

<b>Customer:</b>	Transmission Corporation of Telangana Limited (TSTRANSCO)	TB-TL-316-701C
<b>Transmission Line work:</b>	i. 400 KV TMDC line from Namapur Substation Switchyard to Transformer Deck of Pump House ii. 400kV QMDC Line from 400kV Kachapur Switching station to 400/11kV Namapur (Pegadapally) SS of Line iii. 400kV QMDC Line from 400kV Velgatoor Switchyard to 400/11kV Namapur (Pegadapally) SS of line	Rev 00

## **SCOPE, SPECIFIC TECHNICAL REQUIREMENTS & BILL OF QUANTITIES**

### **1.0 INTENT OF SPECIFICATION**

M/s TSTRANSCO has invited bids from the qualified bidders for 400kV class Substation along with 400kV Transmission Line (Including settlement of Right of way) on EPC basis.

As per the tender qualification requirement, prime Contractor/ Lead Partner must meet the requisite experience criteria specified for 400kV Substation as well as for 400kV Transmission Line. BHEL meets the qualifying criteria of only one Part (i.e. 400kV Substation) and wishes to participate in the tender by making a pre-bid tie-up with a Transmission Line Contractor meeting qualifying criteria of Transmission Line part.

Intent of this specification is to invite a potential 400kV Transmission Line contractor with whom BHEL can form a project specific JV/Consortium and can jointly participate in TSTRANSCO tender.

### **1.1 GENERAL**

Scope of Transmission Line JV partner includes design, engineering, manufacturing, testing before dispatch, loading, supply for destination including transportation, civil & construction works, erection, testing and commissioning of following works on turnkey basis (Including settlement of Right of way):

- i. **400 KV TMDC line from Namapur Substation Switchyard to Transformer Deck of Pump House of length 2 Km**
- ii. **400kV QMDC Line from 400kV Kachapur Switching station to 400/11kV Namapur (Pegadapally) SS of Line length 19.3 Km**
- iii. **400kV QMDC Line from 400kV Velgatoor Switchyard to 400/11kV Namapur (Pegadapally) SS of line length 22.5 Km**

**Name of customer** : Transmission Corporation of Telangana Limited (TSTRANSCO)  
**JV Partner** : BHEL (LEAD PARTNER)  
**Customer Tender No.** : e-TSTLI - 04/ 2021

### **1.2 SCOPE FOR TRANSMISSION LINE CONTRACTOR**

1.2.1 Scope of the bid includes the following:

- (a) Furnishing of technical details of the material to be supplied.
- (b) Complete manufacture of all the items including their shop testing and galvanization.

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- (c) Proto type assembly at works before dispatch, supply including packing, loading and transportation from the manufacturer's works to the Contractor's site stores/ TSTRANSCO stores with unloading and stacking and safe keep until these material are utilized for erection as specified.
- (d) Furnishing of reproducible / AUTO CAD structural drawings of towers (including Multi-circuit towers if any), shop drawings, bills of materials and foundations drawings, data, test reports, operation/instruction manuals etc., for Purchaser's approval and on approval submission of bound volumes of the same for future record wherever applicable in 10 sets.
- (e) The Structural drawings for Towers (including Multi-circuit towers if any) and their foundations shall be provided by TSTRANSCO as available. Wherever the drawings and designs are provided by TSTRANSCO, the suitability of these design and drawings shall be verified by the Bidder for design requirements as per standards, site and soil conditions based on the soil investigation and furnish the detailed design verification calculations before execution if sought by TSTRANSCO. Standard BOMs for towers, stubs will be communicated to the Contractor after placement of Purchase Order. Substitutions if any of steel sections of the tower parts with higher size due to non-availability or otherwise, shall be to the Contractor's account. The Purchaser will not accept any liability on this account. The supplier shall raise the invoices as per standard BOMs. In case of minor variation in BOM approved after proto inspection, only the approved standard BOM will be invoiced and paid.

