By Regd. Post with Ack. Due

TRANSMISSION CORPORATION OF TELANGANA LIMITED

From
Chief Engineer,
Construction,
TSTRANSCO,
Vidyut Soudha,
Hyderabad – 500 082.
Fax:-040-23336171.

To
M/s.Universal Cables Limited,
603/1,Block-1,6th floor,
White House, Begumpet,
Hyderabad-500016

Contract Award PO. No. 560 (SAP PO No.5500000850)/CPT110/SE-Const/ F.Manikonda GIS SS & Cable / Sch-A/RM-338/20, Dt. 18 .03.2021.

Sirs,

Sub:- Specification No: TST -e-14 /CE/Construction /TST-14/2019- "Supply, Erection, Testing and Commissioning of i) 132/33kV GIS SS at Manikonda with 2x80 MVA PTR Capacity in Ranga Reddy District ii) Making LILO of existing 132kV Shivarampally-Erragadda SC OH feeder between Loc.80 and Loc. No. 81 with 132 KV XLPE DC UG cable of 1200 Sq.mm (2.5 KM) to the Proposed 132/33 KV GIS SS Manikonda on turnkey basis" -Detailed Contract order for Material (**Schedule-A**) – Issued- Regarding.

Ref: - 1. Tender Specification No.TST-e-14/ CE/Construction/TST-14/2019.
2. Your bid quoted against Specification No.TST-e-14/CE/Construction/TST-14/2019.
3. Letter of Intent Lr.No.CPT110/SE-Const/F. Manikonda GIS & Cable/D.No.101/20, Dt. 25.11.2020.

* * *

I, acting for and on behalf of and by the order and direction of the Transmission Corporation of Telangana Limited (herein after referred to as 'TSTRANSCO'), accept your offer given in the reference(2)cited, for Supply of equipment/material for subject works as per Terms &Conditions of Tender Specification No. TST-e-14/CE/Construction/TST-14/2019and award the Contract for a total value of **Rs. 49,95,29,949.74 (Rupees Forty Nine Crores Ninety Five Lakhs Twenty Nine Thousand Nine Hundred Forty Nine And Seventy Four 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 under reference (3).

It is noted that M/s. Toshiba Transmission & Distribution Systems(India) Private Limited is the manufacturer of 132 KV GIS Modules, M/s. ABB India Ltd is the Manufacturer of 33 kV GIS Modules and M/s.NKT Cables, Germany is the manufacturer of 132 KV Cable Joints & End terminations.

2. SCOPE OF CONTRACT:

This contract relates to Supply of equipment/material for subject works as per terms and conditions of Specification No.TST-e-14/ CE/Construction/TST-14/2019read 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.)
Material Portion (GIS SS) (Schedule – A1)	23,47,22,500.38
Material Portion (Cable) (Schedule – A2)	25,37,02,302.10
Material Portion (OH line) (Schedule – A3)	19,78,682.93
Material Portion (Telecom) (Schedule – A4)	91,26,464.33
Total Material Portion	**49,95,29,949.74**

The accepted Value is (-) 16.406436% Less than the Estimated Contract Value (Schedule-A).

3.1 MANDATORY SPARES AND TOOLS

3.1.1 <u>132 KV GIS SPARES</u>

S. No.	Description	132 kV GIS
1)	One complete set of circuit breaker	1 Set
2)	One complete set of isolator and earthing switch (Single Phase Unit)	1 Set
3)	Closing coils for circuit breakers	4 Nos.
4)	Tripping coils for circuit breakers	8 Nos.
5)	Motor for circuit breaker operating mechanism	2 Nos.
7)	Contact fingers and nozzles for circuit breakers	2 Sets
9)	Motor for earthing switch	2 Nos.
10)	Motor for disconnectors	2 Nos.
11)	Operating mechanism for disconnectors	2 Sets
12)	Operating mechanism for earthing switch	2 Sets
14)	10 KV Motarised IR Tester (Meggar Make)	1 Nos.
15)	Laptops suitable for extracting in data and working with SAS with suitable Graphic interface (Make DELL, HP, Lenovo)	2 Nos
16)	Lubricants	2 Kgs.
17)	Control switch and auxiliary relays of each type for local control cubicle	4 Nos.
18)	Miniature Circuit Breaker (as applicable) of each type	4 Nos.
19)	Multi function transformer test kit having features like tan Delta, DC Resistance, CT testing, Core demagentisation etc Meggar Make TRAX or Equivalent kits from reputed makes like OMICRON , DOBLES etc.	1 NO

3.1.2 TOOLS FOR 132 KV GIS:

Sl.No.	Description	132 KV
1)	Inspection tools for dismantling nozzles of Circuit Breakers	2 Set
2)	Inspection tools for Dismantling arc contacts for Circuit Breakers	2 Set
3)	Box spanner, hexagonal spanner and snap ring cutting pillar for Circuit Breakers and General Torque Wrenches (10 Nos)	2 Set
4)	Operating handle for manual operation for earthing switch	2 Set
5)	Operating handle for manual operation for disconnectors	2 Set
6)	SF6 gas leakage measurement apparatus to check SF6 gas leakage at site	1 No
7)	SF6 gas transfer cart for extracting pumping in SF6 gas, complete with Compressor, Storage Tank : gauge, vacuum pump etc.	1 No
8)	Gas Dew Point measuring test kit	2 Nos
9)	Main Circuit resistance measuring device	1 N0
10)	Gas purity test kit	2 Nos

3.1.3. 33 KV GIS SPARES

S. No.	Description	33kV GIS
1)	One complete set of circuit breaker(132KV)	
	One complete set of circuit breaker with one complete set of isolator and earthing switch(33KV)	1 Set
2)	One complete set of isolator and earthing switch (Single Phase Unit)	---
3)	Closing coils for circuit breakers	4 Nos
4)	Tripping coils for circuit breakers	8 Nos.
5)	Gaskets for circuit breakers	4 Sets
6)	Motor for circuit breaker operating mechanism	2 Nos.
7)	Contact fingers and nozzles for circuit breakers	---
8)	Valve block with drive cylinder for circuit breakers	---
9)	Motor for earthing switch	1 No
10)	Motor for disconnectors	1 No
11)	Operating mechanism for disconnectors	2 Sets
12)	Operating mechanism for earthing switch	2 Sets
13)	Annunciator	---
14)	SF6 GAS cylinder with 40 Kgs of SF6 gas	---
15)	Hydraulic Oil (if operating mechanism is hydraulic).	---
16)	Lubricants	1 Kg
17)	Control switch and auxiliary relays of each type for local control cubicle	8 Nos
18)	Miniature Circuit Breaker (as applicable) of each type	4 Nos
19)	Vacuum interrupter bottle in case of VCB in the module	4 Nos.
20)	SF6 GAS cylinder with 20 Kgs of SF6 gas	2 Nos

3.1.4 33 KV GIS TOOLS:

Sl.No.	Description	33 kV
1)	Inspection tools for dismantling nozzles of Circuit Breakers	--
2)	Inspection tools for Dismantling arc contacts for Circuit Breakers	--
3)	Box spanner, hexagonal spanner and snap ring cutting plier for Circuit Breakers and General Torque Wrenches (10 Nos)	1 Set
4)	Operating handle for manual operation for earthing switch	1 Set
5)	Operating handle for manual operation for disconnectors	1 Set
6)	SF6 gas leakage measurement apparatus to check SF6 gas leakage at site	--
7)	SF6 gas transfer cart for extracting pumping in SF6 gas, complete with Compressor, Storage Tank : gauge, vacuum pump etc.	--
8)	Gas humidity measuring device	--
9)	Main Circuit resistance measuring device	--
10)	Laptops suitable for extracting data and working with SAS with required Graphic interface (Make: HP, Lenovo, DELL)	2 Nos--

4. GENERAL CONDITIONS:

Except where otherwise agreed to in this detailed order , all the Terms and Conditions stipulated in the Specification No. TST-e-14/ CE/Construction/TST-14/2019are binding on you and these shall form part of this contract.

5. STANDARD OF MATERIAL:

The material/equipment to be supplied under the contract shall be in accordance with the Tender Specification and the latest scientific and technical standards.

