column and in carrying forward totals shall be corrected.

7.4 The bidder should ensure that the prices furnished in various price schedules are consistent with each other. In case of any inconsistency in the prices furnished in the specified price schedules (to be identified in Bid Proposal sheets (BPS) for this purpose), the Employer shall be entitled to consider the highest price for the purpose of evaluation and to award the contract at the lowest of the price in these schedules.

7.5 Prior to detailed evaluation, the Employer will determine whether each bid is for acceptable quality, is generally complete and is substantially responsive to the bidding documents. For purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions and specifications of the bidding documents without material deviation, objection, conditionality or reservation is one

i) that affects in any substantial way the scope, quality or performance of the contract;

ii) that limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the successful bidder's obligations under the contract; or

iii) whose rectification would unfairly affect the competitive position of other bidders who are presenting substantially responsive bids.

The Employer's decision in respect of the determination of the responsiveness of a bid will be final and binding on all the bidders.

7.6 A bid determined as not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the bidder correction of the non-conformity.

7.7 The Employer 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 or affect the relative ranking of any bidder.

## **8.0 SIGNATURE OF BIDS/OFFERS**

8.1 The offer must contain the name, residence and place of business of the person or persons making the offer and must be duly signed and stamped on each page by the bidder with his usual signature.

8.2 Offer by a partnership firm must be furnished with full names of all partners and be signed with the partnership name, followed by the signature(s) and designations(s) of the authorized partner(s) or other authorized representative(s).

8.3 Offers by Corporation/ Company must be signed with the legal name of the Corporation/Company by the President, Managing Director or by the Secretary or other



person or persons authorized to furnish offer on behalf of such Corporation, Company in the matter.

- 8.4 An offer by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary' or other designation without disclosing his principal will be rejected.
- 8.5 The Bidder's name stated on the proposal shall be the exact legal name of the firm.
- 8.6 Erasures or other changes in the offer shall be over the initials of the person signing the bid.
- 8.7 Offers not conforming to the above requirements of signing may be disqualified.

#### **9.0 PROGRESSIVE PAYMENT**

All payments against the services shall be paid against production of invoice in quadruplicate by the Consultant. The payment of such fees shall be released as per clause No. 13.0 (Terms of Payment) of the Bid Invitation, on stage-wise completion of the services including submission of the Deliverables and subject to acceptance, approval and certification by the Project In-charge.

#### **9.1 PROCEDURE OF PAYMENT**

All the invoices of payment shall be supported by necessary documents and submitted in triplicate for the certification of Project In-charge which will require a maximum time of Seven (07) days before the same are submitted for processing the payment within Thirty (30) days of certification of the Project In-charge of the amount payable for the services. In the event, there is any query in respect of any item of such invoice requiring clarification, the Project In-charge shall notify the same within Fifteen (15) days of receipt of such invoice by the Employer that such a query has arisen and both the parties shall endeavor to reach an agreement within a period of Thirty (30) days thereafter. If no mutual agreement can be reached within a period of Forty Five (45) days after receipt of the invoices by the Project In-charge, the Employer shall make payment against the balance of invoice (original amount less the amount in question) to the Consultant within Thirty (30) days thereafter i.e. within Sixty (60) days from the date of receipt of invoice by the Project In-charge. The invoice for the balance amount under question shall be separately submitted for future consideration of the Employer.

#### **10.0 LIABILITY OF THE CONSULTANT**

Should any defect or inadequacy appear in the study carried out and report submitted by the Consultant prior to the date of final acceptance of the work by the Employer, the Consultant shall perform at its own initiative and free of any cost to Employer, all such services as shall be necessary to remedy the said defect or inadequacy.

The Consultant shall be further liable for the consequence of errors and omissions arising from the gross negligence on its part or on the part of its employees or associates or experts to the extent of the total contract value of this contract.

## **11.0 TAXES, DUTIES AND INSURANCE**

All taxes (including professional tax, etc. as applicable but excluding Goods and Services Tax), duties, levies, insurance charges, license fees, etc. arising out of the contract shall be payable directly by Consultant and shall be included in the basic lump sum bid price for the entire scope of work. Employer will not bear any expenditure, whatsoever on this account. As regards income tax, surcharge on income tax and other corporate taxes, the Consultant shall be responsible for such payments to the concerned authorities. However, the Employer is entitled to deduct TDS as per the Government Policies/Tax Rules and Regulations.

The Consultant shall be liable to take/maintain all necessary insurance at its own cost.

## **12.0 PATENT**

- 12.1 The Consultant shall hold harmless and indemnify the client from and against loss, damage and expenses arising from any claim for infringement of patent, copy right, design and other such rights in existence or to be granted on an application published prior to the completion of this Consultancy with respect to or arising out of the sue or supply of design, or any work in accordance with the designs, drawings or specifications furnished, approved or recommended by the consultant.
- 12.2 The Consultant shall promptly notify the Client in writing if the Consultant has or has acquired knowledge of any patent under which a claim or suit for infringement could reasonably be brought because of the use by the Client of any information, recommendation or specifications, services rendered by the Consultant.
- 12.3 The Consultant, in such case, shall forthwith at its own cost make and furnish to the client alternative designs, drawings, specifications or recommendations to avoid the same and without putting the Client to additional cost.

## **13.0 SETTLEMENT OF DISPUTE**

- 13.1 Except as otherwise specifically provided in the Contract all disputes concerning questions of fact arising under the Contract shall be decided by the Project In-charge subject to a written appeal by the Consultant to the Project In-charge, whose decision shall be final to the parties hereto.
- 13.2 Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with the Contract shall be to the extent possible settled amicably between the parties.
- 13.3 If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration as provided in **ARBITRATION** clause.

