

TRANSMISSION CORPORATION OF TELANGANA LIMITED

From :
Chief Engineer,
400kV,
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To :
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S-2, Technocrats Industrial Estate,
Balanagar,Hyderabad -500037.
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P.O. No. 183 /OM- 09 /CE/400kV/SE-I/D2-A3/F.e-EHVT-02/18/D.No. 194 /18,

Dt:- 18 -08-2018.

Sir,

Sub: Specification No.e-EHVT-02/2018- Design, Engineering, Manufacturing before dispatch, loading, Supply for destination including transportation of material /equipment for 400/220/11kV Kamalapuram LI Sub Station, 220/11kV at B.G.Kothur LI Sub Station and 220/11kV V.K.Ramavaram LI Sub Station along with connected transmission lines & 2 Nos. Bays Extension at 400kV Julurupadu Sub Station under Sita Rama Lift Irrigation Scheme at Bhadradri Kothagudem Dist. and Diversion of 3.2 kMs of Twin Moose DC line of 400kV Gajwel SS - 400kV Shankarpally SS for Crossing Broad-Gauge Railway Track under Deposit Contribution Works on turnkey basis - **Detailed Supply Purchase Order** - Issued - Regarding.

- Ref: 1. TSTRANSCO Bid No. e-EHVT-02/2018.
2. Your offer for the above bid opened on 08-06-2018 on e-procurement platform.
3. Lr.No.CE/400kV/SE-I/400kV/D3-A1/F.ehvt-02/2018/D.No: 192/18, Dt: 20-06-2018.
4. Lr.No.MEIL/BD/TST/e-EHVT-02/2018/Discount/001, Dt:23.06.2018.
5. LOI No.CE/400kV/SE-II/400kV/D3-A1/F.e-EHVT-02/18/D.No. 215 /18, Dt: 29-06-2018.
6. Your Ltr. No.MEIL/BD/TST/e-EHVT-02/2018/LOI Acceptance, Dt:30.06.2018. (LOI Acceptance).

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I, acting for and on behalf of and by the order and direction of the TRANSMISSION CORPORATION OF TELANGANA LIMITED (herein after called 'TSTRANSCO') accept the prices offered vide reference(2) & (4) cited and the subsequent correspondence of M/s.Megha Engineering & Infrastructures Ltd,(here in after called 'Contractor') against TSTRANSCO's bidding documents for Bid No.e-EHVT-02/2018 for Design, Engineering, Manufacturing before dispatch, loading, Supply for destination including transportation of 400/220/11kV Kamalapuram LI Sub Station, 220/11kV at B.G.Kothur LI Sub Station and 220/11kV V.K.Ramavaram LI Sub Station along with connected transmission lines & 2 Nos. 400kV Bays Extension at 400kV Julurupadu Sub Station under Sita Rama Lift Irrigation Scheme at Bhadradri Kothagudem Dist. and Diversion of 3.2 kMs of Twin Moose DC line of 400kV Gajwel SS - 400kV Shankarpally SS for Crossing Broad-Gauge Railway Track under Deposit Contribution on turnkey basis against bid specification under reference (1) cited, for a total amount **Rs. 202,18,70,302.50(Rupees Two Hundred Two Crores Eighteen Lakhs Seventy Thousand Three Hundred and Two & Paise Fifty only)** as detailed in Schedules A(I) to (IX) enclosed, subject to the terms and conditions set

out in this order. This order is issued in regularization of 'Letter of Intent' issued in the reference 5th cited.

1.0. SCOPE:

The Scope of this order covers Design, Engineering, Manufacture, Testing, before dispatch, loading, Supply and unloading for destination including Transportation, Insurance and Storage of material/equipment complete with all accessories required for the following SS, Lines, Bays on turnkey basis.

Pump House -1 at B.G.Kothur.

A(I) 220/11kV LIS Substation at B.G.Kothur(V)(without Pump PTRs) .

A(II) Erection of LILO of one circuit of 220kV KTPS V-Lower Sileru -II Line to proposed Pump House-1 at B.G.Kothur for a length of 20 kMs(approx)

A(III) Erection of LILO of one circuit of 220kV KTPS-Manuguru Line to proposed Pump House-1 at B.G.Kothur for a length of 1 kM(approx)

Pump House-2 at Ramavaram.