6. PRICES:

6.1 For Equipment & Materials:

The rates for all the items of equipment & materials covered in Schedule-A, except Transmission Line Tower Parts, Substation Structures, Cables, Isolators and Conductors shall be 'Firm' on all accounts such as (i) increase/decrease 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 or labor or both during execution and beyond the completion period etc.

Price variation is applicable for supply of Transmission Line Tower Parts, Substation Structures, Cables, Isolators and Conductors.

7. PRICE VARIATION (PV) Clause: *The price variation is applicable for Transmission Line Tower Parts, Substation Structures, 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, Dt.10.06.2008, TOO (CE-Const.) Ms. No.87 Dt.29.07.2008 and TOO (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 = (Final Rate – Basic Rate) * 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. 70,259/-per MT ii) Substation structures is Rs. 64,454/-per MT iii) MS Flat per MT is Rs. 41,000/- and iv) GI Flat per MT is Rs. 55,654/- (for the month of August-2019).

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.

i) The rate communicated by TSTRANSCO for Transmission Line Tower Parts, Substation Structures and Earth Flat is exclusive of all taxes and duties. Hence, GST@18% will be applicable on price variation amount

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

(i) E.C. Grade Aluminum: The ex-works cost of indigenous E.C. grade aluminum wire rod based on average price of M/s. Nalco, Balco, Hindalco, and Vedanta as given in CACMAI circulars prevailing as on 30 days prior to the Bid submission closing date as per NIT **15.06.2020**

(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 **15.06.2020**

(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	0.588	0.388
Zebra ACSR	1.185	0.438
Moose ACSR	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 **50%** 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 Aluminum Ingots, the prices of Aluminum 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 or the actual delivery date whichever is advantageous to the **TSTRANSCO** 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.

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 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 7.1.3.2 below.

c) (i) For the purpose of Price adjustment, the date of delivery shall be the date on which the Cables and Isolators (Metallic and Insulator Portion)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.

(ii) For the supplies made beyond scheduled completion date PV is to be calculated for scheduled delivery date and actual delivery date and whichever is advantageous to TSTRANSCO is taken into account.

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 Aluminum 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 any Time 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 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."

j) "Price variation clause in the Purchase Order 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".

7.1.3.2 I. PRICE VARIATION FORMULA APPLICABLE FOR CABLES

i)For Steel Armoured PVC Insulated Copper Control Cables:

P = P0 +CuF(Cu-Cuo)+CCFCu(CC-CCo) + FeF(Fe-Feo)

ii)For Unarmored PVC Insulated Copper Control Cables:

FeF = 0

P = P0 +CuF(Cu-Cuo)+CCFCu(CC-CCo)

Wherein,

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

P_0 = Price quoted/accepted in Rs per Km

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

Cuo= 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.

Feo = 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, one 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, one 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, one 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 COPPE 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 = P0 +AIF (AI-AIo) +CCFAI (CC-CCo) + FeF (Fe – Feo)

Wherein,

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

P_0= Price quoted / accepted in Rs per Km

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

AIo= 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 (**Bid submission closing date**).

AI = Price of EC grade aluminium rods (properzi rods)
This price is as applicable on the 1st working day of the month, one 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, one 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 Three Core Armoured power cables

P = Po + AIF (Al — Alo) + XLFAL(CC-Cco)+ SMIF (SMIF1-SMIF0) + FeF(FeF1-FeF0) + CCFAI (PVCc — PVCco)

For unarmoured Three Core cables, Steel Armour factor (FeF for Strip & FeW for Wire) shall be 0

Table References:

ALP Aluminium conductor Factor in three core ; AIF
H2(b) XLPE Compound Factor ; XLFAI
H3(b) Copper Tape Factor ; SMIF
H4(b) Steel Strip Armour Factor ; FeF. For Steel Wire Armour Refer Table H4(c); FeW
H5(b) Polymer factor for Three Core cable ; CCFAI

Note: For cases where specific Earth Fault Current through Screen is required, Screen area as approved by the customer in Datasheet/ Earth Fault Current calculation of Screen shall be used to derive SMIF as below

If A= Area of Metallic Screen in Approved Datasheet / Calculation Sheet
D= Density= 8.89 for Cu. & 2.703 for Al
SMIF=(A*D)/1000

Terms used in price variation formulae:

P Price payable as adjusted in accordance with above appropriate formula **(in Rs/Km**)

Po Ex-works Price quoted/confirmed **(in Rs/Km)**

ALUMINIUM

AIF Variation factor for aluminium
Al Price of Aluminium. This price is as applicable **one** month prior to the date of delivery.

Alo Price of Aluminium. This price is as applicable one month prior to the date of tendering.

COPPER

CuF Variation factor for copper

Cu Price of CC copper rods. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cuo Price of CC copper rods. This price is as applicable, one month prior to the date of tendering.

PVC COMPOUND

PVCc price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

PVCco Price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

CCFAI Variation factor for PVC compound/Polymer for aluminum conductor cable.

CCFCu Variation factor for PVC compound/Polymer for copper conductor cable.

XLPE COMPOUND

Cc Price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cco Price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

XLFAL Variation factor for XLPE compound for aluminum conductor cable.

XLFCU Variation factor for XLPE compound for Copper conductor cable.

STEEL

FeF Variation factor for steel

FeW Variation factor for round wire steel armouring

Fe Price of Steel Strips/steel wire. This price is as applicable on the first working day of the month, one month prior to the date of delivery.

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.

COPPER TAPE

SMIFS Variation Factor for Copper Tape

SMIF1 Price of CC copper rods. This price is as applicable one month prior to the date of delivery.

SMIF0 Price of CC copper rods. This price is as applicable one month prior to the date of tendering.

The above prices and indices are as published by IEEMA vide Circular reference IEEMA (PVC)/CABLE R(1)/--/-- prevailing as on 1st working day of the month i.e. one month prior to the date of tendering.

The date of delivery is the date on which the cable is notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension there to), whichever is earlier.

Notes: All prices of raw materials are exclusive of GST amount. The details of prices are as under:

1. Price of Aluminium is LME average Cash SELLER Settlement price of Primary Aluminium in US$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium Ingot in US$ per MT is converted in Indian Rs./MT.

2. Price of PVC Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer.

3. Price of XLPE Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer

4. Price of CC copper rods (in Rs/MT) is ex-works price as quoted by the primary producer.

5. Price of galvanized steel strip / steel wire (in Rs/MT) is ex-works price as quoted by the manufacturer for Round steel Wire and Flat steel strip (the relevant price of steel strip or steel wire is to be selected depending upon the type of armouring of the cable).

TABLE ALP
VARIATION FACTOR FOR ALUMINIUM (ALF)
POWER CABLES WITH ALUMINIUM CONDUCTOR (EXCLUDING SINGLE CORE ARMOURED CABLES)

Nominal Cross Sectional Area (in Sq.mm.)	1 core	2core	3core	3.5core	4core
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	1.955	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 - H2 (b)
VARIATION FACTOR FOR XLPE (XLFAl/XLFCu)
THREE CORE ARMOURED /UNARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross-Sectional Area (in Sq.mm)	3.3KV Unscreened Arm	6.6KV(E) ARM	6.6KV(UE)/ 11KV(E) ARM	11KV(UE) ARM	22KV(E) ARM	33KV(E) ARM
25	0.315	0.394	0.511	0.838		
35	0.339	0.427	0.545	0.880	0.982	1.638
50	0.378	0.474	0.600	0.957	1.065	1.751
70	0.435	0.541	0.679	1.067	1.183	1.916
95	0.489	0.604	0.755	1.171	1.295	2.071
120	0.537	0.661	0.822	1.265	1.396	2.210
150	0.585	0.719	0.890	1.359	1.497	2.350
185	0.642	0.784	0.968	1.468	1.614	2.513
240	0.717	0.873	1.074	1.615	1.773	2.732
300	0.781	1.006	1.167	1.744	1.928	2.919
400	0.886	1.227	1.314	1.948	2.130	3.229
500	0.956	1.421	1.446	2.148	2.381	3.588
630	1.129	1.582	1.609	2.382	2.630	3.940