## **14.0 ARBITRATION**

- 14.1 In the event of any question, dispute or difference arising out of or in connection with this consultancy work, whether during the progress of the work or after its completion,

abandonment or breach of contract, the same shall be referred for arbitration, for which purpose the Client and the Consultant shall nominate one Arbitrator each. These Arbitrators shall appoint an Umpire not later than one month from the latest date of their respective appointment. The arbitration shall be conducted in accordance with the provisions of Indian Arbitration and Conciliation Act 1996, the rules framed hereunder and any statutory modifications thereof. The costs of reference and arbitration award shall be payable by the parties to the extent and in a manner as may be determined by the Arbitrators or the Umpire.

In case the Consultant is an Indian Public Sector Enterprise/ Govt. Dept. (but not a State Govt. Undertaking or Joint Sector Undertaking which is not a subsidiary of Central Govt. Undertaking), the dispute arising between the Employer and the Consultant shall be referred for resolution to a Permanent Arbitration Machinery (PAM) of the Department of Public Enterprises, Govt. of India.

- 14.2 Notwithstanding the existence of any dispute or difference and/or reference for the arbitration, the Consultant shall proceed with and continue without hindrance with the performance of the work under the contract with due diligence and expedition in a professional manner and the payment due to the Consultant shall not be withheld by the Client on account of such difference or arbitration proceedings unless such payment is subject matter of the arbitration.
- 14.3 The arbitrators may from time to time with consent of the parties enlarge the time, for making and publishing the award. The venue of arbitration shall be the registered office of the Employer.

#### **15.0 Termination on Default:**

- 15.1 The Employer may without prejudice to any other remedy for breach of contract, by written notice of default sent to the Consultant, terminate the Contract in whole or in part.
- i) If the Consultant fails to deliver any or all of the services within time period(s) specified in the contract or any extension thereof granted by the Employer in writing.
  - ii) If the Consultant fails to perform any other obligation(s) under the contract or
  - iii) If the Consultant, in either of the above circumstances, does not cure its failure within a period of Thirty (30) days after receipt of the default notice from the Employer.
- 15.2 In the event the Employer terminates in whole or in part, pursuant to Para 16.1.0, the Employer may get the services done, upon such terms and in such manner as it deems appropriate, similar to those not rendered, and the Consultant shall be liable to the Employer for any excess costs for such similar services. However, the Consultant shall continue performance of the Contract to the extent not terminated.

#### **16.0 TERMINATION FOR CONVENIENCE**

- 16.1 The Employer, may by written notice sent to the Consultant, terminate the contact, in whole or in part, at any time for its convenience, The notice of termination shall specify that termination is for Employer's convenience, the extent to which performance of work under the contract is terminated and the date upon which such termination become effective.
- 16.2 The studies/services that are completed and ready for final reporting within Thirty (30) days after the Consultant's receipt of notice of termination shall be accepted by the Employer at contract terms and prices. For the remaining services, the Employer may elect,
- i) To have any portion completed and delivered at the contract terms and prices and/or.
  - ii) To cancel the remainder and pay to the Consultant an agreed amount for partially completed services.

#### **17.0 TERMINATION FOR INSOLVENCY**

- 17.1 The Employer may at any time terminate the Contract by giving written notice to the Consultant, without compensation to the Consultant, if the Consultant becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Employer.
- 17.2 Upon termination of the contract at any time for whatever reason by the Employer compensation shall be payable to the Consultant for all services performed satisfactorily until the date of termination. In addition the Consultant will be paid for such of those items of work, which have been partially completed as per conditions stipulated under relevant clause. The Consultant shall provide available documentary evidences to this effect, acceptable to the Employer.
- 17.3 Following issuance by the Employer of a notice of termination and prior to the effective date of such termination, the Consultant shall:
- i) Terminate performance of work in progress under the contract on the date and to the extent specified in the notice of termination.
  - ii) Incur no further costs for services except as necessary to complete performance of any portion of the work under the contract not terminated by the said notice.
  - iii) Terminate all outstanding orders, service contracts and sub-contracts to the extent that they relate to the performance of work terminated by the notice;
  - iv) Transfer title and deliver to the Employer in the manner, at the times and to the extent, if any, as directed by the Employer, all completed or partially completed reports, designs, data, maps, plans, photographs, specifications, and commutations, etc. which, if the contract had been continued, would have been required to be furnished to the Employer.

The termination of the contract shall not relieve the Consultant of its duties and liabilities as per the contract for the portion of the services performed prior to the effective date of termination.

## **18.0 SIGNING OF AGREEMENT**

The Authorized Signatory of the Consultant shall be required to sign the Contract Agreement within Ten (10) working days of issue of Letter of Award or within such extended time, as may be granted by the Employer as per the pro-forma provided by the Employer. The Agreement will be signed in two originals and the Consultant shall be provided with one signed original Agreement.

## **19.0 GOVERNING LAWS**

This Consultancy work shall be governed by the Indian Laws for the time being in force and the Delhi Courts alone shall have the jurisdiction.

## **20.0 SUSPENSION OF THE OBLIGATION**

- 20.1 The obligations stipulated in this specification can only be suspended in the case of any particular item or work, in the event of Force Majeure as defined in clause 21.0 or as the result of an agreement between the parties.
- 20.2 In the event of Force Majeure, neither of the parties may be considered in default of its obligations under the terms of the Specifications.

## **21.0 FORCE MAJEURE**

- 21.1 Force Majeure is hereby defined as any cause which is beyond the control of the Consultant or Employer as the case may be, which they could not have foreseen and which substantially affect the performance of contract such as:
- i) Natural Phenomena including but not limited to floods, draughts, earthquakes and epidemics.
  - ii) Acts of any government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, embargoes, etc.

Provided either party shall within **Fifteen (15) days** from the occurrence of such a cause notify the other in writing of such cause.