All the templates required shall be manufactured and got proto inspected and approved by the Purchaser before starting the erection work. **New set each of the templates for all types of towers & their extensions shall be handed over to TSTRANSCO after completion of Tr. Line erection work.**

- (f) Where design of a particular Tower/Tower extension /Leg extension for Tr. Line (including Multi-circuit towers) is not available with the Purchaser or where any modification in the design or new design is required, the Bidder shall have to design the same to TSTRANSCO at no additional cost, including detailing, proto testing, furnishing of Bill of Material (BOMs) drawing etc. All the relevant drawings in AUTO CAD to the scale with reproducible tracings in such cases shall also be supplied to the Purchaser by the successful Bidder at free of cost. The new tower designs developed shall be got approved by CPRI Bangalore.
- (g) The scope of work also includes redrawing of existing structural and shop drawings of all the towers (including Multi-circuit towers) being used in the project using AutoCAD with scale duly certifying their correctness and to be handed over to TSTRANSCO in hard and soft copies before clearing the material for mass fabrication.
- (h) Soil investigation including soil resistivity measurement.
- (i) Supply of Tower accessories, 120 KN & 160KN Antifog Disc/Long rod Insulators, Moose ACSR CONDUCTOR, GSS Earthwire, OPGW, OFAC and Hardware & Accessories required for Earth wire

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and OPGW and GPS as detailed in technical specification. The type testing of these material should have been done within 5 years from the date of NIT. If the Purchaser feels that the type test has to be conducted for his satisfaction or any revision in the relevant IS, the tests should be conducted at free of cost. Please note that TSTRANSCO reserves the right to allot ACSR Moose Conductor and any surplus material from TSTRANSCO stores to project site and in such cases transportation charges which shall be inclusive of packing will be paid as per prevailing SSR rates and the Contractor has to transport such material invariably and the balance quantity of material shall only be offered for supply.

(j) The scope also covers detailed survey (if and where required), check survey, laying of conventional /pile foundations, Design of foundations, river crossing works (if any), erection, testing and commissioning of the 400kV QMDC transmission lines employing Quad Moose bundled ACSR conductor per phase and one no. 7/3.66 mm GSS earth wire and 1 No. OPGW. The Bidder shall indicate whether the river crossing works (if any) including pile foundations will be carried out by them or by other agency in their name. In both cases the required proof of documentation (such as P.O., satisfactory completion and performance) as required by TSTRANSCO on execution of river crossing works shall be furnished in the bid for necessary approval. In case of other agency, an authorization letter to that extent shall be furnished in the bid for carrying out river crossing works on behalf of the Bidder for satisfactory completion as per the terms and conditions of the specification.

(k) Scope also covers Supply of Scientific Instruments as indicated in Schedules.

(l) Testing and Commissioning of the materials required for the line.

1.1.2 Design, Engineering, Manufacture, Testing, Supply on FAD site/ stores including Transportation, Insurance, Storage at site of mandatory spares.

**1.2.3 Please note that the contract is on TURN KEY basis and hence any other items not specifically mentioned in the specification but which are required for erection, testing and commissioning for satisfactory operation of the Transmission line are deemed to be included in the scope of the specification unless specifically excluded and same shall be arranged by contractor unconditionally.** Quantities wherever indicated in the Bidding documents (as defined by TSTRANSCO) are tentative only for the scope of the works and will be considered only for the evaluation of Bids. Actual quantity will be as per the approved design and drawings for the complete scope of the works based on system requirement.

1.2.4 Before proceeding with the construction work of the Transmission Line, the Contractor shall fully familiarize himself with the site conditions and General arrangements & scheme etc. Though the Purchaser shall endeavor to provide the information, it shall not be binding for the Purchaser to provide the same. The Bidders are advised to visit the sites and acquaint themselves with the topography, infrastructure and also the design philosophy. The Bidder shall be fully responsible for providing all equipment, materials, system and services specified or otherwise which are required to

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complete the supply, construction and successful commissioning, operation & maintenance of the Substation/bay extensions in existing sub-stations in all respects. All materials including cement & steel required for the Civil and construction/installation work shall be supplied by the Contractor.