Note : XLPE factors include Semions for Conductor & Insulation screen

TABLE — H3 (b)

VARIATION FACTOR FOR COPPER TAPE (SMIF)

THREE CORE ARMOURED /UNARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross-Sectional Area (in Sqmm)	66KV (E)	6.6 KV(UE) /11 KV(E)	11KV(UE)	22 KV(E)	33 KV(E)
	ARM	ARM	ARM	ARM	ARM
35	0.0549	0.0607	0.0717	0.0790	0.0000
50	0.0590	0.0649	0.0755	0.0831	0.1044
70	0.0654	0.0712	0.0822	0.0895	0.1110
95	0.0714	0.0773	0.0882	0.0955	0.1171
120	0.0771	0.0829	0.0939	0.1012	0.1225
150	0.0818	0.0878	0.0989	0.1062	0.1278
185	0.0884	0.0943	0.1052	0.1125	0.1341
240	0.0968	0.1026	0.1136	0.1209	0.1425
300	0.1062	0.1102	0.1216	0.1289	0.1497
400	0.1216	0.1238	0.1348	0.1422	0.1638
500	0.1353	0.1356	0.1467	0.1545	0.1762
630	0.1485	0.1491	0.1602	0.1680	0.1897

TABLE : H4 (b)

VARIATION FACTOR FOR STEEL STRIP ARMOUR (FeF)

THREE CORE ARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross Sectional Area Sq.mm.	3.3 KV (E) unscreened arm	6.6KV(E)	11KV(E)/ 6.6KV(UE)	11KV(UE)	22KV(E)	33KV(E)
25	0.551	0.604	0.656	0.814		
35	0.645	0.645	0.731	0.879	0.937	
50	0.675	0.703	0.761	0.937	0.966	1.181
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 : H5 (b)
VARIATION FACTOR FOR POLYMER (CCFAl / CCFCu)
THREE CORE ARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross Sectional Area in Sq.mm.	3.3 KV ARM unscreened ARM	6.6 KV(E) ARM	6.6 KV (UE) / 11KV(E) ARM	11KV(UE) ARM	22KV(E) ARM	33KV(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
500	1.652	3.925	3.971	4.621	4.878	5.913
630	1.949	4.487	4.982	5.225	5.477	6.696

Fillers added in PVC consumption

II. For Copper conductor XLPE insulated 3.3 to 33 kV Single Core Armoured power cables

P = Po + CuF (Cu-Cu_0) + XLFCu(CC-Cco)+ SMIFS (SMIF1-SMIF0) +AlF (Al-Alo) + CCFAl (PVCc-PVCco)

For Single Core unarmoured cables Aluminium factor (AIF) shall be 0

Table References:

CuP Copper conductor Factor in single core ;CuF
H2(a) XLPE Compound Factor ; XLFCu
H3(a) Copper Tape Factor ; SMIFS
H4(a) Aluminium Armour factor ; AIF
H5(a) Polymer factor for Single core cable ; CCFCu

Note: For cases where specific Earth Fault Current through Screen is required, Screen area as approved by the customer in Datasheet/ Earth Fault Current calculation of Screen shall be used to derive SMIF as below

If A= Area of Metallic Screen in Approved Datasheet / Calculation Sheet
D= Density= 8.89 for Cu. & 2.703 for Al
SMIFS=(A*D)/1000

Terms used in price variation formulae:

P Price payable as adjusted in accordance with above appropriate formula **(in Rs/Km)**

Po Ex-works Price quoted/confirmed **(in Rs/Km)**

ALUMINIUM

AIF Variation factor for aluminium

Al Price of Aluminium. This price is as applicable **one** month prior to the date of delivery.

Alo Price of aluminium. This price is as applicable one month prior to the date of tendering.

COPPER

CuF Variation factor for copper

Cu Price of CC copper rods. This price is as applicable one month prior to the date of delivery.

Cuo Price of CC copper rods. This price is as applicable one month prior to the date of tendering.

PVC COMPOUND

PVCc price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

PVCco Price of PVC compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

CCFAI Variation factor for PVC compound/Polymer for aluminum conductor cable.

CCFCu Variation factor for PVC compound/Polymer for copper conductor cable.

XLPE COMPOUND

Cc Price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cco Price of XLPE compound. This price is as applicable on first working day of the month, one month prior to the date of tendering.

XLFAL Variation factor for XLPE compound for aluminum conductor cable.

XLFCU Variation factor for XLPE compound for Copper conductor cable.

STEEL

FeF Variation factor for steel

FeW Variation factor for round wire steel armouring

Fe Price of Steel Strips/steel wire. This price is as applicable on the first working day of the month, one month prior to the date of delivery.

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.

COPPER TAPE

SMIFS Variation Factor for Copper Tape

SMIF1 Price of CC copper rods. This price is as applicable one month prior to the date of delivery.

SMIF0 Price of CC copper rods. This price is as applicable one month prior to the date of tendering.

The above prices and indices are as published by IEEMA vide Circular reference IEEMA (PVC)/CABLE R(1)/--/-- prevailing as on 1st working day of the month i.e. one month prior to the date of tendering.

The date of delivery is the date on which the cable is notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes: All prices of raw materials are exclusive of GST amount. The details of prices are as under:

1. Price of Aluminium is LME average Cash SELLER Settlement price of Primary Aluminium in US$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium Ingot in US$ per MT is converted in Indian Rs./MT.

2. Price of PVC Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer.

3. Price of XLPE Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer

4. Price of CC copper rods (in Rs/MT) is ex-works price as quoted by the primary producer.

5.Price of galvanized steel strip / steel wire (in Rs/MT) is ex-works price as quoted by the manufacturer for Round steel Wire and Flat steel strip (the relevant price of steel strip or steel wire is to be selected depending upon the type of armouring of the cable).

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

Nominal Cross Sectional Area (in Sq.mm.)	1core	2core	3core	3.5core	4core
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	0.240	0.480	0.720	0.862	0.960
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	2.260	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 : H2 (a)

VARIATION FACTOR FOR XLPE(XLFAI/XLFCu) SINGLE CORE ARMOURED /UNARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross-Sectional Area (inSq.mm.)	XLPE Factor for Armored/Unarmored Cable with AL/CU Conductor					
	3.3KV(E) Un screened Arm	6.6KV (E)	11KV(E)/ 6.6KV(UE)	11KV (UE)	22KV(E)	33KV (E)
25	0.110	0.131	0.170	0.279		
35	0.122	0.137	0.175	0.284	0.317	0.522
50	0.135	0.151	0.191	0.307	0.341	0.563
70	0.155	0.172	0.215	0.342	0.379	0.615
95	0.174	0.193	0.241	0.377	0.417	0.670
120	0.192	0.212	0.262	0.407	0.449	0.713
150	0.209	0.229	0.283	0.437	0.481	0.757
185	0.228	0.250	0.308	0.471	0.518	0.809
240	0.255	0.279	0.343	0.519	0.569	0.883
300	0.280	0.322	0.372	0.560	0.613	0.943
400	0.326	0.392	0.420	0.625	0.683	1.041
500	0.388	0.461	0.469	0.694	0.757	1.142
630	0.467	0.520	0.529	0.777	0.845	1.265
800	0.567	0.593	0.602	0.874	0.949	1.407
1000	0.656	0.665	0.660	0.955	1.036	1.525

Note :XLPE factors include Semicons for Conductor &Insulation screen

TABLE—H3(a)

VARIATION FACTOR FOR COPPER TAPE (SMIFS) SINGLE CORE ARMOURED / UNARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Al/Cu CONDUCTOR