A(IV) 220/11kV LIS Substaion at V.K.Ramavaram (without Pump PTRs)

A(V) Erection of 220kV Twin Moose DC Line from 400/220/11kV Kamalapuram SS to 220/11kV V.K.Ramavaram for a length of 15 kMs(approx)

Pump House-3 at Kamalapuram.

A(VI) 400/220/11kV LI Substation at Kamalapuram with 3 x 315MVA Transformers

A(VII) 2 Nos. Bays at 400/220KV Julurupadu Sub-Station for 400KV Twin Moose DC Line from Julurupadu - Kamalapuram.

A(VIII) Erection of 400kV Twin Moose DC line from Julurupadu SS to Kamalapuram LI Sub Station for a length of 40kMs(approx)

A(IX) Diversion of 3.2kMs(approx) 400kV Twin Moose DC Line from 400kV Gajwel SS to 400kV Shankarpally SS to facilitate crossing of Broad Gauge Railway Track between Manoharabad and Kothapalli under Deposit Contribution Works.

2.0 ABSTRACT OF SUPPLY PRICES:

ABSTRACT of Schedules: (Detailed schedule of prices and items is enclosed to the Purchase Order)

Schedule: Schedule of Supply of Equipment and Materials with Prices for
Pump House – I:

A(I)220/11kV LIS Substation at B.G.Kothur(V)(without Pump PTRs)		
Sl.No	Description	Total FADs Price (in Rs.)
1	Schedule - BS1 : Prices for Supply of Switchyard Structures	4,34,58,025.64
2	Schedule - BS2 : Prices for Supply of Earthing & Earth Mat	78,10,652.12
3	Schedule - BS3 : Prices for Supply of Bus Bar Material	60,17,506.24
4	Schedule - BS4 : Prices for Supply of Conductor,Earthwire and Control Cables	1,42,51,719.96
5	Schedule - BS5 : Prices for Supply of Batteries & Chargers	16,09,459.76
6	Schedule - BS6 : Prices for Supply of Fire Extinguishers	5,25,136.39
7	Schedule - BS7 : Prices for Supply of 220kV Equipment	8,84,07,361.02
8	Schedule - BS8 : Prices for Supply of Panels	2,66,46,160.87
9	Schedule - BS9 : Prices for Supply of General Items	30,03,333.99
10	Schedule - BS10 : Prices for Supply of Caution Boards & Miscellaneous	3,68,655.86
11	Schedule - BS11 : Prices For Supply of Telecom	1,38,29,423.92
	Total:	20,59,27,435.77
A(II)LILO of one circuit of 220kV KTPS V-Lower Sileru -II Line to proposed Pump House-1 at B.G.Kotturu for a length of 20 kMs (approx)		
1	Schedule of Prices for supply of Towers, Tower Accessories and Sub-items	12,92,76,635.80
	Total :	12,92,76,635.80
A(III)Erection of LILO of one circuit of 220kV KTPS-Manuguru Line to proposed Pump House-1 at B.G.Kothur for a length of 1 kM (approx)		
1	Schedule of Prices for supply of Towers, Tower Accessories and Sub-items	2,32,46,875.73
	Total :	2,32,46,875.73
	Grand Total of Pump House – I:	35,84,50,947.30

