



Pre-bid Queries and Answer

on

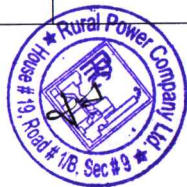
Design, Supply, Installation, Testing and Commissioning of 132 kV Double Circuit Transmission Line and Substation Bay Extension on Turnkey Basis Tender Ref: PUR-011(EPC/TL132kV/OTM)/2022-2023, Date: 10.01.2023

- A KEC International Limited
- B Confidence Infrastructure Ltd

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S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
Bidder-A				
1	Bid Document	General	During site visit it is found that the existing substation is under construction, We understand that the Substation site will be available for the construction at the award of contract. We understand that there will be no LD, in case of any delay in the site availability. Please confirm.	The developed site at the Ghatail grid substation is now available. Necessary further development (increase height considering flood level), compaction, other required development (if required) for preparation of the substation site shall have to be carried out by the contractor and cost need to be considered in tender.
2	Volume 1 & Volume 3	General	For the preparation of Bid, kindly provide the Price schedule and Technical data Sheet in Excel format.	Editable soft copy of tender document already uploaded in the RPCL website; www.rpcl.gov.bd .
3	Volume 1	Section C	The qualification criteria for manufacturers and supplier are missing, kindly Provide.	Please see Appendix- "AA" for the qualification criteria for manufacturers and supplier.
4	Volume 1	Price Schedule 3,4,5	We understand that the Local VAT on Schedule 3, 4 and 5 to be paid by Employer. Please confirm.	Tender provision will prevail. The Local VAT on Schedule 3, 4 and 5 to be paid by Contractor.
5	Volume 1	Price Schedule 3,4,5	We understand that AIT on Schedule 3, 4 and 5 to be paid by Employer. Please confirm.	Tender provision will prevail. AIT on Schedule 3, 4 and 5 to be paid by Contractor.
6	Volume 1	Taxes & Duties	Please confirm Taxes and Duties are part of Evaluation.	For Schedule No. 1 (Plant and Mandatory Spare Parts Supplied from Abroad) and Schedule No. 2 (Plant and Mandatory Spare Parts Supplied from Within the Employer's Country) Taxes and Duties shall not be part of the Evaluation. For finalizing EPC price applicable Tax and VAT to be added in the EPC contract price. Please see ITT clause 57. Evaluation shall be in pursuant to Rule 98 of Public Procurement Rule, 2008.



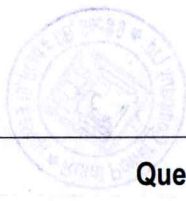
S.N o.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
7	Voulme 1	General	As per provision under GCC clause 60, the prices under schedule 1 and 2 is exclusive of CD and VAT. Please confirm that applicable CD, VAT on Schedule 1 and 2 shall not be considered for derive evaluated prices for price comparison.	Tender provision will prevail. Please see ITT clause 57. Evaluation shall be in pursuant to Rule 98 of Public Procurement Rule, 2008. Applicable CD, VAT on Schedule 1 and Schedule 2 shall not be considered for derive evaluated prices for price comparison.
8	Voulme 1	Taxes & Duties	Kindly inform that CD VAT is exempted for RPCL or not for this project?	Not exempted.
9	Voulme 1	Clause ITT 17.1	The major equipment mentioned is for qualification purpose and evaluate bidder capacity. The deployment shall be done as per project schedule, please confirm.	Confirmed, major equipment deployment shall be done as per project schedule. Necessary papers shall have to be submitted against of major equipment.
10	Voulme 1	Schedule 5, 5.1 and 5.2	Item under Schedule 5, 5.1 and 5.2 – As the complete scope of supply is under Contractor, please confirm the applicability of this line item.	Bidder are requested to quote of the line item cost of 5.1 and 5.2 in the Schedule No. 1: Plant and Mandatory Spare Parts Supplied from Abroad and Schedule No. 2: Plant and Mandatory Spare Parts Supplied from Within the Employer's Country instead of schedule 5 item no 5.1 and 5.2.
11	Voulme 1	Schedule No 7	Please confirm whether recommended spares will be part of evaluated prices or not.	Not evaluated.
12	Voulme 1	Appendix I, 1.0.3	Ten percent (10%) of CIF amount as an advance payment on receipt of invoice and advance payment security. Please inform the days in which payment shall be made on submission of these documents.	Tender provision will prevail.
13	Voulme 1		Effective Date – Please allow effective date as later of following activity – Contract signing, submission of performance security and release of advance.	Effective date will be the start date. After signing of the contract, Project director will issue a Notice to Proceed (NTP) and the date mentioned in the NTP will be the effective date of the contract (EDOC).

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S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
14	Volume 1		Please inform the timeline for payment of custom duty and VAT for item under Schedule 1, on submission of document by Contractor.	It will be finalized after signing of the contract.
15	Volume 1	S.No j) page 113 on submission of documents.	Please inform the timeline for issuance of document under Payment Requests for imported items under S.No j) page 113 on submission of documents.	It will be finalized after signing of the contract.
16	Volume 1	S.No k) page 113 on submission of documents.	Please inform the timeline for issuance of document under Payment Requests for imported items under S.No k) page 113 on submission of documents.	Tender provision will prevail.
17	Volume 1	Clause 7.1, P	We understand that the Foundation Reaction is including overload factor and other factors. Please confirm.	Tender provision will prevail. Please see Clause 7.1 of Volume 1.
18	Volume 2 Part-1	Clause 4.1.6	<p>As per our understanding the scope of Tower design is in not in contractor's scope. Kindly confirm our understanding is correct.</p> <p>We request you to provide the design and drawings for River Crossing towers or River crossing foundation to be considered (18/10 & 18/11).</p>	<p>Tender provision will prevail.</p> <p>It is the responsibility of the Bidder to ensure the PGCB approved Tower design is in line with Tender design requirements. Please see the clause 6.1, A of Volume 1 and Clause 4.1.5 and 4.1.6 of Volume 2, Part 1. The bidders are requested to collect the necessary tower and foundation drawing from PGCB.</p> <p>Tender provision will prevail. Bidders are requested to consider river crossing tower and necessary foundation for AP-18/T10 & AP-18/T11 and its necessary cost need to be considered.</p>
19	Volume 2 Part-1	Clause 11.1.5	The warranty for Conductor has asked for 3 years, whereas the Defecet Liability period is asked only for 730 days i.e. 24 month. Kindly confirm the warranty of the conductor.	Tender provision will prevail.