Nominal Cross Sectional Area in Sqmm	6.6 KV (E)	6.6KV(UE)/ 11KV(E)	11 KV (UE)	22KV(E)	33KV (E)
	ARM	ARM	ARM	ARM	ARM
35	0.0181	0.0201	0.0249	0.0263	0.0163
50	0.0194	0.0215	0.0263	0.0277	0.0348
70	0.0217	0.0237	0.0285	0.0299	0.0370
95	0.0237	0.0257	0.0305	0.0319	0.0387
120	0.0254	0.0275	0.0323	0.0337	0.0408
150	0.0273	0.0291	0.0339	0.0353	0.0424
185	0.0292	0.0313	0.0361	0.0375	0.0446
240	0.0322	0.0340	0.0388	0.0401	0.0472
300	0.0351	0.0364	0.0426	0.0426	0.0497
400	0.0403	0.0411	0.0457	0.0471	0.0543
500	0.0446	0.0450	0.0499	0.0513	0.0582
630	0.0494	0.0496	0.0544	0.0558	0.0630
800	0.0545	0.0547	0.0595	0.0609	0.0681
1000	0.0598	0.0584	0.0645	0.0659	0.0731

TABLE : H4 (a)
VARIATION FACTOR FOR ALUMINIUM (AlF)
SINGLE CORE ARMOURED XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH Cu CONDUCTOR

Nominal Cross Sectional Area(in Sq.mm.)	Aluminium Factor for aluminium Armoured Cable with Copper Conductor					
	3.3KV(E) Unscreened Arm	6.6KV (E)	11KV(E)/ 6.6KV(UE)	11KV (UE)	22KV(E)	33KV (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

TABLE : H5 (a)
VARIATION FACTOR FOR Polymer (CCFAL/CCFCu)
SINGLE CORE ARMOURED XLPE INSULATED 3.3 to 33 KV
POWER CABLES WITH Al / Cu CONDUCTOR

Nominal Cross Sectional Area (in Sq.mm.)	3.3 KV(E) Unscreened ARM	6.6 KV (E) ARM	6.6 KV (UE)/ 11 KV (E) ARM	11 KV (UE) ARM	22 KV (E) ARM	33 KV (E) ARM
35	0.123	0.259	0.278	0.330	0.376	0.468
50	0.152	0.272	0.294	0.379	0.394	0.483
70	0.170	0.295	0.317	0.404	0.419	0.508
95	0.184	0.317	0.338	0.435	0.449	0.554
120	0.197	0.337	0.392	0.457	0.472	0.576
150	0.194	0.389	0.413	0.477	0.492	0.597
185	0.224	0.414	0.445	0.502	0.539	0.674
240	0.276	0.456	0.479	0.558	0.573	0.711
300	0.294	0.489	0.506	0.587	0.602	0.811
400	0.333	0.569	0.578	0.687	0.703	0.866
500	0.367	0.675	0.679	0.809	0.826	1.056
630	0.438	0.735	0.739	0.873	0.928	1.168
800	0.529	0.863	0.866	1.027	1.05	1.189
1000	0.648	1.031	1.035	1.138	1.158	1.402

7.1.3.2. II PRICE VARIATION FORMULA APPLICABLE FOR ISOLATORS

a) Price variation calculation for Insulator Portion of Isolators:

$$P = \frac{P0}{100}\left(12 + 5\,\frac{Zn}{Zno} + 22\,\frac{FP}{FPo} + 27\,\frac{MP}{MPo} + 10\,\frac{BC}{BCo} + 7\,\frac{WP}{WPo} + 17\,\frac{W}{Wo}\right)$$

Where in,

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

Po- Price quoted/accepted

Date of Tendering (DOT)

Date of Delivery (DOD)

Raw material prices used as per above mentioned ieema pv formula

price ref	Raw material	Applicable period
ZN	Electrolytic High Grade Zinc	2 Months Prior To DOD
ZNo	Electrolytic High Grade Zinc	1 Month Prior To DOT
FP	Fuel & Power Wholesale Price Index (Base 2011-12 = 100)	4 Months Prior To DOD
FPo	Fuel &Power Wholesale Price Index (Base 2011-12 = 100)	3 Months Prior To DOT
MP	Manufacture of structural metal products Wholesale Price Index (Base 2011-12 = 100)	4 Months Prior To DOD
MPo	Manufacture of structural metal products Wholesale Price Index (Base 2011-12 = 100)	3 Months Prior To DOT
BC	Ball Clay	2 Months Prior To DOD
BCo	Ball Clay	1 Month Prior To DOT
WP	Manufacture of Wood and of Products of Wood and Cork	4 Months Prior To DOD
	Wholesale Price Index (Base 2011-12=100)	
WPo	Manufacture of Wood and of Products of Wood and Cork	3 Months Prior To DOT
	Wholesale Price Index (Base 2011-12=100)	
W	Consumer Price Index All India Average (Labour Index)	4 Months Prior To DOD
Wo	Consumer Price Index All India Average (Labour Index)	3 Months Prior To DOT

b) **Price variation calculation for Metallic Portion of Isolators**:

$$P = \frac{P_o}{100}\left(19 + 17\frac{IS}{IS_o} + 17\frac{C}{C_o} + 13\frac{AL}{AL_o} + 19\frac{IN}{IN_o} + 15\frac{W}{W_o}\right) - P_o$$

Where in,

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

Po- Price quoted/accepted

Raw material prices used as per above mentioned IEEMA PV formula

Date of Tendering (DOT)

Date of Delivery (DOD)

price ref	Raw material	Applicable period
FE	Manufacture Of Basic Metals Wholesale Price Index (Base 2011-12 = 100)	4 Months Prior To DOD
FEo	Manufacture Of Basic Metals Wholesale Price Index (Base 2011-12 = 100)	3 Months Prior To DOT
C	Copper LME Average LME settlement price of Copper wire bars	3 Months Prior To DOD
Co	Copper LME Average LME settlement price of Copper wire bars	2 Months Prior To DOT
AL	Aluminium Bus bar Grade equivalent IS 5082-1998	2 Months Prior To DOD
ALo	Aluminium Bus bar Grade equivalent IS 5082-1998	1 Month Prior To DOT
IN-INSLR	Index number of Insulator Wholesale price index number for‘ Insulators’ (Base:2011-12=100)	4 Months Prior To DOD
IN-INSLRo	Index number of Insulator	3 Month Prior To DOT
	Wholesale price index number for ‘Insulators’ (Base:2011-12=100)	
W	Consumer Price Index All India Average (Labour Index)	5 Months Prior To DOD
Wo	Consumer Price Index All India Average (Labour Index)	4 Months Prior To DOT

7.1.3.2.III. PRICE VARIATION:

For Aluminium/Copper Conductor XLPE insulated Corrugated Aluminium metallic sheathed PE/ PVC sheathed cables

P =Po+ MIF (MIF2–MIF1)+XL3 (CC-Cco)+SMIF(SMIF2-SMIF1)+XL5(POC-POCco)

Table references:-
Table1(MIF):Aluminium Conductor AIF / Copper Conductor CuF
Table2(XL3):Aluminium Conductor XLFAl/Copper Conductor XLFCu
Table3b(SMIF):Corrugated Aluminium in CAS Construction AIFs
Table4(XL5):Aluminium Conductor CCFAl / Copper Conductor CCFCu

Terms used in price variation formula:

P Price payable as adjusted in accordance with above appropriate formula **(in Rs/Km)**

Po Price quoted/confirmed **(in Rs/Km)**

1) Conductor Metal

MIF Variation factor for Conductor

MIF2 Price of Respective Conductor Material as below (from a to b); this price is as applicable on Two months prior to the date of delivery.

MIFl Price of Respective Conductor Material as below (from a to b); this price is as applicable on One month prior to the date of tendering.

a) ALUMINIUM (Conductor)

AIF Variation factor for Aluminium

AL Price of Aluminium; this price is as applicable on Two months prior to the date of delivery.

Alo Price of Aluminium; this price is as applicable on One months prior to the date of tendering.

b) COPPER (Conductor)

CuF Variation factor for copper

Cu Price of CC Copper rods. This price is as applicable on Two months prior to the date of delivery.

Cuo Price of CC copper rods. This price is as applicable on One month prior to the date of tendering.

2) XLPE Compound

XL3 Variation factor for XLPE Compound

XLFAl Variation factor for XLPE Compound for Aluminium Conductor Cable

XLFCu Variation factor for XLPE Compound for Copper Conductor Cable

CC Price of XLPE Compound. This price is as applicable on Two months prior to the date of delivery.

Cco Price of XLPE Compound. This price is as applicable on One month prior to the date of tendering.