Pump House – II

A(IV)220/11kV LIS Sub-Station at V.K.Ramavaram (without Pump PTRs)		
Sl.No	Description	Total FADs Price (in Rs.)
1	Schedule - VS1 : Prices for Supply of Switchyard Structures	4,06,69,825.78
2	Schedule - VS2 : Prices for Supply of Earthing & Earthmat	48,36,229.02
3	Schedule - VS3 : Prices for Supply of Bus Bar Material	46,76,692.63
4	Schedule - VS4 : Prices for Supply of Conductor,Earthwire and Control Cables	1,63,99,526.06
5	Schedule - VS5 : Prices for Supply of Batteries & Chargers	16,09,459.76
6	Schedule - VS6 : Prices for Supply of Fire Extinguishers	5,25,136.39
7	Schedule - VS7 : Prices for Supply of 220kV Equipment	7,67,70,992.99
8	Schedule - VS8 : Prices for Supply of Panels	2,43,96,389.20
9	Schedule - VS9 : Prices for Supply of General Items	30,03,333.99
10	Schedule - VS10 : Prices for Supply of Caution Boards & Miscellaneous	2,48,388.35
11	Schedule - VS11 : Prices For Supply of Telecom	37,47,084.04
	Total:	17,68,83,058.21
A(V) Erection of 220kV TMDC Line from 400/220/11kV Kamalapuram SS to 220/11 V.K.Ramavaram for a length of 15 kMs (approx)		
1	Schedule of Prices for supply of Towers, Tower Accessories and Sub-items	13,36,19,123.82
	Total :	13,36,19,123.82
	Grand Total of Pump House – II:	31,05,02,182.03

Pump House – III

Sl.No	Description	Total FADs Price (in Rs.)
A(VI) 400/220/11kV LI Substation at Kamalapuram with 3 x 315MVA Transformers		
1	Schedule - KS1 : Prices for Supply of Switchyard Structures	5,97,27,509.79
2	Schedule - KS2 : Prices for Supply of Earthing & Earth Mat	2,36,98,914.45
3	Schedule - KS3 : Prices for Supply of Bus Bar Material	2,37,05,181.75
4	Schedule - KS4: Prices for Supply of Power And Control Cables	2,91,37,113.82
5	Schedule - KS5 : Prices for Supply of Indoor And Outdoor Illumination	59,35,830.78

Sl.No	Description	Total FADs Price (in Rs.)
6	Schedule - KS6 : Prices for Supply of Fire Protection, Detection & Alarm Systems	1,79,06,987.26
7	Schedule - KS7 : Prices for Supply of Air Conditioning And Ventilation System	49,13,779.94
8	Schedule - KS8 : Prices for Supply of Diesel Generator Set	23,18,472.06
9	Schedule -KS9 : Prices for Supply of 33kV Station Power Supply Facilities	1,32,13,029.48
10	Schedule - KS10 : Prices For Supply of Control House Furniture And Monitoring System	25,75,717.64
11	Schedule - KS11 : Prices For Supply of Material, Control And Relay Panels.	22,82,61,804.30
12	Schedule - KS12 : Prices for Telecom Equipment.	84,95,445.29
13	Schedule -KS13 : Prices for Supply of Power Transformers	25,54,32,098.04
14	Schedule -KS14 : Prices for Supply of 220/11kV Switchyard	15,31,89,562.23
15	Total:	82,85,11,446.83
A(VII)2 Nos. Bays at 400/220KV Julurupadu Sub-Station for 400KV Twin Moose DC Line from Julurupadu - Kamalapuram.		
1	SCHEDULE - JBS1 : PRICES FOR SUPPLY OF SWITCHYARD STRUCTURES	43,91,065.08
2	SCHEDULE - JBS2 : PRICES FOR SUPPLY OF EARTHING & EARTH MAT	17,63,296.54
3	SCHEDULE - JBS3 : PRICES FOR SUPPLY OF BUS BAR MATERIAL	56,01,272.03
4	SCHEDULE - JBS4: PRICES FOR SUPPLY OF POWER AND CONTROL CABLES	59,96,252.15
5	SCHEDULE - JBS5 : PRICES FOR SUPPLY OF INDOOR AND OUTDOOR ILLUMINATION	5,06,823.13
6	SCHEDULE - JBS6 : PRICES FOR SUPPLY OF AIR CONDITIONING AND VENTILLATION SYSTEM	6,06,849.80
7	SCHEDULE - JBS7 : PRICES FOR SUPPLY OF MATERIAL, CONTROL AND RELAY PANELS.	5,16,76,481.77
8	SCHEDULE - JBS8 : PRICES FOR SUPPLY OF TELECOM EQUIPMENT/MATERIAL.	30,68,531.78
	Total:	7,36,10,572.28
A(VIII)400kV TMDC line from Julurupadu SS to Kamalapuram LI Sub Station for a length of 40kMs.		
1	Schedule of Prices for supply of Towers, Tower Accessories and Sub-items	41,56,13,555.44
	Total :	41,56,13,555.44
	Grand Total of Pump House – III:	131,77,35,574.55