S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
20	Volume 2 Part 2	Clause 6.1, Page 240	It is indicated that drawing shall be collected by the Contractor from PGCB and its necessary cost borne by Contractor. Please inform the charges agreed between RPCL and PGCB for providing the approved drawing.	Bidder's responsibilities.
21	Volume 2 Part 2	Chapter 6.1, sub clause 1	It is not applicable as it is type tested design.	Bidders request is not clear. It is the responsibility of the Bidder to ensure the PGCB approved Tower design is in line with Tender design requirements. The bidder who are already supplied those tower (tower to be used for construction of transmission line under the tender) to PGCB need not perform type test. Contractor has to submit PGCB witnessed test report. Bidder shall carryout the Proto Assembly Test (PAT) and Factory Acceptance Test (FAT). For any new tower design, the type testing shall be in Bidder's scope.
22	Volume 2 Part-2	Clause 5	Kindly provide the details of existing substation make of CRP, SAS & Communication Equipments.	Bidder's responsibilities.
23	Volume 2 Part-2	Clause 10	We understand that the existing control room building can accommodate the equipment (CRP, Communication, LV switchgear and Battery sets) and no need to extend the building. Please confirm.	Bidder's responsibilities. The Bidders are advised to conduct site visits and discuss with PGCB to inform themselves and to carry out their own assessment according to their needs before the submission of their bids.
24	Volume 2 Part-2	Clause 5	DFDR has provided in Scope of work but it has not mentioned in Price schedule. Kindly provide a BOQ line item for DFDR if required.	You are requested to load the price under section G 'Control, Protection, Substation Automation System and Metering' of the substation bay extension price schedules.
25	Volume 2 Part-2	Existing Cable Trench	We understand that existing Cable trenches, Outdoor and In Control Room, are available to cater the proposed scope. Please confirm.	You are requested to quote the respective cost of services if required in Schedule no.4- Civil works part.

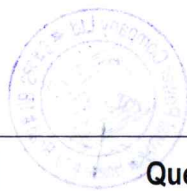


S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
26	Volume 2 Part-2	Battery & Battery Charger (110V & 48V)	Whether existing Battery & Battery Charger can meet the requirement of proposed scope or not. Please confirm.	New battery set and battery charger shall have to be installed for the RPCL Bay Extension DC supply. Same cost need to be considered in the tender.
27	Volume 2 Part-2	Existing Control Room Extension	Whether Existing Control Room extension is required or not. Please confirm.	Bidder's responsibilities. The Bidders are advised to conduct site visits and discuss with PGCB, to inform them and to carry out their own assessment according to their needs before the submission of their bids.
28	Volume 2 Part-2	ACDB & DCDB	Check and confirm whether Spare feeders are available in Existing ACDB and DCDB for new bays. Please confirm.	New ACDB set and DCDB panel shall have to be installed for the RPCL Bay Extension DC and AC supply. Same cost needs to be considered in the tender.
29	Volume 2 Part-2	SAS	Provide Existing SAS Architecture drawings. Check Spare port availability in Ethernet switches. Existing SAS Make, Model number, Software installed details etc. to be checked and confirmed during Site Survey.	Bidder's responsibilities. The Bidders are advised to conduct site visits and discuss with PGCB to inform themselves and to carry out their own assessment according to their needs before the submission of their bids.
30	Volume 2 Part-2	SAS	<ol style="list-style-type: none"> 1. We understand that the proposed 132kV Line bays are to be integrated in the existing SAS. Please confirm. 2. Please confirm the make of existing SAS. 	<ol style="list-style-type: none"> 1. Confirm. 2. Bidder's responsibilities. The Bidders are advised to conduct site visits and discuss with PGCB to inform themselves to carry out their own assessment according to their needs before the submission of their bids. The Employer will assist for site visit (if required).
31	Volume 2 Part-2	Bus Bar Protection	<p>Please provide Following for Bus Bar Protection</p> <ul style="list-style-type: none"> - Make & Model number, - whether Bus Bar protection bay units are available for new 132kV Line bays. - existing Bus bar protection Schematics 	Bidder's responsibilities. Bidders are advised to conduct site visits and discuss with PGCB to inform themselves and to carry out their own assessment according to their needs before the submission of their bids.



S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
			drawings	
32	Volume 2 Part-2	CRP	We understand that the space is available for two nos of 132kV Control & Relay panel. Please confirm.	Bidder's responsibilities. Bidders are advised to conduct site visits and discuss with PGCB to inform them and to carry out their own assessment according to their needs before the submission of their bids.
33	Volume 2 Part-2	Earthing	Earthing scope is limited for two number of 132kV Line Bay only. Please confirm.	Please see the existing substation drawings in the web published and tender document. The earthing scope markup is provided in the existing Substation layout drawing. The connection of new earthing system with the existing earthing shall be in Bidder's scope.
34	Volume 2 Part-2	Earthing	Please provide Existing Earthmat spacing for Extension bay area.	Bidder's responsibilities to collect the drawing from PGCB.
35	Volume 2 Part-2	Main Earth Mat	Bidder understand that, Bidder to extend existing Earhmat only . Earthing design calculation for extension bay is not required. Please confirm.	Bidder to extend existing Earth mat considering the fault current of the Ghatail grid substation. Earthing design calculation is required considering fault level /MVA for bay extension. Bidder shall perform the grounding study of collective ground grid for the complete substation to ensure touch and step potentials are within safe limits.
36	Volume 2 Part-2	Exising Drawing / Equipment drawing	Provide Following existing drawing for 132kV SS 1) Earthing Layout. 2) Outdoor Cable Trench Layout. 3) Erection Key Diagram Layout. 4) Lighting Layout. 5) Existing ACDB & DCDB equipment Drawing. 6) Lightning Protection drawing 7) Existing CRP Schematic drawing 8) Existing SAS Architecture 9) Existing Metering System 10) Existing FOTE System	Bidder's responsibilities to collect the drawing from PGCB.