## **22.0 HANDLING OF DOCUMENTS**

- 22.1 All plans, design calculations, studies, data, maps, drawings and specifications prepared by the Consultant in connection with the services to be provided by the Consultant shall be the property of the Employer. As when required or upon termination of the Contract, the aforesaid documents, prepared specifically for this Study (including originals), shall be handed over to the Employer before final acceptance or thereafter.

- 22.2 The Consultant shall take all necessary steps to ensure confidential handling of all matters pertaining to plans, designs, drawings, specifications, methods and any other information developed or acquired by him from the Employer under terms of the Contract or in performance thereof.
- 22.3 The Consultant shall not prepare articles or photographs for publication or speeches or presentations about the work and /or site and/or plant, contracts and installation in which has an interest without prior written consent of.
- 22.4 The Consultant shall take necessary steps to ensure that all persons employed on any work in connection with this contract have noticed that the Indian Official Secrets Act, 1923 (XIX of 1923) applies to them and shall continue to apply even after the execution of such work(s) under the contract.

### **23.0 ABANDONMENT OF WORK**

- 23.1 If any work included in the scope of specification to be done by the Consultant is abandoned or suspended for any cause or reasons, which cannot be attributed to the Consultant, payment, shall be made on a pro-rata basis for the work actually done and as decided by the Employer.

### **24.0 SUB-CONTRACT**

The Consultant cannot assign or sub-contract any of this work without the prior written consent of the Employer.

### **25.0 LIMITATION OF LIABILITIES**

- 25.1 The Employer shall in no way be responsible for any liabilities arising out of the Consultant's contractual obligation with the Consultant's personnel, experts, engineers, Sub-contractors, licensors, collaborators, vendors, or subsidiaries.
- 25.2 The Consultant and the Employer both agree that each shall assume full risk of damages of injury to its own properties, employees and representatives caused by any act or omission to act by their respective employees or representatives, during the performance.

### **26.0 CHANGES/ADDITIONS/DELETIONS**

- 26.1 The Employer shall have the right to request in writing additions or changes in the scope of services to be performed by the Consultant. If in the Consultant's opinion, any such additions or changes affect the completion schedule or the fee, Employer will be advised accordingly and the same shall be mutually settled. However, the Consultant shall continue to carry out the work pending till final settlement, if any.
- 26.2 The Employer reserves the right to delete any item/s or part thereof from the scope of services to be performed by the Consultant. For such purposes the Employer shall give to the Consultant a notice in writing on receipt of which the Consultant shall take necessary steps as may be directed by the Employer and shall stop incurring any expenditure and performing services in connection with the item/s of work so deleted.

- 26.3 The corresponding fee for the deleted item(s) of work will be arrive based on the fee identified in the Contract and shall be deducted from the fee payable to the Consultant under the Contract. The Consultant, however, shall be entitled for the compensation of the amount of work and services already performed in connection with item(s) deleted from the scope, at a mutually acceptable fee.

## **27.0 NO WAIVERS**

If Employer, in any instance, does not insist upon strict performance of any of the terms of the assignment, it shall not be construed as a waiver or relinquishment in the future till the assignment is in force and shall not relieve Consultant of any of its responsibilities under the assignment.

## **28.0 INSTRUCTIONS AND NOTICES**

All notices to be given on behalf of the Employer and all other actions to be taken on its behalf may be given or taken by the Project In-charge or any officer for the time being entrusted with the functions, duties and powers of the Project In-charge.

All instructions, notices and communications, etc., shall be given in writing and if sent by registered / speed post to the last known place of business of the Consultant, shall be deemed to have been served on the dates when in the ordinary course of post these would have been delivered to him.

## **29.0 BANKRUPTCY**

If the Consultant shall become bankrupt or have a receiving order made against him or compound with his creditors or being a corporation commence to be wound up, not being a voluntary winding up for the purpose only amalgamation or reconstruction, or carry on their business under a receiver for the benefit of their creditors or any of them, the Employer shall be at liberty:

- i) To terminate the assignment forthwith without any notice in writing to the Consultant or to the liquidator or receiver or to any person in whom the Consultant may become vested.
- ii) To give such liquidator receiver or other person the option of carrying out the consultancy assignment subject to their providing a guarantee for the due and faithful performance of the assignment up to an amount to be determined by the Employer.

## **30.0 PROGRESS REPORT**

- 30.1 The Consultant shall prepare and submit to the Employer weekly progress report showing the progress and status of the `Works being performed by him including such materials as charts, networks and photograph (if any) as per the directives of the Employer. Draft formats of progress reports shall be enclosed by the Consultant with the offer.
- 30.2 It is understood that submission of such reports and reviews thereof by the Employer shall not be deemed to absolve the Consultant of his responsibility of timely completion of the Assignment as per the time schedule indicated herein.

### **31.0 METHODOLOGY OF EXECUTION OF ASSIGNMENT**

- 31.1 Consultant shall clearly bring out in their bid their organization chart and the methodology they want to follow of successful execution of the assignment. Consultant along with the organization chart shall indicate the names of key persons proposed to be deployed for each activity of the project and their bio data. They shall also indicate separately the works they intent to carryout in their home office and in their office in India and estimated Man days. Consultant shall also bring out in his bid number of visits to site of the key personnel they envisage under the assignment.
- 31.2 Regular review meetings will be held one in Two (02) weeks either in the Employer's Office or Consultant's office in India and progress of work will be reviewed. The engineering co-ordination and consultant co-ordination procedure will be discussed and decided separately during the pre-award stage.

### **32.0 CORRESPONDENCE AND CONTRACT COORDINATION ROCEDURE**

- 32.1 All correspondence during the pre-award stage and during execution of the contract shall be made as per following procedure:-
- 32.2 On all technical matters pertaining to execution of the contract as per specification in the consultant shall directly interact with the Project In-charge.
- 32.3 All correspondence from the Employer to the Consultant shall be made with the full time Coordinator to be identified by the consultant and agreed by Employer.