Grand Total of Pump –I,II &III : 198,66,88,703.88

A(IX) Diversion of 400kV TMDC line from 400kV Gajwel to 400kV Shankarpally for crossing of Broad Gauge Railway track between Manoharabad and Kothapalli

Sl.No	Description	Total FADs Price (in Rs.)
1	Schedule of Prices for supply of Towers, Tower Accessories and Sub-items	3,51,81,598.00
	Total :	3,51,81,598.00

Grand Total of A(I) to A(IX):Rs. 202,18,70,301.88

3.0 PRICES AND PRICE ADJUSTMENTS:

- 3.1 The Prices as mentioned in Schedules– A(I) to A(IX) are variable for the following items of Equipment / Materials:

Sub-Station / Bay Extensions:

Circuit Breakers, Auto Transformers, Instrument Transformers, Lightning Arresters, Isolators, Substation Structures, M.S Rod/Flat, G.I Flat, ACSR Moose Conductor and Power and Control cables are VARIABLE.

Tr. Line:

Tower parts including Bolts and Nuts (for 220kV lines only tower parts), ACSR Moose/Zebra conductor and GSS Earthwire are Variable. The Prices of all other equipment /material shall be **Firm** on all accounts such as increase in quantity of equipment / materials over that provided in the contract, execution of contract beyond the schedule completion period for whatever reasons, increase in the rates of material during and beyond the completion period etc. The prices indicated in Schedules– A(I) to A(IX) are FADS (Free at destination stores) including freight and insurance, relevant taxes&duties and other levies whatsoever.

The Price variation clause applicable for material shall be as per Specification and indicated in Annexure-I.

The bought out items offered shall be supplied from the approved vendors of TSTRANSCO given in Volume-I of the bidding documents or should have been supplied to TSTRANSCO / PGCIL earlier and have proven performance.

Before offering the material from a Sub-Vendor (even though the company's name is indicated in the approved Sub-Vendors / Manufacturers list), the Contractor shall take prior approval of TSTRANSCO by submitting the credentials of the company, to meet the qualifying requirements.

- 3.2 Quantities provided in the price schedules are provisional and payment will be limited to actual quantities based on the design and drawings approved by TSTRANSCO. Contractor shall complete the supplies, storage, erection, testing and commissioning, civil & construction works and other incidental services as per the system requirement and as stipulated in bidding documents, designs, drawings approved during the detailed engineering. The contract price adjustments will be made based on the actual required quantities utilized as per detailed engineering and as per completed quantities of the supplies.

Wherever lump sum prices are provided in the price schedules, the Contractor shall cover complete requirement of works as per technical specification, relevant standards and as per approved drawings.

In case special towers /special extensions are required during execution for which designs & drawings for the Transmission Line Towers are not available with TSTRANSCO, the same are to be developed at free of cost by the Supplier/Contractor and furnished for the approval of TSTRANSCO. The cost for the supply of these extensions will be the same as tower parts mentioned in Schedule.

Any other items not specifically mentioned in the technical specification / drawings but which are required for erection, testing and commissioning of Substations and Transmission lines are deemed to have been included in the scope of the contract as mentioned in tender specification, unless specifically excluded. The prices include insurance to be covered by the Contractor for the works, Workmen's compensation and all other insurances required as per specification.

- 3.3 **The Tender price quoted by the Contractor is 1.09% Less over the ECV of TSTRANSCO.**

4.0 TAXES AND DUTIES:

For supply of equipment & materials:

- 4.1 The FADS prices are inclusive of GST @18% (over Ex-work rate + Freight & Insurance). The Contractor is entirely responsible for payment of Taxes and duties, other local taxes or levies, license fee, etc., till the completion of the contract. The TSTRANSCO will not entertain any claim in relation to Taxes and other levies payable by the Contractor in respect of the transaction between the Contractor and their vendors/sub suppliers while procuring any components, sub-assemblies, raw materials equipment etc.
- 4.2 The Contractor will be entirely responsible for payment of taxes and duties, other local taxes or levies if any, license fee, etc., which are to be borne by the company/contractor until the

completion of the contract.