S.No.	Volume	Tender Section/Clause No.	Queries of Bidder	RPCL Reply
37	Volume 2 Part-2	ACSR Conductor Details	Provide Existing Substation Conductor Type details for Main Bus, Jack Bus and 132kV Equipment to Equipment connection	Bidder's responsibilities to collect the drawing from PGCB.
38	Volume 2 Part-2	Lighting Fixture	Provide existing lighting fixture details/ Bidder has considered LED Type Outdoor lighting Fixture with Gantry mounting. Please confirm.	Bidder's responsibilities to collect the drawing from PGCB. LED light fitting can be considered by Bidder. Tender provisions will prevail. The gantry mounting of fixtures is subject to PGCB approval.
39	Volume 2 Part-2	Lighting Pole	For Road Lighting Lighting Pole is required or Not. Please confirm.	Tender provision will prevail. Please see Clause 13.25 of Volume-2, Part-2
40	Volume 2 Part-2	132kV ISOLATOR	Type of 132kV Isolator - HCB / HDB Type. Moving Blade material - Al / Copper. Please confirm.	This shall be finalized and subject to PGCB approval during detailed design.
41	Volume 2 Part-2	132kV CB	132kV CB Shall be Single Pole operated or 3 Pole Gang operated for New 132kV Line Bay. Please clarify.	The breaker are single pole operated
42	Volume 2 Part-2	132kV BPI	132kV BPI shall be 6KN. Please confirm.	Tender provision will prevail.
43	Volume 2 Part-2	132kV String Insulator	132kV String Insulator shall be Disc Type / Polymer Type / Glass Type - Please confirm.	For substation insulators, bidder to confirm and match the existing design during site visit. Tender provision will prevail. Please see Annex 9-1,page 161
44	Volume 2 Part 01	Annex-7.1/ Alpha Value	As per appendix No. 7-A4,to calculate the skin friction for clay soil the attachment coefficient is to be considered from 0.3 to 0.7, Whereas as per code BS8004:2015 ,The alpha value depends on Cu and ranges between 0.4 to 1.0, So kindly clarify how to consider the alpha value for design calculations.	Tender provision will prevail.
45	Volume 2 Part 01	Annex-7.1/ Minimum Factor of safety	Minimum factor of safety for piles or drilled shaft i.e. ultimate resistance to allowable load (for all types of soil category) is 2.0. So kindly clarify it is to be considered 2.0 or 1.5	Tender provision will prevail.





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46			For Bored cast in situ pile design, no specific design criterias like fixicity depth, subgrade reaction for different soil category have been mentioned. So kindly clarify whether IS 2911 CODE can be followed for this or not	Tender provision will prevail. For Fixicity depth see Appendix-“AB” .
47	Volume 1	Tower Type	The Tower type given in the price schedule is 1D10, But in page 272, the foundation reaction provided is for 1D1, Kindly clarify both the tower type are same or not	1D1 and 1D10 both are same.
48	Volume 2 Part 01	22.4/ Typical Drawings	The pile type used here is RC spin Type. Kindly clarify the same.	Drawing shared in the tender document are typical drawings, types of foundations shall be decided during detailed engineering subject to approval of RPCL/PGCB.



SL No.	Tender Section/Clause No.	Reference (Section / Paragraph / Page)	Query	RPCL Reply
Bidder-B				
1	General (mentioned in the letter) GCC Clause 60.2 "Taxes and Duties"		GCC Clause 60.2 "Taxes and Duties" states that, The Employer shall bear and Promptly pay All customs and import duties for plan specified in price schedule-1 (Supplied from Abroad) but in Section-2(TDS) Evaluation criteria is not clear about Evaluation process.	Tender provision shall prevail. For evaluation criteria, Please see ITT clause 57. Evaluation shall be in pursuant to Rule 98 of Public Procurement Rule, 2008.
2	GCC Clause 60.2 "Taxes and Duties-	Schedules of Rates and Prices-transmission Line (Page No 147-Bid Document Volume-1) Schedule no 1-Plant and Mandatory Spare parts supplied from abroad (Currency USD) GCC Clause 60.2 "Taxes and Duties-The Employer shall bear and Promptly pay All customs and import duties.	Schedule no 1-Plant and Mandatory Spare parts supplied from Employers' Country Section 2(TDS) Evaluation criteria: A margin of preference will be granted to eligible domestically produced Plant & Equipment	As per approved DPP approved by ECNEC the Package OTM turn-key basis. As per PPR -2008 rule 84 (Gh) and CPTU standard document for supply & Installation of Plant & Equipment (National/International) Applicable for One Stage Two Envelop Tendering for turn-key Contract, domestic preference are not eligible. Note: Gh=घ.
3	GCC Clause 56.2	As per GCC Clause 56.2 states that the contract price shall not be adjusted but in Bid document Page 118 Appendix-2 Price Adjustment has been given to the contractor.	As TDS states that GOB fund tender So Raw material Price continuously fluctuate Due to Global Dollar Crisis, Hence Price Adjustment should be Allow to the contractor.	Tender provision will prevail. Contract price is fixed and shall not be adjusted.
4	PCC Clause 24.1	As per PCC Clause 24.1 states that The Time for completion of the whole of facilities within 18 (Eighteen) months from effective date of contract agreement.	As per tender Scope states that Design, Supply, Installation and Commissioning of 45KM Transmission line with ROW clearance work hence required Time for completion of the whole of	Tender provision will prevail





