



TRANSMISSION CORPORATION OF TELANGANA LIMITED

From
The Chief Engineer,
Construction,
Vidyut Soudha,
Hyderabad – 500 082

To
M/s. Continental Trans Tech Pvt.Ltd,
#403, Elegant Apartments,
Renuka Enclave, Rajbhavan Road,
Somajiguda, Hyderabad - 500082

Contract award P.O.No.438 (SAP P.O.No.5500000746)/CPT120/SE-Const/F.Bowrampet line/RM.No.300/2020,D.No.29/2020,Dt.19.05.2020

Sirs,

Sub:- Specification No. TST-e-02/2019/CE-Construction – Lot-I Supply, Laying/ Erection, Testing & Commissioning of i) 220 KV 1200 Sqmm XLPE UG Cable with associated accessories from CTT of 220 KV Narsapur -Bowrampet DC line to 220/132 KV SS Bowrampet Ranga Reddy district (3.5 KM) ii) 220 KV DC line from 400 KV Narsapur - Bowrampet Multi circuit line to Narsapur - Bowrampet CTT on Monopole towers (3.5 KM) in Ranga Reddy District- Detailed contract order for Material **(Schedule-A)** – Issued.

Ref:- 1) Tender Specification.No.TST-e-02/2019/CE-Construction
2) Your Bid Quoted against Specification No. TST-e-02/2019/CE-Construction
3) LOI, Lr.No.CPT 120/SE-Const/F.Bowrampet line & CPRI/D.No.301/2019,
Dt : 18.12.2019

* * * * *

I, acting for and on behalf of and by the order and direction of the Transmission Corporation of Telangana Limited herein after called the "TSTRANSCO", accept your offer given in the reference 2nd cited for Supply of equipment/material for subject works as per terms and conditions of Tender Specification.No.TST-e-02/2019/CE-Construction and award the contract for a total value of **Rs.51,14,11,272.38 (Rupees Fifty One Crores Fourteen Lakhs Eleven Thousand Two Hundred Seventy Two and Thirty Eight Paise Only)** as detailed in the Schedule-A enclosed, subject to the conditions set out in this order. This order confirms the Letter of Intent issued vide this office letter cited at reference (3).

2. SCOPE OF CONTRACT :

This contract relates to Supply of equipment/material for subject works as per terms and conditions of Tender Specification.No.TST-e-02/2019/CE-Construction read with this contract order. The total rates indicated in Schedule-A appended to this order are for supply of equipment/material and are inclusive of all taxes and duties as per your offer.

The equipment / material to be supplied by you shall be delivered at the places of work sites. The material/equipment to be supplied, if any at later date by TSTRANSCO are to be taken delivery from Construction Stores at Shapurnagar and Erragadda and shall be transported to site by you at your cost. Any surplus / dismantled material to be returned by you shall also be devoluted at Construction Stores, at Shapurnagar and Erragadda at your cost.

3. ABSTRACT OF SCHEDULES:

Description	Amount (Rs.)
Specification No. TST-e-02/2019/CE-Construction – Supply, laying/erection, testing & commissioning of i) 220 KV 1200 Sqmm XLPE UG Cable with associated accessories from CTT of 220 KV Narsapur -Bowrampet DC line to 220/132 KV SS Bowrampet Ranga Reddy district (3.5 KM) ii) 220 KV DC line from 400 KV Narsapur - Bowrampet Multi circuit line to Narsapur - Bowrampet CTT on Monopole towers (3.5 KM) in Ranga Reddy District (Schedule-A)	Rs.51,14,11,272.38
Schedule-A Total	Rs.51,14,11,272.38

The accepted rate is 4.18 % excess over the Estimated Contract Value (Schedule-A).

4. GENERAL CONDITIONS :

Except where otherwise agreed to in this detailed order, all the terms and conditions stipulated in the Specification No. TST-e-02/2019/CE-Construction are binding on you and these shall form part of this contract.

5. STANDARD OF WORK:

The material to be supplied shall be carried out in accordance with the Tender Specification and confirm to the Specification or standards, the TSTRANSCO at your cost and risk as per the undertaking given by you.

6. PRICES:

6.1 For Equipment & Materials:

The rates for all the items of equipment & materials covered in Schedule-A, except, Tower parts, Substation Structures, Earth flat (GI & MS), Cables, Isolators and Conductor shall be 'Firm' on all accounts such as (i) increase in quantity of equipment/ materials over that provided in the contract (ii) execution of contract beyond the scheduled completion period for whatever reasons and (iii) increase in the rates of material and labour both during and beyond the completion period etc. Price variation is applicable for supply of Tower Parts, Substation Structures, Earth Flat (GI &MS), Cables, Isolators and Conductor.

7. PRICE VARIATION (PV) Clause:

The price variation is applicable for Tower parts, Substation Structures, Earth flat (GI & MS, Cables, Isolators and Conductors in materials schedule and the calculation of Price Variation is as below.

7.1.0 PRICE VARIATION (PV) Clause: The price variation is applicable for Cement and Reinforcement steel in works schedule and Transmission Line Tower Parts, Substation Structures, Earth Flat (GI & MS), Cables, Isolators and Conductors in materials schedule and the calculation of Price Variation is as below

7.1.1 The Price adjustment applicable in respect of the items Transmission Line Tower Parts, Substation Structures and Earth Flat is as per T.O.O (CE-Const) MS. No 50 and T.O.O. (CE-Const) Ms. No.87 dt.10-06-2008 and as per T.O.O. (CE-Construction-2) Ms. No.242 dt.08-11-2012 subject to the following conditions.

- a) The price adjustment shall be applicable within original contract period or period extended on grounds of the departmental delays and valid reasons and shall not be applicable to the extension granted on account of the contractor's fault.
- b) Price adjustment shall be applicable for actual components of items of supply actually carried out. The price variation formula is $PV = (\text{Final Rate} - \text{Basic Rate}) * \text{Quantity}$.
- c) The adjustment scheme will be applied where the variation is more than 5% i.e. actual variation will be considered if increase or decrease is more than 5%.
- d) In case variation is positive, the department will operate variation in rates only to the extent where it is above 5% over the estimated rates. Thus if the price excess is 10%, payment will be made only to the extent of 5% (10% - 5%) since the contractor factors into his original bid his risk of absorbing the first 5% increase. The same shall be followed for - ve price variation.
- e) For the time extension due to department fault, both +ve and -ve price variations are applicable.
- f) For the time extension due to contractors fault, -ve price variation is applicable.
- g) The basic rates considered in the estimate are i) Transmission line tower parts is **Rs 83,099/-per MT** ii) Substation structures is **Rs.74,881/-per MT** iii) MS Flat per MT is **Rs.46,000/-** and iv) GI Flat per MT is Rs.64,778/- (for the month of December-2018).
- h) The final rate of Transmission Line Tower Parts, Substation Structures for the purpose of price variation shall be the rate communicated by the Chief Engineer / Construction for every month as on 2 months prior to the date of Dispatch and for earth flat one month prior to the date of Dispatch. The date of Delivery shall be the date of receipt of materials in good condition at destination Construction /Site stores (i.e., check measurement date as per Form-13) for the purpose of price variation calculations.
- i) The rate communicated by TSTRANSCO for Transmission Line Tower Parts, Substation Structures and Earth Flat are exclusive of all taxes and duties. Hence, applicable taxes will be given on price variation amount.