### **33.0 INSPECTION OF SITE BY CONSULTANT**

The Consultant shall inspect and examine the site and its surroundings and shall satisfy himself as to the form and nature of the site, the quantities and nature of work and the equipment / materials necessary information as to risks, contingencies, and other circumstances, which may influence or affect his tender, before bidding.

### **34.0 MANPOWER DEPLOYMENT**

The Consultant shall deploy task force of well qualified and experienced engineering / science executive and draftsmen for this work. The manpower proposed to be deployed for this task shall be guaranteed by the Consultant in his offer both discipline-wise and category wise (for Engineers / Scientists and draftsmen) required for completion of service included under the scope of the specification. The Consultant shall depute a senior level executive to act as fulltime overall coordinator and focal point for all interactions with the Employer throughout the entire period of consultancy assignment. The bio-data of the Engineering / Scientific personnel proposed to be included in the Task Force should be enclosed with the offer. The task force so proposed is subject to the approval of the Employer. The Employer may ask for suitable substitution of Engineers/Scientists in place of the proposed ones, if it so desires.



### **35.0 LIST OF EQUIPMENT / INSTRUMENTS**

The Employer shall not make any additional payment for any type of equipment / accessories required by the consultant for this package or for any other purpose.

### **36.0 CO-ORDINATION PROCEDURE**

The Consultant shall propose in its offer the detailed co-ordination procedure with the Employer for performing the services. The system to be adopted shall provide control and continuity of all functions. Employer's participation in the major decisions shall be essential to the extent desired by the Employer. The coordination procedure and schedules of coordination review meeting between the Employer and the Consultant shall be mutually discussed and finalized before award of the Contract.

### **37.0 COLLABORATION**

The Consultant will be required to furnish the details its collaboration arrangement with various laboratories, institutions and other organizations along with consent letters from the collaborators categorically agreeing to carry out the assignment till the completion of the study. Such consent letter must contain a declaration that the consent given by the collaborator is irrevocable till successful completion of the assignment. The proposal will also precisely outline the responsibilities and task to be undertaken by the collaborator(s). The consent letters from the collaborators shall be enclosed with the Bid.

### **38.0 ASSOCIATION OF THE EMPLOYER**

The Employer may depute its representative to be present during the entire course of studies or any part thereof. The Project In-charge or his/her authorized representatives will have to be provided necessary information when asked for. He/she may further monitor the field and laboratory activities, and supervise the finalization of the documents. The Engineers will also discuss results of studies and may suggest different cases to be studied. The Consultant shall provide all facilities for the Employer's Project In-charge / Representatives to have fruitful participation in the work. The Consultant will submit all study results draft sections / documents to the Project In-charge for his approval and the final document will be prepared after incorporating changes / modifications / additions / alterations suggested by the Project In-charge.

### **39.0 LANGUAGE**

The offer must be submitted in English language, all documents, specifications, schedules, notices correspondences, operation & maintenance instructions, drawings or any other written material in connection with this work shall be in English language.

### **40.0 UNITS & INDIAN STANDARDS / CODES / REGULATIONS**

Indian Standards, codes and regulations, wherever applicable, shall be adopted and adhered to by the Consultant. In case of such Indian Standards / Codes / Regulations being

not available in particular areas, applicable and accepted International standards shall be followed.

#### **41.0 EMPLOYER'S RIGHT**

Employer reserves the right for the following:

- i) Rejection of any or all offers without assigning any reason whatsoever.
- ii) Rejection of any offer which is incomplete with regard to the required information of Scope of Work.
- iii) Review of the work performed by the Consultant either himself or through another Consultant separately appointed by him and asks for any clarification and changes / modifications to the work performed by the Consultant. Such changes shall be mutually discussed and agreed upon between the Employer and Consultant in his work without any cost and liability to the Employer and without any dilution of the responsibility of the consultant.

#### **42.0 TRAVEL EXPENSES**

The travel expenses incurred by the Consultant's personnel for journeys to site or Employer's Office or anywhere in connection with the study under Scope of this Specification will be borne by the Consultant and the Employer will not take any responsibility whatsoever on this account

#### **43.0 ACCESS TO CONSULTANT'S OFFICE / WORK SITE**

The authorized representative(s) of the Employer shall be provided access to the Consultant's and/or its Associates premises or to the work site at any reasonable time during the currency of this work for expediting, inspection & checking of the progress of the Consultant's work.

# **PFC CONSULTING LIMITED**

(A wholly owned subsidiary of Power Finance Corporation Ltd. -  
A Government of India Undertaking)



## **VOLUME – III**

### **TECHNICAL SPECIFICATION**

**DETAILED SURVEY, SOIL INVESTIGATION, SOIL RESISTIVITY MEASUREMENT, PREPARATION OF REPORT FOR CONSTRUCTION OF A NEW 220/33/11 KV GIS SUBSTATION AT LOUTOLIM, GOA AND A D/C TRANSMISSION LINE FROM 400/220 KV SUBSTATION AT DHABHANDRA, GOA TO LOUTOLIM - USING MODERN SURVEY TECHNIQUES.**

## 1.0 Scope of Work

**1.1** The scope shall cover Detailed Survey using Total Work stations/DGPS including route alignment, Profiling, Tower spotting, Optimization of locations, Contouring, , Preparation of bill of quantities for towers and tower accessories, Soil Investigation, Soil resistivity measurement and Preparation of reports for the following elements:

Sr. No.	Scope of Works	MVA/km/Acre (approx.)
1.	D/C Transmission lines from 400/220 kV substation at Dhabhandra, Goa to Loutolim	26 km
2.	33 kV HTLS line from Loutolim to Verna	05 km
3.	Establishment of 220/33/11 kV GIS substation at Loutolim, Goa.	70 Acre

**1.2** After carrying out the detailed survey and soil investigations, the contractor shall submit complete BOQ of the transmission lines, Tower schedule, Profiles, Survey reports and other details as per technical specification requirements.