3) Polymer Compound

XL5 Variation factor for Polymer Compound

CCFAl Variation factor for PE Compound for Aluminium Conductor Cable

CCFCu Variation factor for PE Compound for Copper Conductor Cable

Poc Price of Polymer Compound. This price is as applicable on Two months prior to the date of delivery.

POCo Price of Polymer Compound. This price is as applicable on One month prior to the date of tendering.

4) Metallic Screen/Sheath

SMIF Variation factor for Sheath/Screen material

SMIF2 Price of Respective Sheath/Screen Material as below (from a to d); this price is as applicable on Two months prior to the date of delivery.

SMIF1 Price of Respective Sheath/Screen Material as below (from a to d); this price is as applicable on One month prior to the date of tendering.

a. **COPPER(Screen):In Copper Wire Screen + PolyAI Construction**

CuFc Variation factor for copper screen

Cu Price of CC copper rods. This price is as applicable on Two months prior to the date of delivery.

Cua Price of CC copper rods. This price is as applicable on One month prior to the date of tendering.

b. **COPPER(Screen): In Lead Sheath Construction**

CuFpb Variation factor for copper screen

Cu Price of CC copper rods. This price is as applicable on Two months prior to the date of delivery.

Cuo Price of CC copper rods. This price is as applicable on One month prior to the date of tendering

c. **LEAD**: **In Lead Sheath Construction**

PbF Variation factor for Lead

Pb Price of Pig lead (99.97%). This price is as applicable on Two months prior to the date of delivery.

Pbo Price of Pig lead (99.97%).This price is as applicable on One month day prior to the date of tendering

d. **Corrugated Aluminium Sheath**

AlFs Variation factor for corrugated Aluminium sheath

Al Price of Aluminium. This price is as applicable on Two months prior to the date of delivery.

Alo Price of Aluminium. This price is as applicable on One month prior to the date of tendering.

The above prices and indices are as published by IEEMA vide Circular reference IEEMA (PVC)/CABLE(R-1)/--/--prevailing as on 1st working day of the month i.e. one month prior to the date of tendering.

The date of delivery is the date on which the cable is notified as being ready for inspection/dispatch (in the absence of such notification, the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes:

(a) All prices of raw materials are exclusive of GST amount.

(b) All prices excluding Aluminium& Copper are as on first working day of the month.

(c) The details of prices are as under:

1. Price of Aluminium is LME average Cash SELLER Settlement price of Primary Aluminium in US$ per MT as published by London Metal Bulletin (LME) including Premium for Aluminium ingot in US$ per MT is converted in Indian Rs. /MT.
2. Price of CC copper rods (in Rs/MT) is ex-works price as quoted by the primary producer.
3. Price of Pig lead (in Rs/MT) is ex-works price as quoted by the primary producer.
4. Price of Polymer Compound (in Rs/MT) is the ex-work price, as quoted by the manufacturer/s
5. Price of XLPE Compound (in Rs/MT) is the ex-works price, as quoted by the manufacturer/s

Note:

For cases where short circuit current through screen/sheath is required & is not available in the Reference Tables, in that case screen/sheath area as approved by the customer in Datasheet/short circuit current calculation of screen/sheath shall be used to derive SMIF as below:

IF A= Area of Metallic Screen/Sheath in Approved Datasheet/Calculation Sheet

D=Density=2.703 for AL

*SMIF=(A*D)/1000*

TABLE1 MIF

VARIATION FACTOR FOR ALUMINIUM & COPPER CONDUCTOR (AlF & CuF)

EHV CABLES WITH ALUMINIUM & COPPER CONDUCTOR

Nominal cross Sectional Area (in Sqmm)	ALUMINIUM FACTORS(AIF)		COPPER FACTORS(CuF)	
	1core	3core	1core	3core
95	0.274	0.821	0.901	2.700
120	0.346	1.036	1.138	3.407
150	0.425	1.279	1.398	4.207
185	0.533	1.605	1.753	5.279
225	0.655	1.965	2.154	6.463
240	0.703	2.099	2.312	6.904
300	0.879	2.635	2.891	8.667
400	1.126		3.703	
500	1.418		4.664	
630	1.828		6.012	
800	2.340		7.696	
1000	2.951		9.706	
1200	3.562		11.619	
1400	4.154		13.578	
1600	4.741		15.509	
1800	5.352		17.346	
2000	5.922		19.430	
2500	7.176		24.287	

Note:

XLPE factors include Semicons for Conductor & Insulation screen (based on IS 7098 (Part-3&4)) proposed.

For 3 core cables from 66 to 150kV and sizes 185 to 400sq.mm XLPE factors will be multiplied by 3.

Table2 :XL3 (For XLPE Compound Factor)				
Nominal Cross Sectional Area(inSq.mm)	XLPE Factor for Armoured / Unarmoured Cable with AL/ CU Conductor (XLFAl/XLFCu)			
	38/66KV	64/110kV	76/132kV	87/150kV
185	1.072	1.814	2.332	
240	1.259	2.057	2.562	3.102
300	1.345	2.175	2.570	3.148
400	1.467	2.345	2.761	3.262
500	1.597	2.463	2.966	3.496
630	1.743	2.663	3.193	3.750
800	1.963	2.940	3.504	4.051
1000	2.135	3.172	3.769	4.352
1200	2.370	3.487	4.127	4.727
1400	2.514	3.684	4.357	4.971
1600	2.657	3.967	4.567	5.218
1800	2.815	4.177	4.798	5.480
2000	2.939	4.347	4.989	5.700
2500	3.262	4.784	5.473	6.241

Table 2:XL3 (For XLPE Compound Factor)					
Nominal Cross Sectional Area (in Sq.mm.)	XLPE Factor for Armoured / Unarmoured Cable with AL/ CU Conductor (XLFAl/XLFCU)				
	127/220kV	160/275kV	190/330kV	220/400kV	290/500kV
185					
240					
300					
400	5.283	5.701			
500	5.596	5.765	6.331		
630	5.751	6.122	6.710	7.170	
800	5.970	6.480	6.773	7.247	10.337
1000	6.349	6.581	6.881	7.351	10.115
1200	6.805	7.022	7.353	.7.549	10.336
1400	6.907	6.995	7.347	7.898	10.367
1600	7.196	7.290	7.653	8.219	10.338
1800	7.471	7.553	7.925	8.523	10.274
2000	7.737	7.834	8.217	8.816	10.222
2500	8.357	8.512	8.918	9.534	11.013

Note:

XLPE factors include Semicons for Conductor & Insulation screen (based on IS7098 (Part-3&4) proposed.

Table4:XL5(For Polymer Compound Factor)									
Nominal Cross Sectional Area(in Sq.mm.)	Polymer Factor for Armoured/ UnarmouredCable with AL/ CU Conductor (CCFAl/CCFCu)								
	38/66 KV	64/110 kV	76/132 kV	87/150 kV	127/220 kV	160/275 kV	190/330 kV	220/400 kV	290/500 kV
185	0.447	0.624	0.710						
240	0.540	0.707	0.805	0.921					
300	0.585	0.747	0.832	0.966					
400	0.646	0.857	0.917	0.992	1.789	2.099			
500	0.710	0.881	1.140	1.082	1.848	2.124	2.201		
630	0.792	1.115	1.223	1.158	1.887	2.193	2.269	2.326	
800	0.867	1.177	1.287	1.206	1.932	2.376	2.416	2.365	3.118
1000	1.092	1.266	1.366	1.266	2.008	2.420	2.461	2.405	3.119
1200	1.185	1.365	1.442	1.331	2.103	2.652	2.696	2.561	3.177
1400	1.267	1.417	1.499	1.379	2.212	2.677	2.723	2.644	3.205
1600	1.312	1.488	1.545	1.423	2.278	2.758	2.809	2.708	3.230
1800	1.380	1.534	1.597	1.462	2.343	2.820	2.870	2.768	3.247
2000	1.422	1.576	1.640	1.503	2.396	2.882	2.933	2.839	3.281
2500	1.527	1.680	1.741	1.590	2.531	3.161	3.209	3.063	3.597