SL No.	Tender Section/Clause No.	Reference (Section / Paragraph / Page)	Query	RPCL Reply																																																								
			facilities within 30 (Thirty) Months from effective date of contract agreement.																																																									
5	ITT 39.1 and ITT 39.3	As per TDS states that tender Closing date 22.02.23	As a Local Bidder we have to collect Manufacturer's Authorization for Maximum foreign items also China vacation start for 15 to 20 days Hence amendment tender Closing date 10.03.23	The extended deadline for submission of Tenders will be Time: 12:00 Noon (BST) & Date : 13.03.2023																																																								
6		As per CPTU standard Tender document (STD) in Section 2 TDS Clause 18.2, Page 40 Clearly state that below JV criteria 14.1(b) Lead Partner must meet <table border="1" data-bbox="526 790 1108 1037"> <tr> <td colspan="4">ITT 18.2 Maximum number of partners in the JV shall be [insert number or insert "not limited"]</td> </tr> <tr> <td colspan="4">The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:</td> </tr> <tr> <th>TDS Clauses References</th> <th>Requirements by summation</th> <th>Requirements for Leading Partner</th> <th>Requirements for other Partner(s)</th> </tr> <tr> <td>ITT-14.1(a)</td> <td>Summation not applicable</td> <td>Same as stated in TDS</td> <td>Same as for Leading Partner</td> </tr> <tr> <td>ITT-14.1(b)</td> <td>100%</td> <td>At least one Contract</td> <td>Not applicable</td> </tr> <tr> <td>ITT-15.1(a)</td> <td>100%</td> <td>40%</td> <td>25%</td> </tr> <tr> <td>ITT-15.1(b)</td> <td>100%</td> <td>40%</td> <td>25%</td> </tr> </table>	ITT 18.2 Maximum number of partners in the JV shall be [insert number or insert "not limited"]				The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:				TDS Clauses References	Requirements by summation	Requirements for Leading Partner	Requirements for other Partner(s)	ITT-14.1(a)	Summation not applicable	Same as stated in TDS	Same as for Leading Partner	ITT-14.1(b)	100%	At least one Contract	Not applicable	ITT-15.1(a)	100%	40%	25%	ITT-15.1(b)	100%	40%	25%	In RPCL tender in Section 2 TDS Clause 18.2, Page 42 Clearly state that below JV criteria 14.1(b) Combinedly meet JV criteria which not comply CPTU as per CPTU standard so please Amend the 14.1(b) clause Lead Partner must meet <table border="1" data-bbox="1164 853 1691 1061"> <tr> <td colspan="4">ITT 18.2 Maximum number of partners in the JV shall be three (3). The experience of the JV partner whose stake in the JV is less than 20% will not be taken into consider.</td> </tr> <tr> <td colspan="4">The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:</td> </tr> <tr> <th>TDS Clauses References</th> <th>Requirements by summation</th> <th>Requirements for Leading Partner</th> <th>Requirements for other Partner(s)</th> </tr> <tr> <td>ITT-14.1(a)</td> <td>Summation not applicable</td> <td>Same as stated in TDS</td> <td>Same as for Leading Partner</td> </tr> <tr> <td>ITT-14.1(b)</td> <td>100%</td> <td>Not applicable</td> <td>Not applicable</td> </tr> <tr> <td>ITT-15.1(a)</td> <td>100%</td> <td>40%</td> <td>25%</td> </tr> <tr> <td>ITT-15.1(b)</td> <td>100%</td> <td>40%</td> <td>25%</td> </tr> </table>	ITT 18.2 Maximum number of partners in the JV shall be three (3). The experience of the JV partner whose stake in the JV is less than 20% will not be taken into consider.				The minimum qualification requirements of Leading Partner, other Partner(s) and requirements by summation of a JV shall be as follows:				TDS Clauses References	Requirements by summation	Requirements for Leading Partner	Requirements for other Partner(s)	ITT-14.1(a)	Summation not applicable	Same as stated in TDS	Same as for Leading Partner	ITT-14.1(b)	100%	Not applicable	Not applicable	ITT-15.1(a)	100%	40%	25%	ITT-15.1(b)	100%	40%	25%	Tender provision will prevail.
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7		RPCL Tender in Section 2 (TDS)- Manufacturers Qualification Criteria and other related document is not mention.	Manufacturers Qualification Criteria and other related document should be mention	Please see Appendix-“AA”																																																								



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8	General		<p>Tender "GCC Clause 60.2</p> <p>•Taxes and Duties" states that, The Employer shall bear and Promptly pay All customs and import duties for plan specified in price schedule-1 Supplied from Abroad (Quoted in USD)" But for Schedule no 2- Plant and Mandatory Spare parts supplied from Employers' Country (Quoted in BDT) and Taxes and Duties" will be pay Local manufacturer's.</p> <p>Also, in your Tender document in Section-2(TDS) Evaluation criteria is not clear about Evaluation process. Hence Local Tower manufacturers will not be getting any margin of preference for domestically produced Plant & Equipment under GOB fund Tender. Which Does not comply PPR Guide line?</p>	<p>Bidder may quote in USD / EUR and BDT in Schedule no 2-Plant and Mandatory Spare parts supplied from Employers' Country.</p> <p>For evaluation criteria, Please see ITT clause 57. Evaluation shall be in pursuant to Rule 98 of Public Procurement Rule, 2008.</p> <p>As per approved DPP approved by ECNEC the Package OTM turn-key basis. As per PPR -2008 rule 84 (Gh) and CPTU standard document for supply & Installation of Plant & Equipment (National/International) Applicable for One Stage Two Envelop Tendering for turn-key Contract, domestic preference are not eligible.</p> <p>Note: Gh=₹.</p>
9		<p>Schedules of Rates and Prices transmission Line (Page No 147-Bid DocumentVolume-1)</p> <p>Schedule no 1-Plant and Mandatory Spare parts supplied from abroad (Currency USD)</p>	<p>Schedule no 2-Plant and Mandatory Spare parts supplied from Employers' Country (Currency USD or BDT)</p> <p>Section 2(TDS) Evaluation criteria: A margin of preference will be granted to eligible domestically produced Plant & Equipment (Enclosed Ref</p>	<p>Bidder may quote in USD / EUR and BDT in Schedule no 2-Plant and Mandatory Spare parts supplied from Employers' Country.</p> <p>Response to Section 2 (TDS) -</p> <p>As per approved DPP approved by</p>