7.1.2 Price Variation is applicable in respect of Supply of Conductor and the price shall be based on and subject to adjustment due to variations in the following factors:

- i. **E.C. Grade Aluminium:** The ex-works cost of indigenous E.C. grade aluminium wire rod based on average price of M/s. Nalco, Balco, Hindalco, and Malco as given in CACMAI circulars prevailing as on 30 days prior to the Bid submission closing date as per NIT(24.07.2019). Hence the base date is 25.06.2019
- ii. **HTGS wire:** The ex-works cost of per MT of HTGS wire exclusive of duties and taxes corresponding to 3.00 to 4.09mm designation as given in CACMAI circulars prevailing as on 30 days prior to the Bid submission closing date as per NIT(24.07.2019). Hence the base date is 25.06.2019
- iii. The above basic prices of raw materials will remain unaltered during the execution of contract.
- iv. For any variation up or down in the prices of raw materials as defined above, for every one rupee change in the rate of one MT of EC grade aluminum wire rod and HTGS wire the corresponding increase or decrease in price per KM of finished conductor allowable shall be as given below:

CONDUCTOR	Variation in Rs. Per KM of conductor	
	For Aluminium	For HTGS wire 3.00 mm to 4.09 mm
Panther ACSR Conductor	0.588	0.388
Zebra ACSR Conductor	1.185	0.438
Moose ACSR Conductor	1.467	0.537

- v) For the purpose of calculation of price variation the prices of HTGS wire and EC grade aluminum shall be taken as those prevailing on the first working day of the calendar month one month prior to the date of delivery.
- vi) The Base and final prices / indices shall correspond to same manufacturers as given in the CACMAI. The price variation formula is $PV = (Final\ Rate - Basic\ Rate) * Quantity$.
- vii) The date of delivery shall be the date of receipt of materials in good condition at destination stores (i.e. check measurement date as per Form-13) for the purpose of price variation calculations.
- viii) If the delivery of the material is within the scheduled delivery period, the Price Variation applicable will be based on the actual delivery.
- ix) In case the purchaser advances the delivery, the price variation applicable will be based on the actual delivery.
- x) Irrespective of increase in the prices of raw materials, the total Price Increase per KM of the Conductor will be limited to a maximum of **30%** over the **Unit price** mentioned in Purchase Order. However there is no ceiling for negative variation.
- xi) The Price Variation amount can be claimed for each batch of supplies made from time to time (out of total quantity) and will be payable after due verification.
- xii) In case of conductors, where the supplier makes his own arrangements to get the Rod made out of Aluminium Ingots, the prices of Aluminium Rod as per CACMAI mentioned above will only be taken into consideration for arriving at the price variation claims irrespective of whatever expenditure the supplier might have incurred in getting the ingot converted into Rod.

- xiii) If the date of delivery as defined in the P.V. formula is beyond the contracted delivery date the contracted delivery date or the actual delivery date whichever is advantageous to the Purchaser will form the basis for calculation of price variation.
- xiv) Notwithstanding the formula applicable for regulating the price variation, if at any time any documentary evidence proof or certificate in regard to the price variation bills is required by the Purchaser, the supplier will have to furnish the same to the Purchaser.
- xv) The concerned Executive Engineer/Construction will calculate the price variation.

7.1.3 Price variation clause for cables and isolators :

7.1.3.1 The Price Variation applicable in respect of cables and Isolators is subject to the following conditions:

- a) Price variation shall be applicable for both upward and downward variation in prices of respective items within the original completion period. Price variations for all cables and isolators have been adjusted with IEEMA.
- b) The price quoted/accepted shall be based on the input cost of raw materials/ components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials and all India average consumer price index number for industrial workers as specified in the price variation clauses given below in case of any variation in these raw materials prices /indices, the price payable shall be subject to adjustment up or down in accordance with the formulae mentioned under clause below.
- c) For the purpose of Price adjustment, the date of delivery shall be the date on which the Cable and Isolators is notified as being ready for inspection / dispatch.(In the absence of such notification, the date of manufacturer's dispatch note shall be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto) whichever is earlier.**
- d) The price variation amount can be claimed for each batch of supplies made from time to time (out of total quantity) and will be payable after due verification.
- e) If the date of delivery as defined in the P.V. formula is beyond the contracted delivery date, the contracted delivery date or the actual delivery date whichever is advantageous to the TSTRANSCO will form the basis for calculation of price variation.
- f) The total adjustment for Control cables, LT Aluminium power cable and Isolators shall be subject to a maximum ceiling of (+ 50%) individually of the respective Ex-works prices/bid prices (own manufactured/bought out items as the case may be).However there is no ceiling for negative variation.
- g) Notwithstanding the formula applicable for regulating the price variation, if at anytime any documentary evidence proof or certificate in regard to the price variation bills is required by the TSTRANSCO, the supplier will have to furnish the same to the TSTRANSCO.
- h) IEEMA indices have been taken into consideration for arriving the base rates of all cables and isolators.
- i) Price variations for Isolators (Metallic & insulator portions), Power Cables and Control Cables, will be calculated using IEEMA PV CALCULATOR, which considers all modifications issued by IEEMA from time to time.

- j) Price variation clause in the Purchase Order is provisional and all modifications issued by IEEMA for Isolators (Metallic & insulator portions), Power Cables and Control Cables from time to time are applicable.

I) PRICE VARIATION FORMULA APPLICABLE FOR CABLES

i) **For Steel Armoured PVC Insulated Copper Control Cables:**

$$P = P_0 + CuF(Cu - Cu_0) + CCFCu(CC - CCo) + FeF(Fe - Fe_0)$$

ii) **For Unarmored PVC Insulated Copper Control Cables:**

$$FeF = 0$$

$$P = P_0 + CuF(Cu - Cu_0) + CCFCu(CC - CCo)$$

Wherein,

P = Price payable as adjusted in accordance with the above formula in Rs per Km

P₀ = Price quoted/accepted in Rs per Km

CuF = Variation factor for **Copper** applicable depending upon type and size of the cable.

Cu₀ = Price of CC copper rods

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

CCFCu = Variation factor for **PVC Compound** applicable depending upon type and size of the cable.

CCo = Price of PVC Compound

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

FeF = Variation factor for **Steel** for Steel Armoured PVC Insulated Copper Control Cables applicable depending upon type and size of the cable.

Fe₀ = Price of steel strips/steel wires

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

Cu = Price of CC copper rods

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

CC = Price of PVC Compound

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

Fe = Price of steel strips/steel wires

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

(*) Variation factor for copper conductor (CuF), PVC compound (CCFCu) for PVC Insulated Control Cables, Steel (FeF) for control cables with copper conductor is tabulated below.

TABLE - I
VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)
CONTROL CABLE WITH COPPER CONDUCTOR

No. of Cores	Nominal Cross Sectional Area (in Sq mm) = 2.5 Sq mm
2	0.047
3	0.070
4	0.094
5	0.117
6	0.141
7	0.164
8	0.182
9	0.205
10	0.235
12	0.282
14	0.329
16	0.376
18	0.410
19	0.446
20	0.456
24	0.563
27	0.634
30	0.704
37	0.869
44	1.033
52	1.221
61	1.432

TABLE - II
VARIATION FACTOR FOR PVC COMPOUND (CCFCu)
PVC INSULATED CONTROL CABLEs WITH COPPER CONDUCTOR

No. of Cores	Core Size) = 2.5 Sq mm	
	Unarm	Arm
2	0.125	0.139
3	0.141	0.157
4	0.161	0.179
5	0.187	0.206
6	0.234	0.260
7	0.234	0.260
8	0.292	0.325
9	0.300	0.335
10	0.303	0.337
12	0.334	0.371
14	0.389	0.409
16	0.435	0.458
18	0.474	0.500
19	0.476	0.501
20	0.519	0.546
24	0.584	0.615
27	0.631	0.664
30	0.706	0.743
37	0.835	0.879
44	1.019	1.026
52	1.100	1.158
61	1.246	1.312

TABLE – III
VARIATION FACTOR FOR STEEL (FeF)
PVC INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

No. of Cores	Core Size = 2.5 Sq mm	Shape of armour
2	0.277	W
3	0.289	W
4	0.314	W
5	0.342	W
6	0.379	W
7	0.379	W
8	0.456	W
9	0.275	F
10	0.325	F
12	0.342	F
14	0.360	F
16	0.372	F
18	0.350	F
19	0.397	F
20	0.400	F
24	0.475	F
27	0.478	F
30	0.503	F
37	0.548	F
44	0.601	F
52	0.641	F
61	0.685	F

iii) For Aluminium conductor PVC Insulated Cables:

$$P = P_0 + AIF (Al - A_{lo}) + CCFAI (CC - CCo) + FeF (Fe - Fe_0)$$

Wherein,

P = Price payable as adjusted in accordance with the above formula in Rs per Km

P₀ = Price quoted/accepted in Rs per Km

AIF= Variation factor for **Aluminium** applicable depending upon type and size of the cable.

A_{lo}= Price of EC grade aluminium rods (properzi rods)

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

CCFAI = Variation factor for **PVC Compound** applicable depending upon type and size of the cable.

CCo = Price of PVC Compound

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

Al = Price of EC grade aluminium rods (properzi rods)

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

CC = Price of PVC Compound

This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

- (*) Variation factor for Aluminum (AIF), PVC compound (CCFAI) for PVC Insulated Power cables, Steel (FeF) for PVC Insulated Power cables with Aluminum conductor is tabulated below.