- 4.3 No claim against the variation in taxes and duties or new levies in respect of the transaction between the Contractor and their vendors / sub-suppliers while procuring any components, sub-assemblies, raw materials and equipment will be entertained by the TSTRANSCO.
- 4.4 TSTRANSCO shall not bear any tax liability i.e., Income Tax, surcharge on Income Tax and any other Corporate Tax, irrespective of the mode of contracting. The contractor shall be liable and responsible for payment of taxes, under the provision of the law. The TSTRANSCO as per the respective acts will make deduction towards Income Tax, **GST, National Academy Corpus fund(NAC)** etc., at source.
- 4.5 TSTRANSCO is registered under GST Act and Provisional ID is 36AAFCT0166J1Z9. CIN No.U40102TG2014SGC094248.
- 4.6 In case of interstate transactions made under IGST, the e-way bills will be processed in accordance with orders issued by the Government of India & Telangana from time to time. Necessary documents such as invoice, delivery challans, Order copies and any other documentary evidence mandated by Government for interstate movement of goods shall be produced by the contractor.

4.7 PAYMENT OF TAXES, LEVIES, DUTIES, STATUTES

- 4.7.1 Contractor shall be entirely responsible for payment of all taxes, levies, duties, other local taxes, license fees, etc.
- 4.7.2 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 in any way during the execution of works. In compliance to the above, the contractor shall keep the TSTRANSCO indemnified against all such penalties and liability of every kind for breach of any statute, ordinance or law, regulation or byelaw.
- 4.7.3 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 made by him in respect of the contract.
- 4.8 **TAX AND CESS DEDUCTABLE AT SOURCE:**
As per provision of GST, labour cess and Income tax Act, applicable taxes will be deducted at source at all stages of payment of the bills and same will be remitted to the concerned department as per the rules / acts of the State / Central Government.

The GST will be deducted in accordance with the orders issued by Government of India/Telangana from time to time at the rates, as applicable under TDS at all stages of payment of the bills and same will be remitted to the concerned department as per the rules / acts of the State / Central Government.

Seignorage charges shall be paid to the Assistant Director Mines & Geology Department as per existing rules in vogue.

4.9 STATUTORY VARIATION:

Any variation up or down in statutory levy or new levies introduced after calling of tender date under this specification will be to the account of TSTRANSCO and which shall be regulated in the contract agreement by the agreement concluding authority.

The successful Bidder has to declare the own manufactured and bought out items at the time of acceptance of LOI.

Any increase in statutory levies will be granted by the competent Authority on production of documentary evidence of such increase by the supplier provided the variation is within the scheduled completion period of contract. This is allowed only once during delivery period i.e. at the time of delivery of goods at factory.

In cases where the Bidder does not adhere to schedule of completion date of Supply/ works and if there is any upward variation/revision in taxes & duties after the agreed schedule completion of programme of works, the Bidder shall bear such impact of levies and if there is any downward variation/revision, the credit shall be passed on to TSTRANSCO to that extent irrespective of scheduled completion of period of contract.

In case of sub-vendor (bought out) items, no statutory variation is applicable after the acceptance of LOI by the successful bidder.

5.0 DELIVERY PERIOD:

A. Sita Rama Lift Irrigation Project: Schedules – A(I) to A(VIII)

The supply of materials and equipments shall be completed within **Fifteen (15) months** from the date of Purchase Order.

B. Diversion of 3.2 kMs 400kV Gajwel SS - 400kV Shankarpally SS TMDC line for Railway crossing work: Schedule – A(IX)

The supply of materials and equipments shall be completed within **Three (3) months** from the date of Purchase Order.

6.0. TERMS OF PAYMENT:

The payment will be made through I&CAD Dept./TSTRANSCO.