SL No.	Tender Section/Clause No.	Reference (Section / Paragraph / Page)	Query	RPCL Reply
			PGCB/DPDC Tender)	<p>ECNEC the Package OTM turn-key basis. As per PPR -2008 rule 84 (Gh) and CPTU standard document for supply & Installation of Plant & Equipment (National/International) Applicable for One Stage Two Envelop Tendering for turn-key Contract, domestic preference are not eligible.</p> <p>Note: Gh=घ.</p>
10		As per Schedule 5 SL no 6 Required Type Test of Tower (page No 183)	As Transmission Line Handover to PGCB so Local manufactures who are enlisted with PGCB, does not need to perform any Type Test of Tower for This tender and Local manufacturer only submit PGCB witness test report along the tender.	<p>Tender provision will prevail.</p> <p>It is the responsibility of the Bidder to ensure the PGCB approved Tower design is in line with Tender design requirements. The bidder who are already supplied those tower (tower to be used for construction of transmission line under the tender) to PGCB need not perform type test. Contractor has to submit PGCB witnessed test report. Bidder shall carryout the Proto Assembly Test (PAT) and Factory Acceptance Test (FAT).</p> <p>For any new tower design, the type testing shall be in Bidder's scope</p>





SL No.	Tender Section/Clause No.	Reference (Section / Paragraph / Page)	Query	RPCL Reply
11		As per Schedule 4 SL no 1.1.2 c "Compensation for Land (Footprint Area)" Unit KM. (page No 173)	Need to be Change unit rate Per location instead of KM , As per New Rules for Land Purchased Please clarify this Scope under RPCL or Contractor.	Schedule 4 item SL no 1.1.2 c - Compensation for land: This shall include all types of compensation for tower foundation (footprint area). Unit "Each" and amount 159. If there is any increase in tower quantity during detail design, additional cost if any shall be borne by the contractor. Compensation for land means compensation for land area, crops, trees, houses and structure that will be present in the tower foundation footprint area.





Appendix-“AA”

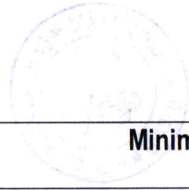
Qualifications criteria for Manufacturers and supplier

A. Manufacturers

Manufacturers for the following major items of plant and services must meet the following minimum criteria, herein listed for that item. Failure to comply with this requirement will result in rejection of the OEM but not the bidder.

No.	Equipment/ Services	Minimum Criteria	Remarks
1	Tower Manufacture	<ul style="list-style-type: none">• At least last <i>three (3) years</i> of experience prior to the date of bid submission in manufacturing minimum 110 kV or higher voltage steel towers• Evidence from end users (at least one) of satisfactory service of equipment for a minimum of <i>two (2) years</i> prior to the bid submission date.• Minimum average delivery over the <i>last 3 years of 3,000 tons of steel towers</i> including 220kV or higher voltage• Implemented ISO 9001 certificate• Technical datasheets, drawings, catalogues and other technical documents• Manufacturer's authorization letter	Certificate/Document need to be attached against qualification in the tender.
2 A	ACCC Conductor	<ul style="list-style-type: none">• Manufacturer's proposed factory must have manufacturing experience of ACCC conductor for at least three (03) years and supply record of at least 100km ACCC conductors prior to the bid submission date.• A transmission line with said conductors shall be in satisfactory operation for a minimum of one (01) year as on the date of bid submission deadline.• Operational acceptance certificate or end user certificate from the Employer or the Engineer to demonstrate compliance with the requirement related to manufacturing experience and satisfactory operation.• Implemented ISO 9001 certificate	Certificate/Document need to be attached against qualification in the tender.





No.	Equipment/ Services	Minimum Criteria	Remarks
		<ul style="list-style-type: none">Type test reportManufacturer Authorization letter	
2 B	ACSR Conductor	<ul style="list-style-type: none">At least last ten (10) years of experience prior to the date of bid submission in manufacturing ACSR conductors.Minimum average delivery over the last 5 years of 300 km of ACSR conductors with equal or higher ratings than those offered.Evidence from end users (at least one) of satisfactory service of offered or higher type ACSR conductor for a minimum of three (3) years on the date of bid submission.Manufacturer's authorization letterImplemented ISO 9001 certificate;Type test report for the offered type Conductor;	Certificate/Document need to be attached against qualification in the tender.
3	OPGW	<ul style="list-style-type: none">At least last ten (10) years of experience prior to the date of bid submission in manufacturing OPGW.Evidence from end users (at least one) of satisfactory service of equipment for a minimum of three (3) years prior to the bid submission date.Minimum average delivery over the last 5 years of 100 km of OPGW with equal or higher ratings than those offered.Implemented ISO 9001 certificate;Manufacturer Authorization;Type test report for the offered type OPGW.	Certificate/Document need to be attached against qualification in the tender.
4	Insulator	<ul style="list-style-type: none">At least last five (5) years of experience prior to the date of bid submission in manufacturing porcelain disc insulator of 210 kN or higher ratings.Evidence from end users (at least one) of satisfactory service of equipment for a minimum of three (3) years prior to	Certificate/Document need to be attached against qualification in the tender.