TABLE – IV

VARIATION FACTOR FOR ALUMINIUM (AIF)
POWER CABLES WITH ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq mm)	3.5 core
25 /16	0.262
35 /16	0.345
50 /25	0.478
70 /35	0.687
95 /50	0.949
120 / 70	1.221
150 /70	1.464
185 /95	1.861
225/120	2.287
240 /120	2.421
300 /150	3.033
400 /185	3.873

TABLE – V

VARIATION FACTOR FOR PVC COMPOUND (CCFAI) PVC INSULATED 1.1 KV
POWER CABLES WITH ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq mm)	3.5 core	
	Unarm	arm
25	0.422	0.444
35	0.489	0.515
50	0.613	0.645
70	0.707	0.744
95	0.908	0.927
120	1.024	1.045
150	1.289	1.315
185	1.499	1.530
225	1.840	1.878
240	1.990	2.031
300	2.361	2.409
400	2.616	2.669
500	3.687	3.762

(*) FeF = Variation factor for steel

Feo = Price of steel strips/steel wire. This price is as applicable on first working day of the month, one month prior to the date of tendering.

Fe = Price of steel strips/steel wire. This price is applicable on the first working day of the month, prior to the date of delivery.

TABLE – VI
VARIATION FACTOR FOR STEEL (FeF) PVC INSULATED 1.1 KV
POWER CABLES WITH ALUMINIUM CONDUCTOR

Nominal cross sectional Area (in Sq mm)	3.5 core	Shape of armour
25	0.382	F
5	0.411	F
50	0.469	F
70	-	F
95	0.616	F
120	0.675	F
150	0.731	F
185	0.820	F
240	0.937	F
300	1.055	F
400	1.172	F
500	1.348	F

iv) For Aluminium conductor XLPE insulated 3.3 to 33 KV power cables

$$P = P_o + AIF (A1 - A_o) + CCFAI (C_c - C_{co}) + FeF (Fe - Fe_o)$$

For unarmoured multicore cables (without steel armour); $F_{ef} = 0$

Table Reference:

ALP Aluminium conductor in single core unarmoured & multicore cables

H1 Aluminium conductor + aluminium armour in single core armoured cables

H2 Polymer

H3/H5 Steel armour (Flat / Round)

TABLE ALP
VARIATION FACTOR FOR ALUMINIUM (AIF)
POWER CABLES WITH ALUMINIUM CONDUCTOR
(EXCLUDING SINGLE CORE ARMoured CABLES)

Nominal Cross Sectional Area (in Sq. mm.)	1 Core	2 Core	3 Core	3.5 Core	4 Core
2.5	0.007	0.014	0.021	-	0.028
4	0.011	0.023	0.034	-	0.046
6	0.017	0.034	0.052	-	0.069
10	0.029	0.053	0.087	-	0.116
16	0.046	0.091	0.137	-	0.183
25/16	0.073	0.146	0.219	0.262	0.292
35/16	0.101	0.202	0.302	0.345	0.404
50/25	0.137	0.273	0.410	0.478	0.547
70/35	0.197	0.395	0.593	0.687	0.791
95/50	0.274	0.548	0.821	0.949	1.095
120/70	0.346	0.691	1.036	1.221	1.382
150/70	0.425	0.853	1.279	1.464	1.706
185/95	0.533	1.070	1.605	1.861	2.140
225/120	0.655	1.310	1.965	2.287	2.620
240/120	0.703	1.400	2.099	2.421	2.799
300/150	0.879	1.757	2.635	3.033	3.514
400/185	1.126	2.249	3.374	3.873	4.498
500	1.418	2.838	4.256	-	5.675
630	1.828	3.663	5.494	-	7.326
800	2.340	4.679	7.018	-	9.357
1000	2.951	5.890	8.834	-	11.779

TABLE H1
VARIATION FACTOR FOR ALUMINIUM (AlF)
ALUMINIUM ARMoured SINGLE CORE XLPE INSULATED 3.3 TO 33 KV CABLES

Nominal Cross Sectional Area (in Sq. mm)	Aluminium Factor for Aluminium Armoured Cable with Aluminium Conductor					
	3.3 KV	6.6 KV (E)	11 KV (E)/6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
35	0.251	0.284	0.301	0.344	0.358	0.473
50	0.312	0.336	0.352	0.397	0.408	0.672
70	0.385	0.409	0.423	0.469	0.501	0.723
95	0.476	0.500	0.518	0.637	0.656	0.856
120	0.561	0.586	0.601	0.726	0.744	0.949
150	0.653	0.678	0.696	0.823	0.842	1.050
185	0.773	0.797	0.893	0.949	0.965	1.183
240	0.997	1.063	1.083	1.139	1.154	1.387
300	1.209	1.271	1.283	1.333	1.307	1.753
400	1.438	1.556	1.565	1.620	1.636	2.046
500	1.873	1.901	1.910	2.110	2.128	2.484
630	2.337	2.361	2.369	2.580	2.595	2.978
800	3.007	3.071	3.080	3.145	3.163	3.588
1000	3.737	3.741	3.749	3.804	3.822	4.565

TABLE H 2
VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)
3 CORE XLPE INSULATED 3.3. TO 33 KV POWER CABLES
WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	3.3 KV ARM	6.6 KV (E) ARM	6.6KV (UE) / 11 KV (E) ARM	11 KV (UE) ARM	22 KV (E) ARM	33 KV (E) ARM
35	0.374	0.990	1.142	1.604	1.782	-
50	0.445	1.119	1.260	1.834	2.046	2.864
70	0.547	1.290	1.396	2.011	2.284	3.219
95	0.594	1.440	1.647	2.269	2.428	3.367
120	0.732	1.692	1.877	2.498	2.715	3.646
150	0.812	1.906	2.061	2.767	2.931	3.927
185	0.960	2.086	2.406	3.028	3.180	4.166
240	1.130	2.484	2.744	3.398	3.580	4.589
300	1.219	2.912	3.161	3.840	4.016	5.029
400	1.313	3.530	3.664	4.353	4.666	5.736

TABLE H3
VARIATION FACTOR FOR STEEL (FeF)
XLPE INSULATED 3.3 TO 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	3.3 KV	6.6 KV (E)	11 KV (E)/6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
35	0.645	0.645	0.731	0.879	0.937	-
50	0.675	0.703	0.761	0.937	0.966	-
70	0.761	0.761	0.849	0.996	1.055	1.289
95	0.820	0.849	0.907	1.083	1.113	1.348
120	0.879	0.907	0.966	1.142	1.172	1.406
150	0.966	0.966	1.055	1.201	1.259	1.494
185	1.025	1.055	1.113	1.259	1.318	1.553
240	1.142	1.142	1.231	1.377	1.406	1.641
300	1.231	1.259	1.318	1.465	1.524	1.758
400	1.348	1.406	1.435	1.582	1.641	1.876

TABLE H 5
VARIATION FACTOR FOR STEEL (FeW)
XLPE INSULATED 3.3KV TO 33KV POWER CABLES
WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	3.3/3.3KV	3.3/6.6KV	11 KV (E) / 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
25	1.258	1.457	1.612	2.509	1.503	-
35	1.361	1.569	1.853	2.644	2.797	2.517
50	1.682	1.687	2.321	2.800	2.921	4.569
70	2.033	1.979	2.503	3.219	3.347	4.809
95	2.202	2.507	2.718	4.019	4.200	5.437
120	2.371	2.675	2.882	4.241	4.416	6.713
150	2.870	2.847	3.265	4.447	4.621	6.976
185	3.121	3.309	4.148	4.726	5.289	7.356
240	3.758	4.227	4.442	5.442	6.651	7.718
300	4.099	5.024	5.182	6.894	7.084	8.187
400	5.750	6.572	6.658	7.433	7.657	8.760

v) For Copper conductor XLPE insulated 3.3 to 33 KV power cables

$$P = P_o + CuF (Cu - Cu_o) + CCFCu (Cc - Cc_o) + FeF (Fe - Fe_o) + AIF(Al-Al_o)$$

For steel armoured cables: AIF=0; For aluminium armoured cables;; Fef = 0

For unarmoured cables; FeF, AIF=0

Table References:

CUP Copper conductor

H2 Polymer (cited above)

H3/H5 Steel armour (Flat / Round) (cited above)

H4 Aluminium armour

TABLE CUP
VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)
POWER CABLE WITH COPPER CONDUCTOR

Nominal Cross Sectional Area (in Sq.mm)	1 Core	2 Core	3 Core	3.5 Core	4 Core
2.5	0.023	0.046	0.069	-	0.092
4	0.036	0.076	0.112	-	0.151
6	0.056	0.112	0.171	-	0.227
10	0.095	0.174	0.286	-	0.382
16	0.151	0.299	0.451	-	0.602
25/16	0.24	0.48	0.720	0.862	0.96
35/16	0.332	0.664	0.993	1.135	1.329
50/25	0.451	0.898	1.348	1.572	1.799
70/35	0.648	1.299	1.950	2.26	2.602
95/50	0.901	1.802	2.700	3.121	3.601
120/70	1.138	2.273	3.407	4.016	4.545
150/70	1.398	2.806	4.207	4.815	5.611
185/95	1.753	3.519	5.279	6.121	7.038
225/120	2.154	4.309	6.463	7.522	8.617
240/120	2.312	4.605	6.904	7.963	9.206
300/150	2.891	5.779	8.667	9.976	11.558
400/185	3.703	7.397	11.097	12.738	14.794
500	4.664	9.334	13.998	-	18.665
630	6.012	12.048	18.070	-	24.095
800	7.696	15.389	23.082	-	30.775
1000	9.706	19.372	29.055	-	38.741