1.2.5 The complete design (unless specified otherwise in specification elsewhere) and detailed Engineering shall be done by the Transmission Line Contractor.

1.2.6 The Transmission Line Contractor shall also be responsible for the overall co-ordination with internal/external agencies, project management, training of Purchaser's manpower, loading, unloading, handling, moving to final destination including Purchaser supplied material if any for successful erection, testing and commissioning of the Transmission Line.

1.2.7 As per TSTRANSCO tender specification, TSTRANSCO reserves the right to allot any surplus material from TSTRANSCO stores to project site and in such cases transportation charges which shall be inclusive of packing will be paid as per prevailing SSR rates and the Contractor has to transport such material invariably and the balance quantity of material shall only be offered for supply.

### 1.3 SITE VISIT

The Bidders (Transmission Line Contractor) are advised to visit and examine the site and route of Transmission lines and obtain all information that may be necessary for preparing the bid such as access to site, communication, transport, leads and availability for water, sand, metal etc., right of way, the quantity of various items of work, the availability of local labour, availability and rates of materials, local working conditions, uncertainties of weather and working seasons etc. The cost of visiting the site shall be at Bidder's own expense. Ignorance of site conditions shall not be accepted by TSTRANSCO as basis for any extra claim or additional rates or any compensation at a later date. The submission of a bid by the Bidder will be construed as evidence that such an examination was made and later claims/disputes in this regard shall not be entertained.

It is the responsibility of the Bidder to satisfy himself that sufficient quantities of construction materials required for the works shall exist in the borrow areas or quarries sites. The TSTRANSCO does not accept any responsibility either in identifying the quarries or procuring the material or any other facilities in this regard. The Bidder will not be entitled for any extra cost/ rate or claim for the misjudgment on his part for quantity and quality of materials available in the quarries.

The Bidder (Transmission Line Contractor) shall also conduct survey for the proposed lines as per scope of work.

### 1.4 RIGHT OF WAY (ROW)

#### 1.4.1 TREE / CROP COMPENSATION RIGHT-OF-WAY, CUTTING OF TREES ETC.

Payment of compensation for damaged crops or fruit bearing trees shall be initially made by the Transmission Line Contractor, which will be reimbursed by TSTRANSCO later on. The compensation

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so payable in respect of damaged crops shall be based on the assessment of MRO. In respect of the trees, compensation so payable is the lowest of the rates fixed by the Horticulture/NABARD/MRO. The Transmission Line Contractor shall take up the payment of compensation amount only after written approval by the Executive Engineer. The payment shall be made in the presence of representatives of LIS construction field officers, Accounts and Vigilance wings of TSTRANSCO. The Superintending Engineer/LIS shall finalize the compensation claims. Also refer technical specification of 400kV Line.

#### **1.4.2 WAY LEAVES AND STATUTORY NOTICES: (ROAD CUTTING CHARGES) (IF APPLICABLE)**

The successful bidder (Transmission Line Contractor) shall submit proposals for way leaves and right of way. The bidder (Transmission Line Contractor) is entirely responsible in getting permissions from the concerned Government Departments. The field officials of TSTRANSCO will assist to prepare required letters to apply for permissions. The cost payable to local authorities towards Road cutting/ utility charges/ permissions is to be paid by the successful bidder (Transmission Line Contractor) as per contract.

#### **1.5 SPECIFIC TECHNICAL REQUIREMENTS**

Specific technical requirements of 400kV Transmission Line shall be as per **Volume-IIB** of TSTRANSCO Tender specification (enclosed).

#### **1.6 BILL OF QUANTITY**

As per enclosed TSTRANSCO tender BOQ/ Price Schedule.