No.	Equipment/ Services	Minimum Criteria	Remarks
		<p>the bid submission date.</p> <ul style="list-style-type: none">• Minimum average delivery over the last 3 years of 5,000 pieces of porcelain disc insulators with 210 kN or higher ratings.• Implemented ISO 9001 certificate;• Manufacturer Authorization;• Type test report for the offered type Insulators	
5 A	Conductor (ACCC) & Insulator Fittings	<ul style="list-style-type: none">• Manufacture's proposed factory must have at least five (5) years of manufacturing experience prior to the date of bid submission for transmission line fittings with 210kN or higher rating including at least three (3) years" experience in manufacturing and supplying transmission line fittings suitable for ACCC conductor;• The similar type Hardware Fittings including 210kN rating shall be in satisfactory service for a minimum of one (1) year with High Temperature Low Sag conductor like ACCC conductor prior to the bid submission date.• Implemented ISO 9001 certificate;	Certificate/Document need to be attached against qualification in the tender.
5 B	Conductor (ACSR) & Insulator Fittings	<ul style="list-style-type: none">• At least last ten (10) years of experience prior to the date of bid submission in manufacturing transmission line fittings with 210kN or above.• Evidence from end users (at least one) of satisfactory service of equipment for a minimum of three (3) years on the date of bid submission.• Manufacturer's authorization letter• Implemented ISO 9001 certificate;	Certificate/Document need to be attached against qualification in the tender.
6	Circuit Breaker	<ul style="list-style-type: none">• At least last ten (10) years of manufacturing experience of minimum 110 kV or high-er rating circuit breakers• Minimum average delivery over the last 3 years of one hundred (100) 110 kV or higher rating circuit breakers.• Manufacturer's authorization letter	Certificate/Document need to be attached against qualification in the tender.



No.	Equipment/ Services	Minimum Criteria	Remarks
		<ul style="list-style-type: none"> • Reference list of 110 kV or higher rating circuit breakers • At least one evidence from end users for satisfactory service of equipment for a minimum of three (3) years as on the date of bid opening • Implemented ISO 9001 certificate • Type test reports as mentioned for similar or higher rating 145 kV, 3150 A, 40 kA • Technical data sheets, drawings, catalogues and other technical documents 	
7	Disconnecter Switch	<ul style="list-style-type: none"> • At least last ten (10) years of manufacturing experience of minimum 110 kV or higher rating disconnectors • Minimum average delivery over the last 3 years of one hundred (100) 110 kV or higher rating disconnectors • Manufacturer's authorization letter • Reference list of 110 kV or higher rating disconnectors • Implemented ISO9001certificate • Type test reports for similar or higher rating, 145 kV, 2000 A, 40 kA • Technical data sheets, drawings, catalogues and other technical documents 	Certificate/Document need to be attached against qualification in the tender.
8	Instrument Transformers	<ul style="list-style-type: none"> • At least last ten (10) years of manufacturing experience of minimum 110 kV or higher rating Instrument transformers • Minimum average delivery over the last 3 years of one hundred (100) 110 kV or higher rating instrument transformers • Manufacturer's authorization letter • Reference list of 110 kV or higher rating Instrument transformers • Implemented ISO9001 certificate 	Certificate/Document need to be attached against qualification in the tender.





No.	Equipment/ Services	Minimum Criteria	Remarks
		<ul style="list-style-type: none">Type test reports for similar or higher rating Instrument transformersTechnical data sheets, drawings, catalogues and other technical documents	
9	Surge Arrester	<ul style="list-style-type: none">At least last ten (10) years of manufacturing experience of minimum 110 kV or higher rating surge arrestersMinimum average delivery over the last 3 years of one hundred (100) 110 kV or higher rating surge arrestersManufacturer's authorization letterReference list of 110 kV or higher rating surge arrestersImplemented ISO 9001 certificateType test reports for similar or higher rating surge arrestersTechnical data sheets, drawings, catalogues and other technical documents	Certificate/Document need to be attached against qualification in the tender.
10	Substation Automation System	<ul style="list-style-type: none">At least last five (5) years of manufacturing experience of high voltage substation automation systems as per IEC 61850 standardMinimum average delivery over the last 3 years of ten (10) complete substation automation systems and hundred (100) protection relays, as per IEC 61850 standardManufacturer's authorization letterReference listImplemented ISO 9001 certificateType test reportsTechnical data sheets, catalogues and other technical documents	Certificate/Document need to be attached against qualification in the tender.
11	Protection Relay	<ul style="list-style-type: none">At least last five (5) years of experience in manufacturing protection relays, as per IEC 61850 standard, with the equipment in satisfactory service for a minimum of three (3) years on the date of bid opening	Certificate/Document need to be attached against qualification





No.	Equipment/ Services	Minimum Criteria	Remarks
		<ul style="list-style-type: none">• Minimum average delivery over the last 3 years of hundred (100) relays, as per IEC 61850 standard• Manufacturer's authorization letter, with confirmation of experience and satisfactory operation of the offered equipment and Manufacturer's reference list• Reference list• Implemented ISO 9001• Type test reports• Technical data sheets, drawings, block diagrams, wiring diagrams, catalogues and other technical documents	in the tender.
12	Telecommunication System (if applicable)	<ul style="list-style-type: none">• At least last ten (10) years of experience in manufacturing communication equipment, with the equipment in satisfactory service on the date of bid opening• Minimum delivery over the last 3 years of ten (10) complete substation communication equipment• Implemented ISO 9001• Reference list• Type test reports	Certificate/Document need to be attached against qualification in the tender.
13	DFDR	<ul style="list-style-type: none">• At least last ten (10) years of manufacturing experience of DFDR for high voltage substations• Minimum average delivery over the last 3 years of ten (10) DFDR• Manufacturer's authorization letter• Reference list.• Implemented ISO 9001 certificate.• Type test reports• Technical data sheets, catalogues and other technical documents	Certificate/Document need to be attached against qualification in the tender.



No.	Equipment/ Services	Minimum Criteria	Remarks
14	XLPE Power cable and cable termination	<ul style="list-style-type: none"> • At least last ten (10) years of manufacturing experience of minimum 110 kV or higher rating XLPE Power cable and cable termination. • Minimum average delivery over the last 3 years of two hundred (200) km of 110 kV or higher rating XLPE Power cable • Manufacturer's authorization letter • Reference list. • Implemented ISO 9001 certificate. • Type test reports • bidding document for similar or higher rating XLPE power cables and cable termination. • Technical data sheets, drawings, catalogues and other technical documents. 	Certificate/Document need to be attached against qualification in the tender.