TABLE H4

VARIATION FACTOR FOR ALUMINIUM (AIF)
XLPE INSULATED SINGLE CORE 3.3 TO 33 KV POWER CABLES WITH COPPER
CONDUCTOR

Nominal Cross Sectional Area (in Sq.mm)	Aluminium Factor for Aluminium Armoured Cable with Copper Conductor					
	3.3 KV	6.6 KV (E)	11 KV (E)/ 6.6 KV (UE)	11 KV (UE)	22 KV (E)	33 KV (E)
35	0.153	0.187	0.204	0.247	0.258	0.372
50	0.179	0.203	0.220	0.262	0.275	0.425
70	0.196	0.219	0.233	0.278	0.311	0.444
95	0.213	0.237	0.254	0.373	0.392	0.470
120	0.228	0.253	0.268	0.393	0.410	0.488
150	0.243	0.269	0.287	0.414	0.432	0.504
185	0.261	0.285	0.381	0.437	0.455	0.526
240	0.324	0.389	0.410	0.465	0.480	0.556
300	0.365	0.428	0.440	0.490	0.510	0.737
400	0.432	0.471	0.480	0.536	0.552	0.783
500	0.489	0.517	0.526	0.726	0.744	0.844
630	0.544	0.568	0.572	0.787	0.801	0.902
800	0.706	0.787	0.797	0.862	0.880	0.982
1000	0.824	0.865	0.867	0.923	0.940	1.324

II) PRICE VARIATION FORMULA APPLICABLE FOR ISOLATORS

i) Price variation calculation for Insulator Portion of Isolators :

$$P = \frac{P_o}{100} \left\{ 15 + 5 \times \frac{Z_n}{Z_{no}} + 53 \times \frac{IN - INSLR}{INo - INSLR} + 27 \times \frac{W}{W_o} \right\}$$

Where in,

P - Price payable as adjusted in accordance with the above formula

P_o - Price quoted/accepted

Z_{No} - Price of electrolytic high grade zinc.

This index number is as applicable on the first working day of the month, one month prior to the date of tendering.

INo-INSLR = Index number for insulators based on relative prices and weightages (as given in brackets) of wholesale price index number for Fuel, Power, Light and Lubricants (28), wholesale price index number for basic metals, Alloys and Metal products (15), wholesale price index number for Wood and wood products (6), and Ball clay (4) calculated considering their values as on 1st January 2003 as base equal to 100. This index number is as applicable on the first working day of the month, one month prior to the date of tendering.

W_o = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 1982 = 100).

This index number is as applicable on the first working day of the month, three months prior to the date of tendering.

ZN = Price of electrolytic high grade zinc.
This price is applicable on the first working day of the month, two months prior to the date of delivery.

IN-INSLR = Index number for insulators based on relative prices and weightages (as given in brackets) of wholesale price index number for Fuel, Power, Light and Lubricants (28), wholesale price index number for basic metals, Alloys and Metal products (15), wholesale price index number for Wood and wood products (6), and Ball clay (4) calculated considering their values as on 1st January 2003 as base equal to 100.

This index number is as applicable on the first working day of the month, two month prior to the date of delivery.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 1982 = 100).

The above index numbers are as published by IEEMA vide circular reference number IEEMA (PVC)/INSLR. prevailing as on first working day of the month, four months prior to the date of delivery.

ii) Price variation calculation for Metallic Portion of Isolators:

$$P = \frac{Po}{100} \left\{ 19 + 17 \times \frac{IS}{ISo} + 17 \times \frac{C}{Co} + 13 \times \frac{AL}{ALo} + 19 \times \frac{IN}{INo} + 15 \times \frac{W}{Wo} \right\}$$

Where in,

P - Price payable as adjusted in accordance with the above formula

Po - Price quoted/accepted

ISo - Wholesale price index number for ' Iron & Steel(Base : 1993-94 = 100).

This index number is as applicable for the week ending 1st Saturday of the month, three months prior to the date of tendering.

Co = Average LME settlement price of copper wire bars.

This price is as applicable for the month, two months prior to the date of tendering.

ALo = Price of Busbar grade Aluminium.

This price is as applicable on the 1st working day of the month, one month prior to the date of tendering.

INo = IEEMA index for insulator (Base: January 2003=100)

This index number is as applicable on the 1st working day of the month, one month prior to the date of tendering.

Wo = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 2001 = 100).

This index number is as applicable on the first working day of the month, four months prior to the date of tendering

IS = Wholesale price index number for "Iron & steel (Base: 1993- 94=100)"

This index number is as applicable for the week ending 1st Saturday of the month, four months prior to the date of delivery.

C = Average LME settlement price of copper wire bars.
This price is applicable for the month, three months prior to the date of delivery.

AL = Price of Busbar grade Aluminum.
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

IN = IEEMA index for insulator (Base: January 2003=100).
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 2001 = 100).
This index is as applicable on the first working day of the month, five months prior to the date of delivery.

III) PRICE VARIATION FORMULA APPLICABLE FOR CABLES :

The price variation is applicable only for Cable portion for the contract as given below. Amended Price variation formula based on IEEMA Indices which is as below:

"The price Variation of the **220 kV (or) 132 KV** UG Cable will be given for the variation in rates of Copper and Aluminium as per the following formula:

$$Pv=Po+{(Cv-Co)Wc+(Alv-Alo)WAl}$$

Where,

Pv=Adjusted price of UG cable per Km after admitting PV

Po=Offered price of the UG cable per Km

Cv= Price of Copper in Indian Rupees as defined in 'IEEMA' as on first working day of the calendar month, three months prior to the date of delivery.

Alv= Price of Aluminium in Indian Rupees as defined in 'IEEMA' as on first working day of the calendar month, three months prior to the date of delivery.

Co= Price of Copper in Indian Rupees as defined in 'IEEMA' as on first working day of the calendar month, one month prior to the **opening of Technical Bid**.

Alo= Price of Aluminium in Indian Rupees as defined in 'IEEMA' as on first working day of the calendar month, one month prior to the **opening of Technical Bid**.

Wc=Nominal (guaranteed) Weight of copper in MT/Km of the UG Cable as declared by the bidder in the Technical Data Sheet (TDS) (**Bidders are requested to furnish in separate sheet along with drawing of cable structure**).

WAl= Nominal (guaranteed) Weight of Aluminium in MT/Km of the UG Cable as declared by the bidder in the Technical Data Sheet (TDS) (**Bidders requested to furnish in separate sheet along with drawing of cable structure**).

NOTE:

- 1) For the purpose of calculating the adjusted price after admitting PV the weight of copper and aluminium will be taken as declared by the bidder in the Technical Data Sheet (TDS).
- 2) After the metal prices have been adjusted as described above the final contract price shall be further adjusted in proportion to the difference in metal weights as declared in the TDS and the actual weights as determined from sample test on the finished UG cable whichever is less. The sample test is to be conducted by the supplier free of cost along with acceptance Tests.

3) For cable manufactured outside India also the above PV formula shall be applicable.

The total prices adjustment for Cable shall be subject to a variation of **30%** (increase/decrease) of the respective price of cable.

The above price adjustment formula shall be invoked by either party subject to the following further conditions.

- a) No price adjustment shall be allowed beyond the original delivery dates unless specifically stated in the extension letter if the prices are in increase. As a rule, no price adjustment shall be allowed for periods of delay for which the Supplier is entirely responsible if the prices are in increase. However, the purchaser will be entitled to any decrease in the prices of Goods subject to adjustment during the above period i.e beyond original delivery date.
- b) If the currency in which the Contract Price PO is expressed is different from the currency of origin of the labor and material indices, a correction factor will be applied to avoid incorrect adjustments of the contract price. The correction factor shall correspond to the ratio of exchange rates between the two currencies on the base date for adjustment as defined above.
- c) No price adjustment shall be payable on the portion of the Contract Price paid to the supplier as advance payment.
- d) Price adjustment will be applied only if the resulting increase or decrease is more than 2% of the contract price of 132KV Cable .Price adjustment will be paid after completion of total cable supplies.