## 2.0 The scope of work and technical specification requirement inter-alia include the following

### 2.1 Route Alignment

- I. The route Alignment shall be carried out by the contractor using Survey of India topographical maps.
- II. Requirement of Transmission Line Routing
  - a) The Re-alignment/ routing, if any required, of the transmission line shall be most economical from the point of view of construction and maintenance. The contractor shall identify & examine alternative route alignments and suggest to the Employer the optimal route alignment.
  - b) Routing/ Re-routing of transmission line through protected/reserved forest area should be avoided. In case it is not possible to avoid the forests or areas having large trees completely, then keeping in view of the overall economy, the route should be aligned in such a way that involvement of forest area and cutting of trees is minimum.
  - c) The route should have minimum crossings of Major River, Railway lines, National/ State highways, overhead EHV power line and communication lines.
  - d) The number of angle points shall be kept to minimum.
  - e) The distance between the terminal points specified shall be kept shortest possible, consistent with the terrain that is encountered.
  - f) Marshy and low-lying areas, river beds and earth slip zones shall be avoided to minimize risk to the foundations.
  - g) It would be preferable to utilize level ground for the alignment.
  - h) Crossing of power lines shall be minimum. Alignment of a transmission line with

respect to existing line will be kept considering ROW and tower falling distance.

- i) Crossing of communication line shall be minimized and it shall be preferably at right angle. Proximity and parallelism with telecom lines shall be eliminated to avoid danger of induction to them.
  - j) Areas subjected to flooding such as nalah shall be avoided.
  - k) Restricted areas such as civil and military airfield shall be avoided. Care shall also be taken to avoid aircraft landing approaches.
  - l) All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.
  - m) Certain areas such as quarry sites, tea, tobacco and saffron fields and rich plantations, gardens & nurseries which will present the Employer problems in acquisition of right of way and way leave clearance during construction and maintenance should be avoided.
  - n) Angle points during survey should be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.
  - o) The line routing should avoid large habitations, densely populated areas, Forest, Animal/Bird sanctuary, reserve coal belt areas, oil pipe line/underground inflammable pipe lines etc. to the extent possible.
  - p) The areas requiring special foundations and those prone to flooding should be avoided.
- III. For examination of the alternatives & identification of the most appropriate route, besides making use of information/ data/ details available/ extracted through Survey of India Topographical maps, the contractor shall also carryout reconnaissance/ preliminary survey as may be required for verification & collection of additional information/ data/ details.
- IV. The contractor shall submit his preliminary observations & suggestions along with various information/ data /details collected, topographical map data marked with the alternative routes etc. The final evaluation of the alternative routes shall be conducted by the contractor in consultation with Employer's representatives and optimal route alignment shall be proposed by the contractor. Site visit and field verification shall be conducted by the contractor jointly with the Employer's representative for the proposed route alignment.
- V. Final route alignment drawing with latest topographical and other details/ features including all rivers, railway lines, canals, roads etc. up to 8 km on both sides of selected route alignment shall be submitted by the contractor for Employer's approval along with report containing other information/details as mentioned above.
- VI. Changes in the route alignment, if any, during detail survey, shall be incorporated in the final route alignment drawings.

## **2.2 Detailed Survey**

- I. The detailed survey shall be carried out using Total stations etc. along the approved route alignment. As an alternative, the contractor may also use ALTM (Airborne Laser Terrain Modeling) techniques of equal or better accuracy for the detailed survey.

- II. Soil resistivity, along the route alignment shall be measured in dry weather by four electrode method keeping inter-electrode spacing of 50 meters. For calculating soil resistivity formula  $2(\pi)ar$  (Where  $a=50$  m and  $r$ = megger reading in ohms) shall be adopted. Measurement shall be made at every 2 to 3 km along the length of the route. In case soil characteristics changes within 2 to 3 km, values shall have to be measured at intermediate locations also. Megger reading and soil characteristics should also be indicated in the soil resistivity results.

### **2.3 Route Marking**

- I. The route of the transmission line shall be recorded using GPS/ DGPS of positional accuracy less than 3m.
- II. The co-ordinates of all the angle points as well as other important crossings, landmarks etc. shall be recorded using GPS for easy relocating.
- III. At the starting point of the commencement of route survey a suitable peg/spike shall be driven firmly into the ground to indicate location of the survey instrument. The co-ordinates of the location of the survey instrument shall also be recorded. Further, the co-ordinates at prominent position at intervals of not more than 750 meters along the transmission line to be surveyed up to the next angle point shall also be recorded. Wooden peg of 50x50x650mm size shall also be driven at prominent position at intervals of not more than 750 meters along the transmission line to be surveyed up to the next angle point. Wire nails of 50 mm length should be fixed on the top of these pegs to show the location of instrument. The pegs shall be driven firmly into the ground to project 100 mm only above ground level. Wherever the line alignment crosses the EHT line, Railway line, P&T line or roads, the contractor shall record co- ordinates on the points of crossing. Wherever line route alignment passes over permanent land marks such as rock, boulders, culverts etc. suitable white paint marks with directional and markings shall be made and co-ordinates recorded.

### **2.4 Profiling**

- I. The complete profiling along the route shall be carried out using modern surveying equipment viz. total stations. Reference levels at every 20 meters along the route are to be recorded. RLs at other undulations along the route as well as in the route plan and other En-route details viz. crossings, building & structures, trees & other infrastructure etc. shall also be recorded. Areas along the route, which in the view of the contractor, are not suitable for tower spotting, shall also be marked in profile. Any undulation keeping conductor location as reference may also be indicated as dotted line in profile.
- II. The complete profiling details shall be digitized and the data shall be prepared & stored in the format compatible to computer-aided tower spotting software.
- III. A printed/ plotted output of the digitized profiling shall be submitted by the contractor to

Employer for review before taking up computer- aided tower spotting.