B. Subcontractors

Subcontractors for the following major services must meet the following minimum qualification criteria, herein listed for a Subcontractor for that item. Failure to comply with this requirement will result in rejection of the Subcontractor but not the Bidder

No.	Services	Minimum Criteria	
1	Electrical Subcontractor Works	<ul style="list-style-type: none"> • Minimum five (5) years of general experience prior to the date of bid submission in the installation of new transmission lines of 110 kV or higher rated voltage • At least one contract for the installation of new a 110 kV or higher rated voltage single or double circuit overhead transmission line on steel lattice towers, with a minimum of 5 (five) km route length in last ten (10) years prior to the bid submission date. <p>The sub-contractor's experience shall not be evaluated during Bid evaluation stage and shall be finalized during execution of the project. However bidder may propose the name of the sub-contractor in their Bid Proposal</p>	Certificate/Document need to be attached against qualification in the tender.
2	Civil Works Subcontractor	<ul style="list-style-type: none"> • At least last five (5) years of experience prior to the date of bid submission in civil works during construction of new transmission lines of 110 kV or higher rated voltage • At least one contract for civil works for the construction of new 110 kV or higher rated voltage single or double circuit overhead transmission line on steel lattice towers, having minimum of 5 (five) km route length in last ten (10) years prior to the date of bid submission. <p>The sub-contractor's experience shall not be evaluated during Bid evaluation stage and shall be finalized during execution of the project. However bidder may propose the name of the sub-contractor in their Bid Proposal.</p>	Certificate/Document need to be attached against qualification in the tender.



Appendix-“AB”

DETERMINATION OF DEPTH OF FIXITY, LATERAL DEFLECTION AND MAXIMUM MOMENT OF LATERALLY LOADED PILES

1. Determination of Lateral Deflection at The Pile head and Depth of Fixity

- 1.1 The long flexible pile, fully or partially embedded, is treated as a cantilever fixed at some depth below the ground level (see Fig. 1)
- 1.2 Determine the depth of fixity and hence the equivalent length of the cantilever using the plots given in Fig. 1.

Where $T = \left(\frac{EI}{K_1}\right)^{\frac{1}{5}}$

(k_1 is a constants given in Tables 1 below, E is the Young's modulus of the pile material in kg/cm^2 and I is the moment of inertia of the pile cross-section in cm^4).

Note: Fig. 1 is valid for long flexible piles where the embedded length L_e is $\geq 4R$ or $4T$.

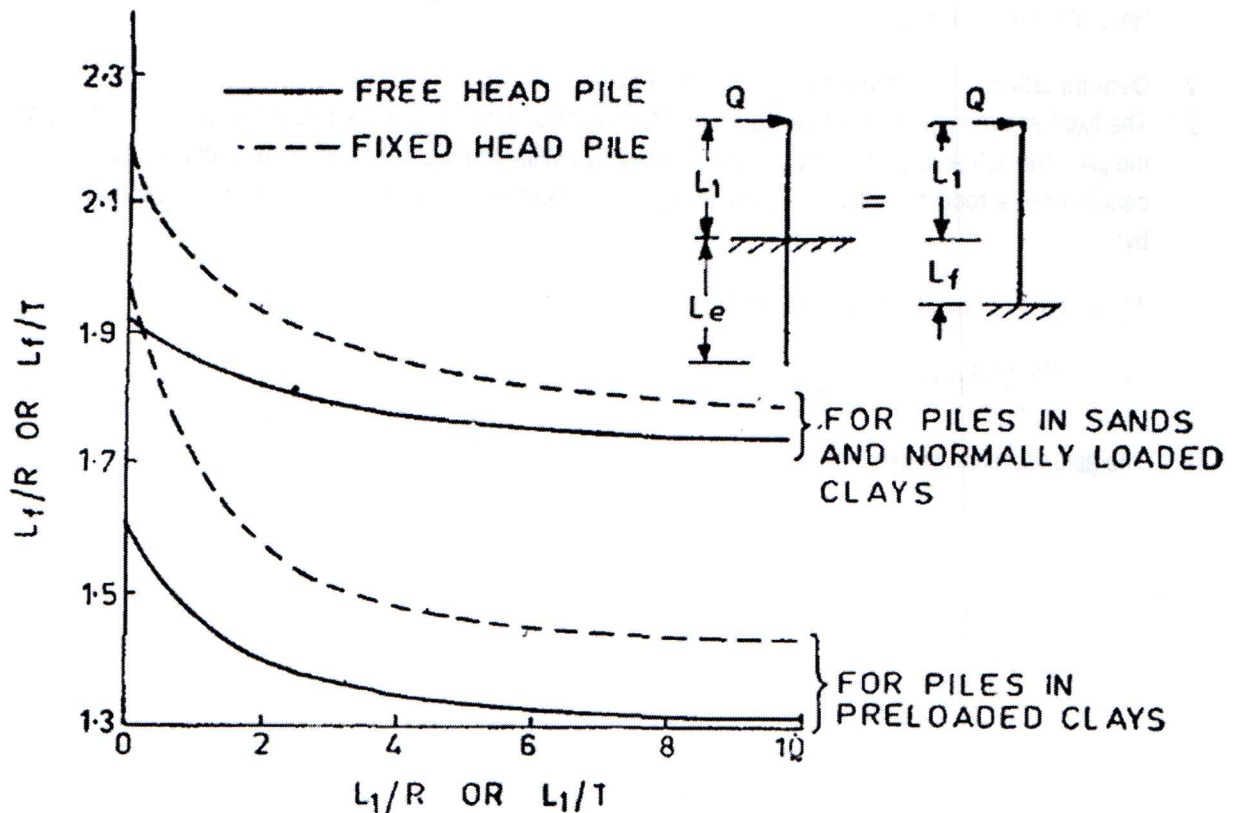


Figure 1 Determination of Depth of Fixity

K_1 is the constant of modulus of horizontal subgrade reaction, Values of k_1 are given below



Table 1 Values of constant k1

Soil Category	Value of constant k1 Kg/cm ³
Soil Category 2	1.00
Soil Category 3	0.525
Soil Category 4	0.146

1.3 Knowing the length of the equivalent cantilever the pile head deflection (Y) shall be computed using the following equations:

$$Y = \frac{Q(L_1+L_f)^3}{3EI} \text{ for free head pile}$$

$$Y = \frac{Q(L_1+L_f)^3}{12EI} \text{ for fixed head pile}$$

Here, Y in cm , Q is the lateral load in kg.