Price Variations will be calculated for Isolators (Metallic & Insulator portions), Power Cables and Control cables, using IEEMA PV CALCULATOR, which considers all modifications issued by IEEMA from time to time.

Price Variation clause in the Tender Specification are provisional and all modifications/updates issued by IEEMA for Isolators (Metallic & Insulator portions), Power Cables and Control Cables from time to time are applicable for TSTRANSCO turnkey projects."

8 TAXES AND DUTIES:

- a) The prices indicated in Schedule A are firm except for the materials mentioned under clause (7) above.
- b) In respect of Schedule-A, the prices are including GST @18%, Freight & Insurance and all other incidentals.

- c) The ministry of Finance, Department of Revenue, central Board of Excise and customs vide Notification No. 15/2017, Dt:01.07.2017 has notified that the central goods and service tax (Third Amendment) Rules, 2017 shall come into force with effect from the 1st day of July, 2017, GST @18% is applicable on schedule-A (Material portion).

Contractor shall be entirely responsible for payment of all taxes, levies, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser. In respect of supply portion, the contractor shall pay all types of fees, levies, taxes, duties etc. required to be paid by any National or State statute, ordinance or other law or any regulation or bye-law of any local or other duly constituted authority in relation to the execution of works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way of the works. The contractor shall in compliance with the above keep the purchaser indemnified against all such penalties and liability of every kind for breach of any statute, ordinance or law, regulation or bye-law. Nothing in the contract shall relieve the contractor from his responsibility to pay any tax that may be levied by the Government on the turnover / profits etc., made by him in respect of the contract.

8.1 INCOME TAX:

Income tax at applicable rates as on the date of release of payment will be deducted from the gross bills as per the Income Tax Act.

8.2 INSURANCE:

The Goods supplied under this Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage, delivery and erection .In case of domestic goods the insurance shall be at least for an **amount equal to 110% of the cost of the goods** from "warehouse to warehouse (final destination)" and **storage up to commissioning** thereafter on "All Risks" basis including War Risks and Strike Clauses.

You shall have the insurance coverage as specified in Clause (2.4) Section II financial Volume-I of Specification No. TST-e-02/2019/CE-Construction. All insurance premiums shall be borne by you. You shall have to produce the insurance cover note before entering the agreement with Superintending Engineer/OMC/Metro West as applicable. Insurance will be paid as per actual on submission of Original insurance documents limited to 0.5% of project Cost(Schedule-A + Schedule-B)+GST @18%.

9 STATUTORY VARIATION

It is the responsibility of bidder to consider the correct rates of duties and taxes leviable on the equipment/material/Work at the time of bidding. After considering the correct rates of duties and taxes only the bidder shall quote the percentage on ECV.

For Schedule-A, any variation up or down in statutory levy or new levies introduced after signing of the contract under this specification will be to the account of TSTRANSCO.

In cases where delivery schedule is not adhered to by the contractor and there are upward variation/ revision after the agreed delivered date the contractor will bear the impact of such levies and if there is downward variation / revision the TSTRANSCO will be given credit to that effect. For the variations beyond the scheduled completion period the payment of taxes shall be limited to the tax rates applicable within the scheduled completion period.

In case of the bought out items statutory variation shall not be applicable on that taxes and duties. For this purpose bought out item means the material / equipment not manufactured by the bidder i.e. statutory variation will be applicable for the taxes and duties involving direct transaction between the bidder and TSTRANSCO only and not for the taxes and duties between bidder and his sub-vendors.

10. SUPPLEMENTAL QUANTITIES / ITEMS:

The quantities indicated in the Schedule-A (Materials / Equipment) are only provisional and are likely to change during actual execution. When quantities of any item are likely to exceed beyond 25% over and above the scheduled quantity or any new items / supplemental items arises, the Contractor shall bring the fact to the notice of the competent Authority of TSTRANSCO well in advance and take prior orders for going ahead with the work. Without approval of the competent Authority of TSTRANSCO, the Contractor shall not go ahead with the work wherever the increase in quantities exceeds beyond 25% over and above the scheduled quantities or any new items / supplemental items arises.

The contractor is bound to execute all Increased / supplemental / new items that are found essential, incidental and inevitable during execution of the contract at the rates to be worked out as below:

10.1 Increased Quantities:

For Material / Equipment covered in Schedule-A: The rates accepted for individual items of material / equipment shall hold good even for the increased quantities up to and beyond 25% over and above the agreement quantities.

10.2 For Supplemental / New Items:

- i) For the items relating to the Schedule-A where the rates of new items cannot be deduced from the estimate / SSR, the rate payable will be arrived upon based on the prevailing market rates duly enquiring / collecting quotations and observing the reasonableness of the rates by the purchaser. Tender percentage is not applicable for these items.

10.3 The contractor shall plan and procure the materials indicated in the schedules 'A' duly verifying with the approved Layout respectively, so that the procured quantities match with actual requirement to avoid excess supply of material.

10.4 The Schedule time required to complete the new/ supplemental items including the balance work will be indicated in the approval letter issued for new / supplemental items.

11. TERMS OF PAYMENT:

All payments will be made to you in the following proportion.

a) For supply of Materials / Equipment :

- i) 80% payment will be made within 30 days for the material / equipment supplied in complete shape subject to their delivery as per the schedule of work contained in the bar chart and on its receipt at destination stores/site in good condition (i.e from check measurement date in Form-13). The concerned AEE/Construction will receive the equipment /material in full shape at site and the concerned EE/Construction will do the check measurement and issue the Form-13. The check measurement shall be done within five days from the date of receipt of materials.

- ii) 10% payment will be made after erection of equipment / material.
- iii) Balance 10% payment will be made after commissioning of equipment /material.

The contractor shall furnish the following documents in quadruplicate for arranging payment for the equipment / material supplied.

- (i) Copies of the invoices showing Contract No., Goods description, quantity, unit price and total amount.
- (ii) Acknowledgement of receipt of material from consignee i.e. Form-13
- (iii) Proof of payment of Excise duty (Not applicable for bought out items)
- (iv) Acknowledgment of Consignee on Delivery Challan in original.
- (v) Detailed packing list
- (vi) Copy of the Lorry receipt.
- (vi) Copies of Insurance Certificate / policies
- (vii) Test certificates approval and Dispatch clearance. (Not applicable for furniture and general items)
- (viii) Certificate certifying that the defects, if any, pointed out during inspection have been rectified.
- (ix) (a) The payments against Schedule-A are subject to Performance Security shall cover the period for 12 months from the check measurement of the equipment/material for proper fulfillment of performance obligations (for OH Monopole line).

(b) The payments against Schedule-A are subject to Performance Security shall cover the period for 60 months from the check measurement of the equipment/material for proper fulfillment of performance obligations (for UG Cable line).
- (x) No payments will be made for the Supplies made prior to Scheduled delivery date or for materials which are not in full shape.

- 11.1 Payments will be made by cheques / by way of Electronic Fund Transfer / RTGS from TSTRANSCO/PFC funds. Once RTGS system is established, the bank account details submitted are final and cannot be changed till completion of the contract. For payments through **PFC** the connected charges are to be borne by the contractor.

Bank account details for payment through RTGS system:

1. Name of the Bank	:	State Bank of India
2. Name of the Branch	:	Main Branch J.P.N Road
3. Branch Code	:	20148
4. City	:	Warangal
5. Account No.	:	62208821523
6. MICR No.	:	506004002
7. IFSC No.	:	SBIN0020148
8. Income Tax PAN No.	:	AAECC3512E
9. GST Registration No.	:	36AAECC3512E1Z6
10. Date of GST Registration	:	01.07.2017
11. Place of GST Registration	:	Hyderabad

12. COMPLETION PERIOD:

The overall completion period of the project is **18 (Eighteen) Months** as detailed below.

S.No	Description of the work	Completion period	Project will be reckoned from
1	i) Supply, laying/erection, testing & commissioning of 220 KV 1200 Sqmm XLPE UG Cable with associated accessories from CTT of 220 KV Narsapur Bowrampet DC line to 220/132 KV SS Bowrampet Ranga Reddy district (3.5 KM)	18 Months	Date of issue of detailed contract award letter (or) from the date of issue of Detailed route Survey approval for UG Cable whichever is later.
	ii) Supply, laying/erection, testing & commissioning of 220 KV DC line from 400 KV Narsapur - Bowrampet Multi circuit line to Narsapur - Bowrampet CTT on Monopole towers (3.5 KM) in Ranga Reddy District.	18 Months	Date of issue of detailed contract award letter (or) from the date of issue of 10% of approved profiles whichever is later.