**Schedule – A1 :** Supply of TMDC line from Namapur Switchyard to Transformer Deck(2km)  
**Schedule – A2 :** Supply of Line Material for Kachapur – Pegadapally (19.3KM)  
**Schedule – A3 :** Supply of Line Material for Velgatoor – Pegadapally (22.5KM)

**Schedule – B1(a) :** Erection of TMDC line from Namapur Switchyard to Transformer Deck(2km)  
**Schedule – B2(a) :** Erection of Kachapur – Pegadapally (19.3KM)  
**Schedule – B2(b) :** Civil Works of Kachapur – Pegadapally (19.3KM)  
**Schedule – B3(a) :** Erection of Velgatoor – Pegadapally (22.5KM)  
**Schedule – B3(b) :** Civil Works of Velgatoor – Pegadapally (22.5KM)

#### **1.7 SUB-VENDORS**

The list of approved makes of Main equipment/ material are enclosed in the specification and the equipment offered shall be from the manufacturers given in the list only. The Bought-out items required for main equipment/material offered from the sub-vendors should have already been supplied similar equipment / material for TSTRANSCO/ PGCIL and have proven performance. Before offering the material from a Sub-Vendor (even though the company name is indicated in the approved Sub-Vendors/Manufacturers list), the Transmission Line Contractor shall take approval

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from TSTRANSCO by submitting all the credentials to meet the qualifying requirements. The Bidder should own/lease/procure the minimum tools & plants, testing equipment required for the execution of works in time as per the contract. The required T&P and testing equipment shall be indicated together with quantity.

**Approved sub-vendor list as per TSTRANCO tender specification is enclosed as Section-X**

### **1.8 BROAD SCOPE-SPLIT BETWEEN JV PARTNERS**

- i. Complete Transmission Line work from Switchyard take-off gantry at one end to the take-off gantry of other end shall be the scope of Transmission Line Contractor.
- ii. Transmission Line Work includes complete supply and erection of Stringing Hardware, conductor and earth wire upto Switchyard take-off gantries at both ends of Transmission Line.
- iii. Telecom supply & ETC pertaining to Transmission Line shall be as per the TSTRANCO BOQ/ Schedule.

### **1.9 PROJECT COMPLETION SCHEDULE**

The supply of materials and equipment for 400kV Transmission Line work shall be completed within Twelve (12) months from the date of handing over of profiles and Erection, Testing & Commissioning of 400kV Transmission Line work within Fifteen (15) months from the date of handing over of profiles.

**TSTRANCO tender specification Programme chart (Bar chart) for Supply & Erection is enclosed as Section-XII.**

### **1.10 GENERAL TECHNICAL CONDITIONS OF CONTRACT**

Refer enclosed TSTRANCO tender specification **Section-VII (GTC)**

### **1.11 GENERAL CONDITIONS FOR ERECTION**

Refer enclosed TSTRANCO tender specification **Section-VI (GCE)**

### **1.12 GENERAL CONDITIONS FOR ERECTION SUPERVISION**

Refer enclosed TSTRANCO tender specification **Section-VIII (GCES)**

### **1.13 STORES FOR SUPPLY OF TOWERS (INCLUDING MATERIALS TO BE SUPPLIED BY THE CONTRACTOR)**

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- I. The Transmission Line Contractor shall be required to set up Store along the route of the transmission line.
- II. The cement, reinforcement steel and other line materials (to be supplied by the Transmission Line Transmission Line contractor) shall also be arranged in above stores as per the sequence of the work.
- III. The Transmission Line Contractor shall make arrangements to take delivery of all the materials and stock them properly.
- IV. Yards and stores for stocking provided by the Transmission Line Contractor shall be opened for inspection by the Purchaser's (TSTRANSCO) representative as and when desired.
- V. The cost of handling and storage shall be deemed to be included in the quoted erection prices and no extra charges towards, loading, transportation, unloading, stacking and storage etc. shall be payable.
- VI. In case of materials to be supplied by the Transmission Line Contractor himself, all the above provisions shall also apply. However, shortage and/or damage of the materials shall be made good within a reasonable time and without any extra charge to the Purchaser (TSTRANSCO) and without delaying the construction of transmission line.

#### **1.14 CONSTRUCTION POWER AND WATER**

Water supply and Electricity for construction work is to be arranged by the Transmission Line contractor at his own cost. Also, storage space for equipment and Transmission Line contractor's site office will be arranged by Transmission Line contractor.