- IV. For reconductoring packages, the Contractor shall then plot the profile of the HTLS Conductor under hot and cold conditions using the above ground profile & existing tower details, verify the various statutory electrical clearances & span limitations on the profile using sag tension calculations of the HTLS Conductor.

## **2.5 Optimization of Tower Location/ Tower Spotting**

- I. Optimization of tower locations including profiling shall be done by the contractor using computer-aided tower spotting software - PLSCADD and shall furnish sample calculations and manual tower spotting drawings for some typical sections.
- II. The sag-tension characteristics of the conductor as well as tower spotting data shall be furnished by the Employer to the contractor during execution stage. Sag template curves.
- III. If any required for tower spotting, shall be prepared by the contractor and two sets of sag-template curves shall be given to Employer for checking of profile.
- IV. General description of towers is indicated in Section–I of this specification for information of the Bidders.

## **2.6 Tower Spotting**

- I. While profiling & spotting the towers, the following shall be borne in mind:

### **A. Span**

The number of consecutive spans between the section points shall not exceed 15 spans or 5 km in plain terrain and 10 spans or 3km in hilly terrain. A section point shall comprise of tension point with B/DB/QB type or C/DC/QC type or D/DD/QD type towers as applicable.

### **B. Extension/Truncation**

An individual span shall be as near to the normal design span as possible. In case an individual span becomes too short with normal supports on account of undulations in ground profile, one or both the supports of the span may be extended by inserting standard body/ leg extension. In case of locations where the ground clearance is available, truncated towers may be spotted. The provisions kept in the design of towers w.r.t. body/ leg extensions, truncations shall be intimated to the contractor by the Employer during execution stage.

### **C. Loading**

There shall not be any upward force on suspension towers under normal working conditions and the suspension towers shall support at least the minimum weight span as provided in the designs. In case uplift is unavoidable, it shall be examined if the

same can be overcome by adding standard body extensions to the towers failing which tension towers designed for the purpose shall be deployed at such positions.

#### **D. Road Crossing**

At all important road crossings, the tower shall be fitted with normal suspension and tension insulator strings depending on the type of tower, but the ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken in adjacent span, ground clearance of the conductor from the road surfaces will not be less than specified minimum ground clearances. At all national highways, D/DD/QD type towers tension insulator strings shall be used and crossing span will not be more than 250 meters, unless higher span is permitted by national highways authority in case of highways having more lanes.

#### **E. Railway Crossings**

All the railway crossings coming En-route the transmission line shall be identified by the Contractor. At the time of detailed survey, the railway crossings shall be finalised based on the following and also confirming to the regulation laid down by the Railway Authorities.

- i) The crossings shall be supported on D/DD/QD type tower on either side.
- ii) The crossing shall normally be at right angle to the railway track.
- iii) The minimum horizontal distance measured at right angles from the center of nearest track to any part of a structure (all structures shall be rigid and well founded), carrying electrical conductors crossing a railway shall be equal to the height of the structure in meters above normal ground level plus 6 meters.
- iv) No crossing shall be located over a booster transformer, traction switching station, traction sub-station, Overlap Section or a track cabin location in an electrified area.
- v) The crossing span will be limited to 300 meters or 80 % of the normal span for which the structure is designed whichever is less.
- vi) Minimum ground clearance between crossing conductor under condition of maximum sag and railway line shall maximum of following:

##### **a) Vertical Clearance for OHE (other than high rise OHE):**

Sl. No.	Transmission line Voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
1	Above 66 kV & upto 132 kV	15.56 m
2	Above 132 kV & upto 220 kV	16.46 m
3	Above 220 kV & upto 400 kV	18.26 m
4	Above 400 kV & upto 500 kV	19.16 m



Sl. No.	Transmission line Voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
5	Above 500 kV & upto 800 kV	21.86 m

**b) Vertical Clearance for high rise OHE:**

Sl. No.	Transmission line voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
1	Above 66 kV & upto 132 kV	17.56 m
2	Above 132 kV & upto 220 kV	18.46 m
3	Above 220 kV & upto 400 kV	20.26 m
4	Above 400 kV & upto 500 kV	21.16 m
5	Above 500 kV & upto 800 kV	23.86 m

**Note:** Applicable only for electrification of routes where double stack container having maximum height of 6809mm is plying.

**c) Minimum Clearances between Highest Traction Conductor & Lowest Crossing Conductor**

Sl. No.	Transmission line voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
1	Above 66 kV & upto 132 kV	3.05 m
2	Above 132 kV & upto 220 kV	4.58 m
3	Above 220 kV & upto 400 kV	5.49 m
4	Above 400 kV & upto 500 kV	7.94 m
5	Above 500 kV & upto 800 kV	7.94 m

**F. River Crossings**

In case of major river crossing, river crossing towers shall be of suspension type along with anchor towers of D/DD/QD type tower on either side of the main river crossing. Alternately on the basis of economics and / or site/ execution constraints crossing of rivers using normal extended angle towers (+18/+25/+30M Extensions) also shall be considered. For navigable rivers, clearance required by navigation authority shall be provided. For non- navigable river, clearance shall be reckoned with respect to highest flood level (HFL).

**G. Power line Crossings**

Where the line is to cross over another line, towers with suitable extensions may be used, depending upon the merit of the prevailing site condition.

For power line crossing of 400 kV or above voltage level, large angle & dead- end towers (i.e. D/DD/QD) shall be used on either side of power line crossing (i.e. D/DD/QD - D/DD/QD arrangement).

For power line crossing of 132 kV and 220 kV voltage level, angle towers (B/C/D/DB/DC/DD/ QB/QC/QD) shall be used on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.

For power line crossing of 66 kV and below voltage level, suspension/ tension towers shall be provided on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.

In case of crossing with B/C/DB/DC/QB/QC towers proper guying shall be provided to facilitate stringing of the power line crossing sections separately on obtaining line shutdowns.