The mandatory spares and accessories shall be delivered within **18 (Eighteen) Months** from the date of issue of contract award.

13. PENALTY FOR LATE SUPPLIES / COMPLETION:

The completion period mentioned above is the essence of contract.

Penalty will be levied as follows for the delay in supply of material.

- a) Penalties for delays in execution of the works within completion period: In case of non-achievement of Targets of the scheduled works by the Contractors when compared with the PERT charts as accepted in the Kickoff meetings, whatever may be the reasons, the TSTRANSCO shall levy and collect the penalty **@ 1% including GST@18%** per month of value of non-achieved targets fixed in the Kickoff meeting. However if the work is completed within the total scheduled completion period the penalty recovered shall be released".
- b) Penalties after overall completion period: "In case of delay supply of material / equipment beyond overall completion period, whatever may be the reasons; the TSTRANSCO shall levy and collect the penalty **@ 0.5% including GST @18%** per week of the delay on the delayed value of the Materials / Equipment"

However the sum of the penalties stated above are **subject to a maximum of 10%** of the total value including GST@18% of the total value of the contract. Once the maximum is reached, TSTRANSCO may consider termination of the contract. The right of the TSTRANSCO to levy penalty shall be without prejudice to its rights under the law including the right to get the balance works executed by other agencies at the risk and cost of the successful bidder. This is in addition to the right of the TSTRANSCO to recover any damages from the contractor and also blacklisting. In case the successful bidder fails to execute the supplies as per the program or in the opinion of purchaser, the supplies are progressing at a slow pace, TSTRANSCO reserves its right to get the balance or part of supplies executed through other agencies at the risk and cost of the successful bidder, this is in addition to the right of the TSTRANSCO to recover any damage from the contractor and also blacklisting.

14. PERFORMANCE SECURITY:

Bank Guarantee against Performance Security:-

- i. You are requested to submit performance security equal to **ten percent (10%)** of the value of Schedule-A (Excluding supply cost of Monopoles, XLPE Cable & Accessories) i.e., **Rs.14,57,700/-** for the proper fulfillment of contract to cover the completion period plus warranty period plus two months claim period i.e valid for **80 months**.
- ii. You are requested to submit the Bank Guarantee from the Monopoles supplier against Performance Security towards supply of 220kV Monopoles @ 10% i.e., **Rs. 1,05,79,400/-** with a validity of 12 Months over and above the completion period and with two months claim period. i.e valid for **32 Months**
- iii. You are requested to submit the Bank Guarantee from the Cable manufacturer against Performance Security towards Supply of 220kV XLPE UG Cable & Accessories @ 10% i.e., **Rs. 3,91,04,200/-** with a validity of 60 Months over and above the completion period and with two months claim period. i.e., valid for **80 Months**.

The Performance security may be made by Demand Draft on any **Nationalized Bank** payable at Hyderabad in favour of Pay Officer, TSTRANSCO, Hyderabad or by way of Bank Guarantee from a **Nationalized Bank** in favour of Chief Engineer/Construction in the prescribed proforma.

The performance security shall be forfeited if you fail to fulfill the terms of the contract. You are requested to extend the validity of the Bank Guarantee furnished towards performance security as and when requested by TSTRANSCO.

15. PERFORMANCE GUARANTEE:

- i) The contractor shall warrant for the satisfactory functioning of the materials / equipment supplied and for the satisfactory operation of the workmanship performed by him, shall cover the period for 66 months after the Goods, or any portion thereof as the case may be, of the equipment/material or 60 months from the date of commissioning of the project (Line works etc.) whichever is later. Where the suppliers / manufacturers provide longer period of warranty than mentioned above, the purchaser shall be entitled for such longer warranty.
- ii) Equipment, sub-assemblies or spares, or parts replaced / repaired Under warranty shall have further warrantee of 24 months. In case if the rest of the original warranty period is less than 24 months.
- iii) After commissioning and handing over of the project to the TSTRANSCO, the contractor shall arrange for thorough patrolling of the line during the first six months of the guarantee period so that the defects if any noticed during that period may be rectified by the contractor free of cost to the TSTRANSCO without having to wait for the TSTRANSCO to suggest such rectifications.
- iv) If during the period of guarantee, the Engineer decide and inform in writing to the contractor that any equipment, part of equipment, material is defective, the contractor on receiving details of such defects or deficiencies shall at his own expense, irrespective of reimbursement of insurance company, rectify/replace the defective material within seven (7) days of his receiving the notice or within such reasonable time as TSTRANSCO may deem proper for making it good. The decision whether correction of the defects should be through repair or by replacement shall be the sole discretion of the TSTRANSCO.

- v) In the event of contractor not responding to the intimation of the Engineer as mentioned above, the Engineer may arrange for a third party to correct the defects and extra cost for such.
- vi) The Engineer is to give the contractor at least seven (7) days' notice of its intention to use a third party to correct a defect. If the contractor does not correct the defect himself within this notice period, the Engineer may have the defect corrected by the third party. The cost of such correction will be deducted / collected from the retention amounts or performance / additional / retention securities or amounts /bills pending to the contractor either in this contract or other contracts or any other securities.

16. PAYING OFFICER & CONSIGNEE:

The Paying Officer is the Superintending Engineer/OMC/Metro-West/Hyderabad. The consignee will be Assistant Executive Engineer/Const/Metro-West/ Hyderabad. The Agreement authority is the Superintending Engineer/OMC/Metro-West/Hyderabad.

17. APPROVAL OF SUB-VENDORS FOR EQUIPMENT / MATERIALS AND APPROVAL OF GENERAL TECHNICAL PARTICULARS, DRAWINGS, BOMS ETC.

The materials / equipment required for this project shall be invariably purchased from the manufacturers listed in the specification who have already been supplied similar materials to TSTRANSCO and have proven performance.

18. Quality Control & Inspections:

Standard: The goods supplied under this contract shall conform to the standards mentioned in the Technical Specifications and when no applicable standard is mentioned, the standard specified by the Institution of Central/State Government or internationally recognized Institutions shall be applicable and such standards shall be of latest version issued by the concerned institution.

Inspections and Tests:

- i) The purchaser or his representative shall have access to the Contractor's or Manufacturer's work at any time during working hours for the purpose of inspecting and testing the materials during manufacturing of the materials / equipment and may select test samples from the materials going into plant and equipment.
- ii) The inspections and tests may be conducted in the premises of the manufacturer/ supplier, at the point of delivery and/or at the final destination stores i.e. at the site. Where tests are conducted in the premises of manufacturer / supplier, all reasonable facilities and assistance including access to drawings and production data shall be furnished at no extra charge to the Purchaser.
- iii) Should any inspected or tested materials fail to conform to specifications, the inspection officer may reject them and the Manufacturer / supplier shall either replace the rejected materials or make all alterations necessary to meet specification requirements free of cost to the Purchaser.
- iv) The purchaser's right to inspect, test and where necessary, reject the materials/ equipment after their arrival at the site, shall in no way be limited or waived by reason of the materials/equipment having been previously inspected, tested and passed by the purchaser or his representative prior to the dispatch.

- v) The cost of making any test shall be borne by the contractor, if such test is clearly intended by or provided for in the contract.

Cost of tests not provided for: TSTRANSCO may decide to conduct certain other tests not covered in this specification on the materials supplied by the bidder by an independent person or agency at any place other than the site of the place of manufacture of the materials. The cost of such tests shall still to be borne by the contractor. If the tests show that the workmanship or quality of materials are not in accordance with the provisions of the contract the same may be replaced with new one conforming to specification at Contractor's cost.

Quality of Materials and Workmanship: All materials and workmanship shall be of the respective kinds described in the contract and in accordance with the Engineer's instructions and shall be subjected to change from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication or on the site or at all or any such places. The contractor shall provide such assistance, instruments, machines, labour and materials that are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the works, for testing as may be selected and required by Engineer.

Cost of Samples: The contractor at his own cost shall supply all samples, if the supply thereof is clearly intended by or provided for in the contract.

18.1.1 Stage Inspections: The Contractor / fabricator shall invariably use the steel angles manufactured by SAIL, VSP, TISCO and ISCO only for the fabrication of Line and Substation structures. The angles which are not manufactured by the above primary producers can procure from any other TSTRANSCO approved re-roller. However the fabricator /re-roller should offer for single stage inspection i.e., finished material after fabrication. The cost of stage inspection, 3rd party laboratory charges and any other testing charges and samples collection expenses are to the account of contractor and shall include cost of the material while quoting.