Note :For PVC Factor the above factor will be multiplied by 1.58

Table 3b (SMIF):Variation factor for Aluminium in Corr Al construction (Alfs)												
Nominal Cross Sectional Area	38/66KV						64/110 kV					
SC Current in KA	31.5			40			31.5			40		
Duration in sec	1	2	3	1	2	3	1	2	3	1	2	3
185	1.100	1.381	1.628	1.259	1.729	2.138	1.079	1.385	1.677	1.213	1.795	2.094
240	1.110	1.398	1.708	1.220	1.708	2.078	1.186	1.472	1.745	1.322	1.745	2.116
300	1.167	1.508	0.887	1.482	1.774	2.157	1.183	1.461	0.908	1.483	1.816	2.137
400	1.190	1.656	2.027	1.529	2.195	2.173	1.207	1.676	2.050	1.547	2.134	2.300
500	1.206	1.696	2.085	1.526	2.139	2.621	1.255	1.689	2.045	1.530	2.122	2.585
630	1.219	1.712	2.083	1.492	2.120	2.580	1.369	1.685	2.007	1.538	2.138	2.536
800	1.279	1.760	2.141	1.490	2.138	2.601	1.503	1.651	2.001	1.561	2.080	2.539
1000	1.426	1.777	2.127	1.533	2.125	2.599	1.647	1.669	2.054	1.647	2.098	2.539
1200	1.531	1.792	2.185	1.535	2.117	2.582	1.819	1.819	2.020	1.819	2.073	2.557
1400	1.730	1.781	2.186	1.730	2.168	2.544	2.055	2.055	2.080	2.055	2.104	2.546
1600	1.890	1.890	2.189	1.890	2.193	2.536	2.261	2.261	2.261	2.261	2.261	2.576
1800	2.068	1.974	2.198	2.068	2.186	2.495	2.389	2.389	2.389	2.389	2.389	2.522
2000	2.234	2.159	2.258	2.234	2.280	2.669	2.623	2.623	2.623	2.623	2.623	2.679
2500	2.611	2.611	2.611	2.611	2.611	2.744	2.971	2.971	2.971	2.971	2.971	2.971

Table 3b (SMIF):Variation factor for Aluminium in Corr Al construction (Alfs)												
Nominal Cross Sectional Area(in Sq.mm)	76/132kV						87/150kV					
SC Current in KA	31.5			40			31.5			40		
Duration in sec	1	2	3	1	2	3	1	2	3	1	2	3
185	1.098	1.354	1.740	1.227	1.740	2.133	-	-	-	-	-	-
240	1.236	1.404	1.703	1.272	1.736	2.142	1.319	1.391	1.787	1.248	1.823	2.263
300	1.237	1.522	0.834	1.494	1.734	2.138	1.329	1.389	1.785	1.562	1.821	2.260
400	1.304	1.698	2.037	1.553	2.109	2.171	1.400	1.687	2.038	1.584	2.147	2.223
500	1.404	1.665	2.045	1.522	2.098	2.545	1.460	1.643	2.074	1.575	2.112	2.571
630	1.519	1.650	2.032	1.587	2.107	2.578	1.528	1.667	2.046	1.667	2.105	2.638
800	1.652	1.712	2.039	1.691	2.067	2.519	1.637	1.744	2.011	1.744	2.011	2.501
1000	1.813	1.813	2.029	1.792	2.088	2.566	1.867	1.867	1.998	1.867	2.057	2.542
1200	1.972	2.068	2.060	1.994	2.115	2.543	1.953	2.165	2.087	1.953	2.165	2.558
1400	2.193	2.193	2.193	2.216	2.238	2.555	2.281	2.281	2.281	2.281	2.281	2.590
1600	2.355	2.355	2.355	2.355	2.355	2.581	2.460	2.460	2.460	2.460	2.460	2.612
1800	2.519	2.519	2.519	2.519	2.519	2.556	2.676	2.676	2.676	2.676	2.676	2.676
2000	2.788	2.788	2.788	2.788	2.788	2.788	2.960	2.960	2.960	2.960	2.960	2.960
2500	3.077	3.077	3.077	3.077	3.077	3.077	3.338	3.338	3.338	3.338	3.338	3.338

Table 3b (SMIF):Variation factor for Aluminium in Corr Al construction (AIFs)												
Nominal Cross Sectional Area (in Sq.mm)	127/220kV						160/275kV					
SC Current in KA	31.5			40			31.5			40		
Duration in sec	1	2	3	1	2	"3	1	2	3	1	2	3
400	2.096	2.049	2.149	2.096	2.198	2.502	2.445	2.527	2.476	2.445	2.527	2.502
500	2.206	2.124	2.206	2.206	2.219	2.551	2.472	2.523	2.472	2.472	2.523	2.472
630	2.268	2.185	2.268	2.268	2.282	2.537	2.568	2.619	2.568	2.568	2.651	2.620
800	2.357	2.270	2.326	2.357	2.371	2.574	2.818	2.873	2.818	2.818	2.873	2.818
1000	2.619	2.497	2.546	2.619	2.634	2.679	2.906	2.940	2.906	2.906	2.940	2.906
1200	2.845	2.826	2.779	2.845	2.869	2.923	3.068	3.102	3.068	3.068	3.102	3.068
1400	2.983	2.929	2.872	2.983	2.999	3.018	3.101	3.135	3.101	3.101	3.135	3.101
1600	3.156	3.101	3.008	3.156	3.183	3.156	3.352	3.412	3.352	3.352	3.412	3.352
1800	3.241	3.263	3.241	3.241	3.263	3.191	3.489	3.549	3.489	3.489	3.549	3.489
2000	3.517	3.545	3.517	3.517	3.545	3.517	3.562	3.622	3.562	3.562	3.622	3.562
2500	3.796	3.836	3.796	3.796	3.836	3.796	3.926	3.964	3.926	3.926	3.964	3.926

Table3b(SMIF):Variation factor for Aluminium in Corr Al construction(AIFs)												
Nominal Cross Sectional Area (in Sq.mm)	190/330kV						220/400kV					
SC Current In KA	31.5			40			31.5			40		
Duration in sec	1	2	3	1	2	3	1	2	3	1	2	3
500	2.61	2.650	2.61	2.61	2.650	2.61	-	-	-	-	-	-
630	2.716	2.748	2.716	2.71	2.800	2.748	2.823	2.844	2.823	2.823	2.879	2.845
800	2.90	2.938	2.904	2.904	2.938	2.904	2.955	2.991	2.955	2.955	2.991	2.95
1000	2.97	3.034	2.978	2.978	3.034	2.978	3.03	3.053	3.03	3.03	3.053	3.03
1200	3.145	3.200	3.14	3.14	3.200	3.145	3.21	3.24	3.217	3.21	3.240	3.21
1400	3.17	3.234	3.17	3.17	3.234	3.179	3.486	3.51	3.486	3.486	3.51	3.486
1600	3.53	3.593	3.532	3.532	3.59	3.532	3.589	3.61	3.589	3.589	3.61	3.589
1800	3.63	3.676	3.638	3.638	3.676	3.638	3.693	3.71	3.693	3.693	3.71	3.693
2000	3.74	3.786	3.748	3.748	3.786	3.748	3.998	4.04	3.998	3.998	4.04	3.998
2500	4.01	4.076	4.01	4.01	4.076	4.01	4.229	4.273	4.22	4.229	4.273	4.229

Table3b (SMIF):Variation factor for Aluminium in Corr Al construction(AIFs)						
Nominal Cross Sectional Area(inSq.mm)	290/500kV					
SC Current in KA	31.5			40		
Duration in sec	1	2	3	1	2	3
800	3.671	3.728	3.671	3.671	3.728	3.671
1000	3.671	3.728	3.671	3.671	3.728	3.671
1200	3.742	3.798	3.742	3.742	3.798	3.742
1400	3.776	3.833	3.776	3.776	3.833	3.776
1600	3.848	3.883	3.848	3.848	3.883	3.848
1800	3.857	3.913	3.857	3.857	3.913	3.857
2000	4.050	4.111	4.050	4.050	4.111	4.050
2500	4.352	4.391	4.352	4.352	4.391	4.352

NOTE:

1) **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 P0 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 thesupplier 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 220kV/132kV Cable .Price adjustment will be paid after completion of total cable supplies

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 Services 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-14 / CE / Construction / TST – 14 / 2019 of 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 –Central 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) (excluding taxes) +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 tender calling date 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 with in the scheduled completion period.