Clearance between lines crossing each other shall be kept in accordance with the CEA (Measures Relating to Safety and Electric Supply) Regulations, 2010 as amended up-to-date. In order to reduce the height of the crossing towers, it may be advantageous to remove the ground-wire of the line to be crossed (if this is possible and permitted by the Employer of the line to be crossed).

**a) Minimum clearance in meters between lines when crossing each other:**

Sl. No.	Nominal	110- 132 kV	220 kV	400 kV	765 kV	500 kV HVDC	800 kV HVDC	1200 kV
1	110-132KV	3.05	4.58	5.49	7.94	6.86	9.04	10.44
2	220KV	4.58	4.58	5.49	7.94	6.86	9.04	10.44
3	400KV	5.49	5.49	5.49	7.94	6.86	9.04	10.44
4	765KV	7.94	7.94	7.94	7.94	7.94	9.04	10.44
5	500KV HVDC	6.86	6.86	6.86	7.94	7.94	9.04	10.44
6	800KV HVDC	9.04	9.04	9.04	9.04	9.04	9.04	10.44
7	1200 KV	10.44	10.44	10.44	10.44	10.44	10.44	10.44

## H. Telecommunication Line Crossings

The angle of crossing shall be as near to 90 degree possible. However, deviation to the extent of 30 degree may be permitted under exceptionally difficult situations.

When the angle of crossing has to be below 60 degree, the matter will be referred to the authority in charge of the telecommunication System. On a request from the Contractor, the permission of the telecommunication authority may be obtained by the Employer.

Also, in the crossing span, power line support will be as near the telecommunication line as possible, to obtain increased vertical clearance between the wires.

## I. Oil Pipe-Line Crossings

Wherever transmission line crosses an oil/ gas pipeline, the angle of crossing shall be as near to 90 degree possible. Further, a minimum separation of 3 m should be maintained between pipe line and transmission line footings & pipe/ counterpoise earthing.

#### J. Details En-route

All topographical details, permanent features, such as trees, building etc. within following distance on either side of the alignment shall be detailed on the profile plan:

Sl. No.	Transmission line voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
1	1200 kV Single Circuit	44.5 m
2	765 kV Double Circuit	33.5 m
3	765kV Single Circuit Delta	32.0 m
4	765kV Single Circuit Horizontal	42.5 m
5	+800 kV HVDC	34.5 m
6	400kV Single Circuit	26.0 m
7	400kV Double Circuit	23.0 m
8	+500 kV HVDC	26.0 m
9	220 kV	17.5 m
10	132 kV	13.5 m

#### 2.7 Clearance from Ground, Building, Trees etc.

- I. Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the CEA's Regulations 2010 (Measures relating to Safety and Electric Supply).
- II. The Contractor shall count, mark and put proper numbers with suitable quality of paint at his own cost on all the trees that are to be cut by the Employer at the time of actual execution of the work as detailed below. Contractor may please note that Employer shall not pay any compensation for any loss or damage to the properties or for tree cutting due to Contractor's work.
- III. To evaluate and tabulate the trees and bushes coming within following distance on either side of the central line alignment the trees will be numbered and marked with quality paint serially from angle point 1 (I) onwards and the corresponding number will be painted on the stem of trees at a height of 1 meter from ground level.

Sl. No.	Transmission line voltage level	Minimum clearances from Rail Level New Power Line Crossing or Crossing Planned for Alteration
1	1200 kV Single Circuit	44.5 m

2	765 kV Double Circuit	33.5 m
3	765kV Single Circuit Delta	32.0 m
4	765kV Single Circuit Horizontal	42.5 m
5	+800 kV HVDC	34.5 m
6	400kV Single Circuit	26.0 m
7	400kV Double Circuit	23.0 m
8	+500 kV HVDC	26.0 m
9	220 kV	17.5 m
10	132 kV	13.5 m

## 2.8 Preliminary Schedule

- I. The profile sheets showing the locations of the towers together with preliminary schedules of quantities indicating tower types, wind & weight spans, angle of deviation, crossing & other details etc. shall be submitted by the contractor for review & approval by Employer's site-In-charge.

## 2.9 Contouring at hilly/ undulated locations

- I. The levels up or down of each pit center with respect to center of tower location shall be recorded at intervals of 2m using total stations/ GPS/ digital theodolite and digitized contour plans shall be made. Based on the digitized elevation plans, the quantities of benching & protection work vis-à-vis possible unequal leg extensions shall be optimized using suitable computer-aided techniques/ software or manual method. Required tower and foundation details, cost data for comparative valuation for benching & protection work vis-à-vis unequal leg extensions shall be provided by the Employer to the Contractor during execution stage.
- II. The changes desired by the Employer in the preliminary tower schedule or as may be required based on detailed survey of tower locations & contouring by the contractor, shall be carried out by the contractor and the final tower schedule shall be submitted for approval of Employer. The tower schedule shall show position of all type of towers, span length, type of foundation for each tower, benching & revetment requirement, unequal leg extensions, deviation at all angles, crossings & other details etc.

## 2.10 Survey Methodology & Precision

- I. All elevations shall be referenced to benchmarks established by the survey of India. Survey operations shall begin and end at benchmarks approved by the Employer.
- II. During the levelling of the profile, check surveys will be affected at intervals not exceeding 50 km with benchmarks of known elevations. The difference in elevations as surveyed by the contractor and as declared by Survey of India for these benchmarks shall not exceed the precision required for 3rd order surveys  $e \leq 24k$ , where k is the distance between benchmarks in km and e is the difference between elevations in mm.

- III. In the absence of suitable benchmarks, the levelling shall be done by two independent levelling parties working in opposite directions along the same line. The difference in elevations between the two surveys shall not exceed the precision required for 3rd order surveys as stated above.
- IV. All-important objects and features along the transmission line centreline (railways, highways, roads, canals, rivers, transmission lines, distribution lines, telephone lines etc.) shall be surveyed and located with a positional accuracy of 1:2000 between points of known horizontal position.