18.2 INSPECTION, DURING ERECTION: The provisions of the clauses entitled in the specification for other sections Inspection, Testing and Inspection Certificates shall also be applicable to the erection portion of the Works. The PURCHASER/ENGINEER shall have the right to re-inspect any equipment though previously inspected and approved by him, at the CONTRACTOR's works, before and after the same are erected at Site. If by the above inspection, the PURCHASER/ENGINEER rejects any equipment, the CONTRACTOR shall make good for such rejections either by replacement or modifications/repairs as may be necessary to the satisfaction of the PURCHASER/ENGINEER. Such replacements will also include the replacements or re-execution of those works of other CONTRACTORS and/or agencies, which might have got damaged or affected by the replacements or re-work done by the CONTRACTOR's work.

19. REPLACEMENT:

The contractor is responsible for the safe delivery of material in good condition and in full shape without any shortages at the destination. In the event of the materials handed over to you for the execution of this contract being lost, damaged or destroyed while being in your custody before being handed over to the TSTRANSCO, you shall be liable to make good the loss without any extra cost to the TSTRANSCO.

20. GUARANTEED TECHNICAL PARTICULARS AND TYPE TESTS, MANUFACTURING CLEARANCE:

Within fifteen days of receipt of this order you are requested to submit the following.

- (a) Full particulars of materials to be supplied by you along with Guaranteed Technical Particulars, drawings, type test reports, Quality Assurance Plan for approval.
- (b) The detailed program of material manufacturing / offer / supply / erection with probable dates.
- (c) The detailed program of survey, foundation, erection of towers, stringing and commissioning of line.

Further you are requested to obtain proper approvals for the above before commencing manufacturing of the material. It is mandatory to obtain manufacturing clearance for the quantities of all the material from the Executive Engineer /Construction in writing so as to ensure the correctness of the quantities required for the work.

The contractor shall adhere to the Principal parameters/Guaranteed Technical Particulars specified in the specification and also the approved list of manufacturers as specified in the specification.

All the equipment/material covered under Schedule-A of this contract shall be fully type tested by the contractor or his vendor as per relevant standards. The type tests should have been conducted on similar or higher capacity equipment not earlier than five years from the date of issue of Letter of Intent.

21. INSPECTION OF EQUIPMENT/MATERIALS:

- i) Inspection shall be made in accordance with the clause (24) of Section-I, volume-I of the Specification.
- ii) The TSTRANSCO at its discretion may get the materials/ equipment inspected by a Third Party if it feels necessary in accordance with the clause (24) of Section-I,, volume-I of the Specification.
- iii) The TSTRANSCO representative shall at all times be entitled to have access to the works and all other places of manufacture. The supplier shall provide all facilities for unrestricted inspection of the works, raw materials, and process of manufacture and for conducting necessary tests. The contractor shall inform well in advance of the commencement of manufacture, progress of manufacture thereof so that arrangements could be made for inspection.
- iv) The contractor shall give at least 15 days advance intimation to enable the purchaser to depute his representative for witnessing acceptance and routine tests. Inspection of tower parts shall be arranged only if they are offered for full shape towers. No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested, unless the purchaser in writing waves off the inspection. In the later case also, material shall be dispatched only after satisfactorily conducting all the tests specified as per IS and after test certificates are approved by the purchaser. The acceptance of any material shall in no way relieve the contractor of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection if the material is later found to be defective.

22. DESPATCH INSTRUCTIONS:

The dispatch instructions will be communicated to you while approving the test certificates furnished as and when the materials/equipment is inspected. The material/equipment shall be dispatched by Road Transport through reliable transport agency with freight prepaid and duly insured. Materials/equipment, which are not conforming to IS standards specified in Bid documents, or are not of acceptable quantity, or are not as per approved drawings, would be deemed to be not delivered.

Three copies of test certificates containing the results of all tests carried out shall be submitted to the Chief Engineer / Construction and got approved before dispatched. The supplier shall maintain all test reports of routine and stage tests conducted during manufacture. These shall be produced for verification as and when requested by the purchaser.

23. COMPLETENESS OF MATERIAL:

All fittings, accessories and apparatus which may not have been specifically mentioned in the specification, tender or this contract order but which are useful or necessary for the efficient, economic and safe operation of the equipment/ material supplied and for completion of the work, shall be deemed to be included under the scope of the contract and shall be provided by the contractor without extra charges. All the equipment/ material/ works shall be complete in all respects whether such details are mentioned in this Purchase Order or not.

24. PACKING:

The supplier/manufacturer shall provide such packing for the material/ equipment as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the technical specification for material/equipment. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, humidity etc. during transit and open storage.

25. ACCEPTANCE CERTIFICATE:

Upon receipt of material/equipment at the designated destination and after inspection, acceptance certificate (Form-13) will be issued by the Executive Engineer/Const/Metro-West/Hyderabad in which he will certify the date on which the material/equipment has been so accepted. Material / Equipment received shall be verified by concerned Asst. Executive Engineer/ Construction and check measured by the concerned Executive Engineer/ Construction at the site stores. If material/ equipment is found defective due to bad workmanship or damaged due to defective packing or otherwise not in conformity with requirements of the contract, taking over of material and issue of acceptance certificate shall be withheld until such time the defects have been corrected. The consignee will notify the defects found in the material after receipt of material at destination.

The issue of acceptance certificate will no way relieve the contractor of his responsibility for supply and satisfactory performance of material/ equipment as per technical requirements given in the specification.

26. OPERATION AND MAINTENANCE MANUALS:

Contractor shall supply 10 copies of operation and Maintenance manuals and approved drawings along with the equipment. If the contractor does not supply the operation and maintenance manuals and approved drawings as stated above the equipment bills will be kept on hold.

10 copies of Contract Agreements with specification, QAP, all the approved drawings

of Materials, GTPs, BOMs, Layout plans etc., shall be supplied by the contractor to distribute to field Construction and O&M wings and to keep the spare records at Head Quarters. The contractor shall prepare the final tower schedule and shall supply in 10 copies. The cost of the above shall be borne by the contractor and shall provide as instructed by the Executive Engineer/Construction/Metro-West/Hyderabad.

27. SITE STORES:

The contractor shall establish temporary stores at his cost at the sub-station site for storing material/equipment such as cement, steel, panels etc. This store should be dismantled and site cleared after the completion of the work.

28. CONTRACTOR'S SITE OFFICE:

The CONTRACTOR shall establish a Site Office at the 'Site' and keep posted an authorized representative for the purpose of the 'Contract'. Any written order or instruction of the PURCHASER/ENGINEER or his duly authorized representative shall be communicated to the authorized representative of the CONTRACTOR at the Site Office and the same shall be deemed to have been communicated to the CONTRACTOR at his legal address. A complete set of specifications, drawings and a copy of the contract agreement shall be kept in the site office at all times.

- a. The attested copies of the following shall be invariable kept by the contractor at the site office and Substation site / Line Site locations and shall have access to the Field Engineers and Inspecting officers.
 - i) Agreement copy along with price schedules.
 - ii) Volumen-1 and Volume-2 of the Specification.
 - iii) Approved copies of Guaranteed Technical particulars of materials / equipment, BOMs, approved drawings for all structures, foundations, equipment and materials.
 - iv) Applicable Technical Standards like IS and ISS which are mentioned in the Volume-2 of the specification.
- b. In cases where 'New works' are taken up as 'supplemental items' under the 'Original Agreement' all the above documents related to the extent of these new works also shall be made available at Site / locations.

29. AGREEMENT:

29.1 The Superintending Engineer / OMC/Metro-West/Hyderabad shall be the agreement authority and the contractor shall attend the office of the SE/ OMC/Metro-West/Hyderabad within 15 days of the detailed order to enter in to an agreement. The Superintending Engineer / OMC/Metro -West/Hyderabad shall enter an agreement with the contractor duly verifying the following.

- i. The PAN card, GST registration, Labor license, valid A-grade electrical license to execute EHT works in Telangana/A.P.
- ii. Valid Performance Bank Guarantee.
- iii. Valid Project insurance
- iv. Authorization/power of attorney of the contractor representative to sign the agreement.

29.2 The following documents shall also be made part of the agreement.

- i. The copy of the letter of intent.
- ii. The copy of the Purchase order.
- iii. The copy of the volume-1 of the specification.
- iv. Copy of the Performance Bank Guarantee and its approval.
- v. Authorization / power of attorney of the contractor representative to sign the agreement.
- vi. Copies of the statutory registrations of the contractor etc.,

30. EXTENSION OF THE COMPLETION DATE:

When a work cannot be completed within the completion period indicated for reasons beyond the control of the contractor i.e. due to Force Majeure conditions mentioned below or due to the reasons attributable to TSTRANSCO, the contractor shall represent for the same and extension of time without levying penalty shall be granted only on the issue of an undertaking by the contractor that they will not put forth at a later date, any claims for extra payments towards increased overheads, material/ equipment/works costs etc. during the extended period. It is the sole discretion of the TSTRANSCO to grant extension of completion period. However the Price Variation is applicable as per the price variation clause of the Purchase Order.