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 QUANTITES / 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 Chief Engineer/Construction well in advance and take prior orders for going ahead with the work. Without approval of this office, the Contractor shall not go ahead with the work wherever there is 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 covered in Schedule - A 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 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 schedule 'A' duly verifying with the approved layout and profile, So that the procured quantities match with actual requirement to avoid excess supply of materials

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:

a) <u>For supply of Materials / Equipment :</u>

(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 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.

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

a) Copies of the invoices showing Contract No., Goods description, quantity, unit price and total amount.
b) Acknowledgement of receipt of material from consignee i.e. Form-13
c) Proof of payment of GST
d) Acknowledgment of Consignee on Delivery Challan in original.
e) Detailed packing list
f) Copy of lorry receipt.
g) Copies of Insurance Certificate / policies
h) Test certificates approval and Dispatch clearance. (Not applicable for furniture and general items)
i) Certificate certifying that the defects, if any, pointed out during inspection have been rectified.
j) No payments will be made for the supplies made prior to scheduled delivery date or for materials which are not in full shape.
k) The payments against Schedule-A are subject to Performance Security with a validity of 60 months as on the date of Check Measurement for proper fulfillment of performance obligations.

c). **Advance Payment:** Payment in advance before the scheduled due date of payment would be examined by TSTRANSCO on the request of vendor / contractor provided the company should agree to offer a rebate / discount @ 0.3% per week or part thereof for advancement. Based on the decision of TSTRANSCO, the finance and accounts wing will release priority payment to such firm / contractor after availing rebate / discount.

11.1 Payments will be made by cheque / by way of Electronic Fund Transfer / RTGS from TSTRANSCO/REC funds. The Contractor has to furnish requisite details for establishing RTGS in proforma as per Schedule -X. Once RTGS system is established, the bank account details submitted are final and cannot be changed till completion of the contract.For payments through REC the connected REC/Bank charges are to be borne by the contractor

Name of the Bank	:	State Bank of India
Name of the Branch	:	SME Branch
Branch Code	:	04124
City	:	Satna
Account No.	:	**32426488338**
MICR No.	:	**485002005**
IFSC No.	:	**SBIN0004124**
Income Tax PAN No.		AAACU3547P
GST Registration No.	:	**23AAACU3547P1Z1;36AAACU3547P1ZU**
Date of GST Registration	:	01.07.2017
Place of GST Registration	:	Satna, Hyderabad.

12. COMPLETION PERIOD:

The equipment/material which are required for the subject works shall be supplied within **Twelve months**, as per terms and conditions stipulated in the Specification No. TST-e-14/2019.

S.No	Description of the work	Completion period	Commencement date of Project will be reckoned from
1	**i)**Supply, Erection, Testing and Commissioning of i) 132/33kV GIS SS at Manikonda with 2x80 MVA PTR Capacity in Ranga Reddy District	**12 Months**	Date of issue of detailed contract award letter (or) from the date of issue of approved layout (or) formation of levels for Sub Station whichever is later.
	ii) Making LILO of existing 132kV Shivarampally-Erragadda SC OH feeder between Loc.80 and Loc. No. 81 with 132 KV XLPE DC UG cable of 1200 Sq.mm (2.5 KM) to the Proposed 132/33 KV GIS SS Manikonda on turnkey basis"	**12 Months**	Date of issue of detailed contract award letter (or) from the date of issue of detailed survey approval for UG Cable whichever is later.

The mandatory spares and accessories shall be delivered within 12 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 with in 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% plus 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 in supply of material / equipment beyond overall completion period, whatever may be the reasons; the TSTRANSCO shall levy and collect the penalty **@ 0.5% plus 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 valueincluding GST@18% 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/works as per the program or in the opinion of purchaser, the supplies/works are progressing at a slow pace, TSTRANSCO reserves its right to get the balance or part of supplies/works 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:

i. You are requested to submit performance security equal to **ten percent (10%)**of the value of Schedule–A (Excluding supply cost of 132 KV GIS , 33 KV GIS Modules and Cable accessories) i.e., **Rs.2,68,58,000/-** for the proper fulfillment of contract to cover the completion period plus warranty period plus two months claim period i.e valid for **72 months**.

ii. You are requested to submit the Bank Guarantee from the 132 KV GIS supplier against Performance Security towards supply of 132 KV GIS Modules @ 10% i.e., **Rs. 1,06,04,000/-** with a validity of 60 Months over and above the completion period and with two months claim period. i.e valid for **72 Months**

iii. You are requested to submit the Bank Guarantee from the 33 KV GIS supplier against Performance Security towards supply of 33 KV GIS Modules @ 10% i.e., **Rs. 1,02,89,000/-** with a validity of 60 Months over and above the completion period and with two months claim period. i.e valid for **72 Months**

iv. You are requested to submit the Bank Guarantee from the Cable Accessories Manufacturer against Performance Security towards Supply of XLPE UG Cable Accessories @ 10% i.e., **Rs. 22,04,000/-** with a validity of 60 Months over and above the completion period and with two months claim period. i.e., valid for **72 Months.**

Performance security may be made by Demand Draft on any **Nationalised Bank** payable at Hyderabad in favor of Pay officer, TSTRANSCO, Hyderabad or by way of Bank Guarantee from approved Bank, in favour of CE/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 supplier warrants that the Goods supplied under the contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that the Goods supplied under this contract shall have no defect arising from design, material of workmanship(except in so far as the design or material is required by the Purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination.

ii) This warranty shall remain valid for **72months** after the Goods, or any portion thereof as the case may be, have been delivered and at the final destination indicated in the Contract, or for **60 months** from the date of commissioning , which ever period concludes later

iii) Where the suppliers/ Manufacturers provide longer period of warranty than mentioned above, the Purchaser shall be entitled for such longer warranty.

Equipment, sub-assemblies or spares, or parts replaced / repaired under warranty shall have further extended warrantee of **24 months**.

iv) After commissioning and handing over of the project to the TSTRANSCO, the contractor shall arrange for thorough patrolling of the line /UG cable 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.

v) If during the period of guarantee, the Engineer decide and inform in writing to the contractor that any equipment, part of equipment, material or works 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 or works 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.

vi) In the event of contractor not responding to the intimation of the Engineer as mentioned in above, the Engineer may arrange for a third party to correct the Defects and the extra costs for such .

vii) The Engineer is to give the contractor at least seven (7) days notice of this 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 the 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 – Central/ Hyderabad. The consignee will be concerned Assistant Executive Engineer/Construction. The Agreement authority is the Superintending Engineer/OMC/Metro – Central/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.

TSTRANSCO has approved the General Technical Particulars and drawings of all equipment/materials of certain manufacturers and are available on TSTRANSCO websitewww.tstransco.in. However the successful bidder shall obtain the approval of General Technical Particulars and drawings of the equipment/materials which are not available in the TSTRANSCO website from Chief Engineer/ Construction.

18. QUALIY OF EQUIPMENT/MATERIALS:

Equipment/materials supplied by you shall be of good quality. You shall furnish samples and get them tested in the presence of the TSTRANSCO's Engineer/ representative. The materials shall be dispatched only after inspection, testing and approval by the TSTRANSCO. The Tests to be carried out to the equipment/ material shall be in accordance with Volume-2 of the Specification.

19. QUALITY ASSURANCE PLAN:

The Quality Assurance Plan of TSTRANSCO is appended to this specification. The bidders are advised to go through the same before quoting the bids. You have to adhere to the Quality Assurance Plan during execution of works.You shall maintain the quality standards as per specification and shall attend the remarks of TSTRANSCO Quality Control wing on top most priority without any reminders from TSTRANSCO.

19.1 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.

Uncovering and Making Openings: The TSTRANSCO reserves the right to uncover and examine any part of the works if it is found to be not according to specification. The contractor shall uncover any part of the works or make openings as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer.

Inspection of operation: The Engineer and any person authorized by him shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials are being obtained for the works and the contractor shall afford every facility and every assistance in or in obtaining the right to such access.