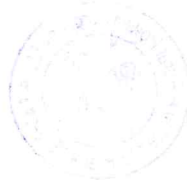
2. Determination of Maximum Moment in The Pile

2.1 The fixed end moment (MF) of the equivalent cantilever is higher than the actual maximum moment (M) of the pile. The actual maximum moment is obtained by multiplying the fixed end moment of the equivalent cantilever by a reduction factor, m given in Fig. 2. The fixed end moment of the equivalent cantilever is given by:

$$M_f = Q(L_1 + L_f) \text{ for free head pile}$$

$$M_f = \frac{Q(L_1+L_f)}{2} \text{ for fixed head pile}$$

The actual maximum moment (M) = m (Mf)



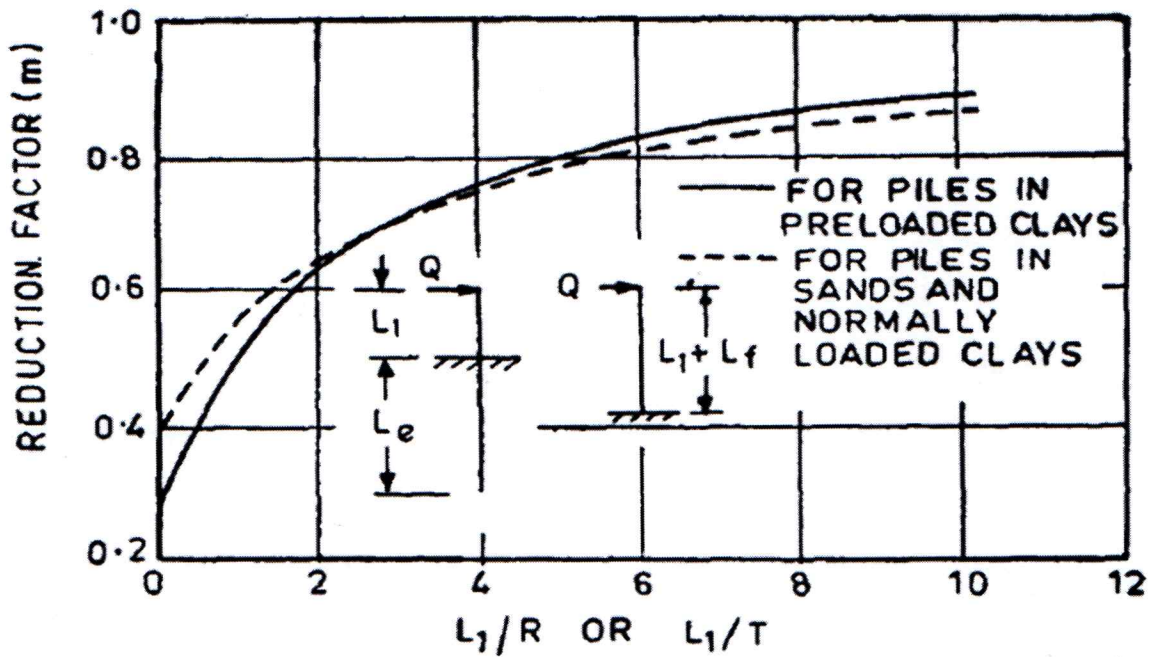


Figure 2A FOR FREE HEAD PILE

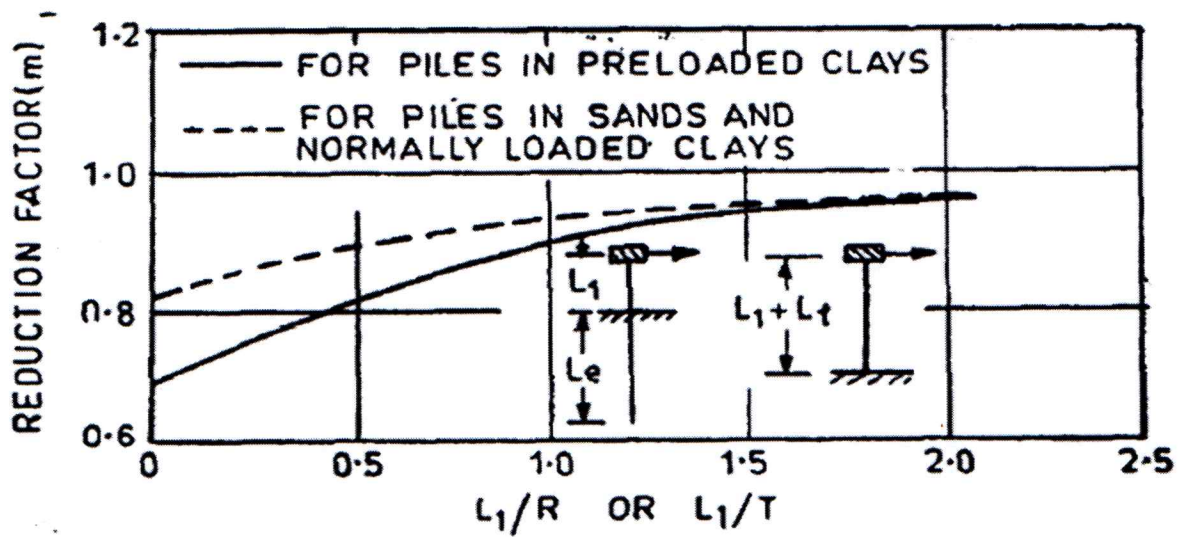


Figure 2B FOR FIXED HEAD PILE

DETERMINATION OF REDUCTIONS FACTORS FOR COMPUTATION OF MAXIMUM MOMENT IN PILE

2.2 Reinforcement of upper section of pile should be provided up to 1.25x Lf depth