31. FORCE MAJEURE:

- 31.1 The Contractor will not be liable for forfeiture of its performance security, penalty for late delivery, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
- 31.2 For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- 31.3 If a Force Majeure situation arises, within 15 days from the date of eventuality the Contractor shall notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Contractor shall continue to perform their obligations under the Contract as far as it is reasonably practice, and will seek all reasonable alternative means for performance not prevented by the Force Majeure event.

32. RECOVERY OF MONEY FROM CONTRACTOR IN CERTAIN CASES:

In every case in which provision is made for recovery of money from the contractor, the TSTRANSCO shall be entitled to retain or deduct the amount thereof from any moneys that may be due or may become due to the contractor under these present and/or under any other contract or contracts or any other account whatsoever, including Bank Guarantees, Bid Security/Performance Security etc., held up by the TSTRANSCO.

33. ACCOUNTING OF SURPLUS MATERIALS/ SETTLEMENT OF MATERIAL ACCOUNT:

- 33.1 On completion of works, all the surplus material which has been already billed by contractor to Transco but not used by contractor in the project, shall be handed over designated TSTRANSCO Stores at the cost of the contractor within the time limit of 2 months of commissioning of the project. However if the material is not handed over within such time limit or in the opinion of designate officer of TSTRANSCO who is in-charge of the works, such material is not in fit condition for use, such material shall be retained by the contractor and recovery shall be made from contractor at the rate as per the contract rate All the balance works if any shall have to be executed

by the contractor within two months of charging of substation / line. If the contractor fails to complete the balance works within the above time schedule the works will be executed by the other agencies and will back charge to the contractor. However the completed works shall be handed over to TL & SS wing by construction wing within 3 months after commissioning.

33.2 In exceptional cases, in order to expedite work progress, whenever TSTRANSCO issues the material from its stores on returnable basis to the contractor, the contractor shall return such material within 30 days from the date of issue of such material along with interest on the value of such material at the rate of 2% per month or part thereof. However if contractor fails to return the material within 30 days of issue of such material, the material shall be deemed to have been sold to contractor on the date of its issue to contractor at a price which shall be 150% of the procurement cost and such cost shall be recovered from contractor along with interest at 2% per month or part thereof from the date of issue of material till amount is recovered.

33.3 All the balance works if any shall have to be executed by the Contractor within two months of charging of SS / line. If the Contractor fails to complete the balance works within the above time schedule the works will be executed by the other agencies and will back charge to the Contractor. However the completed works shall be handed over to O & M wing by construction wing within 3 months after commissioning.

34. FINAL ACCOUNT:

- a) Not later than one (1) month after handing over of the works complete in all respects i.e., after successful testing and commissioning, the Contractor shall submit a draft statement of 'final account' and supporting document to the Engineer/Engineer's Representative showing in detail the value of the work done in accordance with the contract.
- b) Within one (1) month after receipt of the Draft Final Account and all information reasonably required for its verification, the Engineer/Engineer's representative shall determine the value of all matters to which the Contractor is entitled to under the contract. The Engineer/Engineer's representative shall then issue to the Contractor a statement showing the final amount to which the Contractor is entitled to under the contract.
- c) The Contractor shall sign the Final Account as an acknowledgement of the full and final value of the work performed under the contract and shall promptly submit a signed copy to the Engineer/Engineer's representative.
- d) On receipt of Final Account, the Engineer/Engineer's representative shall promptly prepare and issue to the Contractor a "Final Payment Certificate" certifying any further amounts due to the Contractor in respect of the contract.
- e) If the Contractor does not finalize the material account within 2 months from the date of completion of works/ handing over of works, the field Executive Engineer will prepare the final bill duly deducting the cost of all the unaccounted / unhandled over material and will issue a notice to the Contractor for signing on the bill. If the Contractor do not turn-up within 15 days of that notice, the bill will be processed without signatures of the Contractor. The cost of the unaccounted material will be taken as per Clause (33) above.

35. TECHNICAL AUDIT:

- i) All the completed works shall be technically audited by Quality Assurance wing within two months of the completion/ commissioning of the project for the correctness of project in terms of agreements, specifications, detailed project report/ technical sanction, deviation in quantities & rates.
- ii) All the remarks which are pointed out by Quality wing in the above technical audit shall invariably attend by CONSTRUCTION wing within one month and in case the remarks are pertaining to the execution of work which is in the scope of the agreement, the Contractor has to attend the remarks without insisting of any additional payment.
- iii) *Contractor must be held responsible for rectification/completion of works as on date of commissioning and for defects within the warranty period.*
- iv) *However all the liabilities of the Contractor covered under performance guarantee period shall hold good.*

36. TAKING OVER:

Upon successful completion of all the commissioning tests to be performed at site on equipment furnished and erected by the Bidder, and on successful commissioning of the project, the purchaser shall issue to the contractor 'a taking over Certificate' as a proof of the final acceptance of the project. However such taking over certificate will be issued only after handing over of all the manuals, drawings, tower schedules etc. as per Clause 28 above and after settlement of materials account and final bill.

37. CORRESPONDENCE:

The officers mentioned under Paragraphs (16) & (29) of this contract award letter will be in charge of the works covered by this contract. All matters relating to field work, completion, handing over and payments shall be referred to them with copies marked to this office and Chief Engineer/ Metro Zone/Hyderabad.

38. JURISDICTION:

Any and all disputes or differences arising out of or touching this order shall be decided by a panel of arbitrators as detailed below.

<u>Value of claim</u>	<u>Panel of arbitrators</u>
i) Disputes involving amounts up to Rs. 10,000/-	Superintending Engineer of TSTRANSCO other than the circle to which the dispute relates.
ii) Disputes involving amounts of above Rs. 10,000/- but less than Rs. 50,000/-	Any Chief Engineer of TSTRANSCO,
iii) There shall not be any reference of disputes, the value of which is above Rs.50,000 /- to arbitration. The parties shall approach the competent Civil Courts situated in Hyderabad / Secunderabad only, if any such disputes arise.	

39. TERMINATION OF CONTRACT:

If the contractor does not fulfill his obligations as per the terms of the specification

TSTRANSCO will be entitled to terminate the contract in part or full by giving 15 days notice and get the balance works completed through other agencies at the contractor's cost and risk.

The contractor so penalized shall be blacklisted for 3 years from the date of termination of contract.

In the event of termination of contract due to delay attributable to the contractor, TSTRANSCO is entitled to get back equipment/ material from the contractor for the payment already made but the material is not put to use, and then get the works done by other agency/ agencies for completion of contract by using the said recovered material. The contractor shall have no objection in this regard.

40. ACKNOWLEDGEMENT:

Please acknowledge the receipt of this Order with a confirmation of the acceptance of its contents by you and the extra copy of the order enclosed may please be returned with your signature with date in token of your acceptance, within 15 days from the date of issue of this letter.

Encl.: (i) Extra copy of the contract
award letter with Price-schedule 'A'.

Yours faithfully,
Sd/-
CHIEF ENGINEER
CONSTRUCTION
(ACTING FOR AND ON BEHALF OF THE
TRANSMISSION CORPORATION OF T.S.
LTD.)

WE ACCEPT THE TERMS AND CONDITIONS OF THIS ORDER.

SIGNATURE OF THE CONTRACTOR
WITH SEAL AND DATE

Copies to:

The Executive Director/Finance/TSTRANSCO/Hyderabad.
The Chief Engineer/Metro Zone /TSTRANSCO/Hyderabad.
The Chief Engineer/Telecom/VS/Hyderabad.
The Chief Engineer/Civil/TSTRANSCO/Vidyut Soudha/Hyderabad.
The FA & CCA (ACCOUNTS)/TSTRANSCO/Vidyut Soudha /Hyderabad.
The Superintending Engineer/ OMC/Metro -West/Hyderabad.– 2 copies
The Superintending Engineer/Civil/Metro/TSTRANSCO/Hyderabad.
The SAO/Pay & Accounts/TSTRANSCO/Vidyut Soudha /Hyderabad.
The Executive Engineer/Const/Metro-West/Hyderabad .
The Executive Engineer/Civil/Construction/Metro-West/Hyderabad.
The Asst. Executive Engineer/Construction/Metro-West/Hyderabad.

(*) Requested to hand over the approved Route/Profile immediately to the contractor and arrange to enter into an agreement immediately, to enable speedy execution of works.