### **3.0 Soil Investigation along with Soil Resistivity Measurement**

**3.1** The Soil Investigation along with Soil Resistivity Measurement of the substation shall generally include the following:-

- I. The work shall include mobilization of necessary equipment, providing necessary engineering supervision and technical personnel, skilled and unskilled labour, etc. as required to carry out the entire field work as well as laboratory investigation.
- II. The technical requirements for the execution of soil Investigation, Soil Resistivity Measurement shall be as per Standard Specification / I.S. Codes/ CPWD Specification / Customer Specification / good standard of practices necessary to fulfil the objective.
- III. Carrying out geotechnical investigation and electrical resistivity test.
- IV. (Analysis and interpretation of data collected and preparation of a detailed soil report including specific recommendations for the type of foundations and the safe bearing capacity for different sizes of foundations at different founding levels for the various structures of the substation.
- V. (All the field & laboratory data shall be recorded in the preforms recommended in IS Codes/Customer approved protocols.
- VI. All work shall be carried out as per Customer Technical Specification.
- VII. The Bidder shall make his own arrangement for locating the coordinates and various test positions in the field (including clearance of the site at the location of test positions, if necessary) all as per the information supplied to him. The test locations shall be furnished during execution of work.
- VIII. The Bidder shall make his own arrangement for water and electricity (if required) and arrangement for putting up his man & material.
- IX. Grass cutting/Jungle cleaning required for carrying out soil investigation work shall deemed to be included in the bidder scope.
- X. Bidder must visit the site before quoting the rate to have fare idea of site. Drawing & locations of bore-holes / test points shall be provided to the successful bidder. Some test locations may be finalized at the site after successful award of the contract during detail engineering.

- XI. In case of anything mentioned in customer technical specification is at variance with standard technical specification/ IS code mentioned herein, the provision of customer technical specification shall prevail.
- XII. All laboratory test shall be carried out in customer approved Test lab/NABL accredited Test lab.
- XIII. After collection of sample from bore holes, trial pits, plate load test, etc. shall be backfilled as per direction of Engineer-In-Charge.
- XIV. Any other work required to complete above work.

### **3.2 No of Boreholes**

- i) Total Bore Holes to be considered as 8 nos. for detailed Soil investigation including Drilling boreholes of 150mm dia (Upto 15 M Depth into vergin soil or to refusal whichever occurs earlier) at specified locations including performing SPT, collecting disturbed and undisturbed samples, recording water table etc., laboratory tests, all complete as per specification including backfilling of boreholes as per scope of work and for the elements indicated in Clause No. 1.1.

### **3.3 Preparation of Bill of Quantities**

- i) Based on detailed survey, the detailed quantities for transmission line shall be prepared including no. of tower with extensions and tower accessories, number and type of tower foundation based on the soil investigation, conductor and conductor accessories, earthing wires and earthing accessories, insulators, hardware fitting and accessories, earthing fittings etc.

### **3.4 Submission of Report**

The Consultant is required to submit the following deliverables as per the scope and in line with the time schedule indicated against each deliverables:

- i) The Consultant shall submit weekly progress report for all the works/ studies/ survey as per the format mutually agreed upon.
  - a. Submission of alternate route alignments for transmission line and finalization of optimized route alignments for transmission line and estimation of land requirement and identification of three alternative sites for substation and selection of one optimized site as per **Annexure-A & B** in consultation with the Employer within **one (1) week** from the date of LoA.
  - b. Walk over survey of the optimized route and submission of Draft Reports (**three copies**) including the details of the substations and incorporating details as per **Annexure-A & B** within **two (2) weeks** from the date of LoA.
- ii) The Consultant shall submit five (05) copies of the following reports, both in soft and hard copies, in English language within **four (4) weeks from the date of LoA**.

- a) Draft Survey report and Draft Soil investigation and soil resistivity report as per scope
  - b) Final Survey report and Draft Soil investigation and soil resistivity report.
  - c) Bill of Quantity for the Transmission Line.
  - d) All raw data for all the studies/ reports/ surveys shall also be submitted.
  - e) All reports shall be submitted in A4 size sheets and all drawings on A0 size sheets. All drawings shall be properly bound and printed on good quality paper.
- iii) Consultant should provide assistance /deliverables as may be required, for successful completion of the assignment. The Consultant shall have to provide assistance /deliverables, as may be desired by PFCCL during the course of the assignment for the successful completion of the assignment to the satisfaction of PFCCL.
- iv) Following activities till the award of work to Transmission Service Provider:
- a) Initiation of forest clearances (if optimized route is passing through forest land), including preparation & filing of application and follow-up/co-ordination with the concerned Authorities.
  - b) Initiation of land acquisition (if applicable) for substation including preparation & filing of application and follow-up/co-ordination with the concerned Authorities.
- v) The consultant shall be required to attend the meetings/conference with the prospective TSPs or any other agency as intimated by Employer to clarify the issues relating to Survey during the Bidding Process of the transmission scheme.
- vi) Soft copy shall also be submitted for the Report along with drawings.
- vii) All raw data for all the studies/ reports/ surveys shall also be submitted.
- viii) All reports shall be submitted in A4 size sheets with font size 12, properly bound and printed using good quality paper & material. Map/sketch shall be provided in appropriate size sheets.

#### **4.0 Statutory Regulations**

The Contractor is required to follow local statutory regulations stipulated in Electricity Act 2003, CEA (Measures relating to Safety and Electricity Supply) Regulations 2010, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2010, Railway Regulations, Defence /Civil aviation guidelines, MoEF guidelines, Inland Water Authority of India/CWC Regulations etc. as amended from time to time and other applicable local rules and regulations.