19.2 **Stage Inspection:** 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 inspection, material rejection if any and 3rd party laboratory charges and any other testing charges and samples collection expenses are to the account of contractor and shall include in the cost of materials while quoting.

The fabricator/ re-roller shall furnish copies of evidence of procurement of raw materials from above steel angle manufactures (Copies of invoice, test reports shall handover to the inspecting officer for issue of dispatch clearance on the spot.)

19.3 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.

20. EQUIPMENT/MATERIAL REQUIRED FOR THE WORK:

All the equipment/material required under the scope of this contract shall be supplied by you. The standards, workmanship and technical requirements of these equipment / materials shall conform to the relevant standards and Volume-II 'Technical Specification', of the Specification No. TST-e-14/ CE/Construction/TST-14/2019.

21. 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.

22. GUARANTEEDTECHNICAL 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 concerned 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.

23. DESIGNS AND DRAWINGS:

Foundation drawings will be furnished by the department.

TSTRANSCO has provided scanned copies of approved drawings in TSTRANSCO website. The Contractor may download the approved drawings from the TSTRANSCO website and utilize for execution of subject work. Approval of drawings by TSTRANSCO shall not absolve you from your responsibility of correctness thereof or from the results arising out of error or omission therein or from any obligation or liability under the contract. Any supplementary drawings necessary to permit the complete design of the installation prior to receiving the equipment shall also be supplied. Six sets of all approved drawings and one set of reproducible drawings shall be furnished by you. One set of drawings and instruction manuals shall be sent along with the equipment at the time of dispatch. Copies of the drawings and manuals shall also be sent to other offices as indicated below.

Consignee : One set of approved drawings for each consignment.
Paying officer : Two sets of drawings and instruction manuals.
Concerned Executive Engineer/Construction: Two sets of drawings and instruction manuals
To this office : Four sets

Erection, operation and maintenance manuals shall be supplied as follows with the equipment:

Consignee	: One set for each consignment.
Paying officer	: Two sets
Concerned Executive Engineer/Construction	: Two sets
To this office	: Six sets

24. 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.

25. 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.

26. 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.

27. 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.

28. ACCEPTANCE CERTIFICATE:

Upon receipt of material/equipment at the designated destination and after inspection, acceptance certificate (Form-13) will be issued by the concerned Executive Engineer/ Construction 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.

29. 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

30. 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.

31. 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 Sub-Station site / Line Site locations and shall have access to the Field Engineers and Inspecting officers.

   i) Agreement copy along with price schedules.

   ii) Volume -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.

32. AGREEMENT:

32.1 The concerned Superintending Engineer / OMC shall be the agreement authority and the contractor shall attend the office of the SE/OMC within 15 days of the detailed order to enter in to an agreement. The Superintending Engineer / OMC 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 State / A.P.
ii. Valid Performance Bank Guarantee.
iii. Authorization / power of attorney of the contractor representative to sign the agreement.

32.2 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.,

33. MANAGEMENT /CO-ORDINATION MEETINGS:

Monthly / Fortnight review of works shall be conducted by the Superintending Engineer/ OMC or Chief Engineer / Zone or Chief Engineer / Construction.

34. EARLY WARNING:

The contractor has to intimate the TSTRANSCO at the earliest opportunity of specific likely future events or circumstances, which may adversely affect the Project Implementation Schedule. The contractor shall cooperate with the officers of TSTRANSCO in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced.

35. RESPONSIBILITY OF THE CONTRACTOR:

For the safe delivery of the goods in good condition at destination and execution of the works ensuring quality. He should acquaint himself of the conditions obtaining in regard to supply of the materials. To mobilize and plan for the labour and TSTRANSCO shall not be responsible for any mismatch of work on account of whatever so the reasons and the successful bidder has to bear the costs towards ideal labour on account of mismatch of work if any. To submit the work/ material bills, (preferably monthly for work bills and for materials immediately after receipt of them at site) promptly and submit all the required enclosures with out fail. TSTRANSCO shall not be responsible for any delayed payments whatever so the reasons.

36. EXTENSION OF THE DELIVERY/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 price Variation is applicable as per the price variation clause of the purchase Order.

37. FORCE MAJEURE:

i) 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 Contact is the result of an event of Force Majeure.

ii) 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.

iii) 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.

38. DELAYS ORDERED BY THE PURCHASER

TSTRANSCO reserves the right to suspend and reinstate execution of whole or any part of the Works without invalidating the provisions of the contract. Orders for suspension or reinstatement of the Works will be issued by the Engineer to the Contractor in writing. The time for completion of the works will be extended suitably to account for duration of the suspension. Any costs incurred by the contractor due to increased overheads, idling of labour etc., as a result of such suspension will not be reimbursed to the contractor.

38.1RECOVERY 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.

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

a) 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.

b) 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.

c) 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.

40. 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 / unhanded 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 39 above.

41. TECHNICAL AUDIT:

a) 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.

b) All the remarks which are pointed out by Quality assurance 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.

42. 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 as per Clause 32 above and after settlement of materials account and final bill.

43. CORRESPONDENCE:

The officers mentioned under Paragraphs(16) &(32) 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.

44. TERMINATION OF CONTRACT:

If it is found that Progress of works are not commensurate with the program of completion or 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.

Warning letters will be issued by Superintending Engineer/ Construction or/and Chief Engineer / Zone or/and Chief Engineer / Construction if the progress is not satisfactory. If the progress continues to be poor even after the second warning letter, show cause notice / final notice will be issued by the Superintending Engineer/ Construction. If no satisfactory reply is received or the progress of the works are not improved within 15 days of issue of the final notice / show cause notice, the Superintending Engineer / Construction shall terminate the agreement, which will be followed by stoppage of all payments to the contractor, encashment of the BGs, and after termination of contract the balance works / supplies shall be completed through alternate agencies at contractor's risk and cost. **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.

45. TRAINING

The successful Bidder shall be required to provide facilities for in-plant training at no extra cost to the Purchaser at least four engineers to be nominated by the Purchaser, at his works not less than 10 days, where the equipment offered shall be manufactured.

If 'the equipment offered is designed and manufactured in collaboration with any other manufacturer, the Bidder shall provide facilities for additional two engineers to be nominated by the Purchaser, for in-plant training in the collaborator's works.

In case of training within India, the travel expenses, lodging and boarding charges as well as allowances for out of pocket expenses in respect of the trainees, shall be borne by the Bidder. In case of training outside India, the travel expenses from India to the place of training shall be borne by the Bidder. However the Bidder shall provide for lodging and boarding as well as local transport to the place of training.

The period and program of training shall be mutually discussed and finalized by the Purchaser with the Bidder.

46. 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-schedules.

Yours faithfully,

Sd/-
CHIEF ENGINEER
CONSTRUCTION
(ACTING FOR AND ON BEHALF OF TRANSMISSION CORPORATION OF TSLTD.)

WE ACCEPT THE TERMS AND CONDITIONS OF THIS ORDER.

SIGNATURE OF THE CONTRACTOR WITH SEAL AND DATE

Copies to: The Executive Director/Finance/TSTRANSCO/VS/Hyderabad.
The Chief Engineer/Metro Zone /TSTRANSCO/Hyderabad.
The Chief Engineer/Civil /TSTRANSCO/VS/Hyderabad.
The Chief Engineer /Telecom/TSTRANSCO/VS/Hyderabad.
The Superintending Engineer/OMC/Metro–Central/NIMS/Hyderabad.(*)– 2 copies
The Superintending Engineer/Civil/Metro/Erragadda/Hyderabad.
The Executive Engineer/ Construction /Metro–Central/NIMS/Hyderabad.
The Executive Engineer/Civil/Metro- Central /Erragadda/Hyd.
The SAO/Pay & Accounts/TSTRANSCO/VidyutSoudha/Hyderabad.
The Asst. Executive Engineer/Construction/SD-I/Metro–Central/Hyderabad.

(*) It is requested to hand over the approved profiles for line and Electrical Layout for Substation/Bays immediately to the Contractor and arrange to enter into an agreement immediately, to enable speedy execution of works.