6.1 For Supply (equipment/material):

- i) 80% payment will be made within 30 days for the material / equipment supplied and received in complete shape at destination stores / site in good condition (i.e. Check measurement date in Form - 13). The concerned AEE / 400kV/ Field will receive the equipment / material in full shape at site and the concerned EE/400kV / Field will do the check measurement and issue the Form-13. The check measurement shall be done within five days from the date of receipt of materials. The due date for payment will be reckoned from the date of check measurement mentioned in Form-13.
- ii) 10% payment will be made after erection of equipment / material.
- iii) Balance 10% payment will be made after commissioning of equipment / material

6.2 The Bank Account details furnished by the company are as follows

Name of the beneficiary : M/s. Megha Engineering & Infrastructure Ltd.,
 Name of the Bank : Andhra Bank, TIE, Balanagar, Telangana – 500 035.
 Account No. : 005713046109183
 IFSC Code : ANDB0000057

- 6.3 The payments are subject to submission of Performance Security with validity of Twelve (12) months with two months claim period as on date of check measurement of materials.
- 6.4 If the contractor has received any over payments by mistake or if any amounts are due to the TSTRANSCO due to any other reason, when it is not possible to recover such amounts under the contract resulting out of this specification, the TSTRANSCO reserves the right to collect the same from any other amount and / or Bank Guarantees given by the company due to or with the TSTRANSCO.
- 6.5 When the supplier/contractor does not at any time, fulfill his obligations in replacing / rectifying etc. of the damaged / defective materials in part or whole promptly to the satisfaction of the TSTRANSCO Officers, the TSTRANSCO reserves the right not to accept the bills against subsequent dispatches made by the supplier/contractor and only the supplier/contractor will be responsible for any demurrages, wharf - ages or damage occurring to the consignments so dispatched.
- 6.6 The supplier has to furnish summary sheet of payment particulars with the details of item wise quantity supplied until the present consignment, quantity delivered in this consignment and balance to be delivered and corresponding amounts of payment.
- 6.7 **The payment will be made to the Supplier under this Contract in Indian Rupees only.**

6.8 The following documents specified below shall be submitted to the paying officer.

- a) Original for buyer invoice.
- b) Delivery Challan Acknowledged by the consignee (S) (6 copies)
- c) Insurance Certificate
- d) Manufacturers/Suppliers Warranty Certificate
- e) Approval of routine and Acceptance test reports.
- f) 6 copies of packing list
- g) Copy of Acceptance Letter of Performance Security issued by Purchaser.

6.9 Where the Vendor/Contractor requests for the payment in advance before the “scheduled date of payment” that would be examined by the Finance Wing of TSTRANSCO to decide whether such facility could be extended or not and if found acceptable the Contractor should agree to offer a rebate/ discount @ 0.3% per week or part thereof for the advancement. Accordingly, the Finance & Accounts wing will release priority payment to such Contractor after availing of the rebate/ discount.

7.0 PERFORMANCE SECURITY:

M/s.Megha Engineering & Infrastructures Ltd., Hyderabad shall furnish the following Performance Security in accordance with the contract, in the Performance Security form provided in the bidding documents or any other form acceptable to the TSTRANSCO.

- a) Bank Guarantee towards Performance Security (Supply) for an amount equivalent to 10% of supply value i.e. for Rs. 20,21,87,100/- valid upto 31.01.2021 with a claim period upto 31.03.2021.
- b) Bank Guarantee towards supply of tower parts for an amount equivalent to 10% of the cost of total tower parts value i.e. for Rs. 3,08,21,700/-/- valid upto 31.01.2020 with a claim period upto 31.03.2020.
- c) Bank Guarantee towards supply of Power Transformers for an amount equivalent to 10% of the cost of Power Transformers value for Rs.2,55,43,300/- valid upto 31.01.2021 with a claim period upto 31.03.2021.

The Performance Security/additional performance securities shall cover the 12 months over and above completion period, with a further claim period of two months thereafter.

The TSTRANSCO will discharge the Performance Security after completion of the warranty/ Guarantee period.

Failure to furnish the Performance Security as specified within 15 days of award of contract shall constitute sufficient grounds for the annulment of the Award and forfeiture of the bid

guarantee, in such case the TSTRANSCO may Award the said contract to the next lowest evaluated Bidder or call for new bids. Any further correspondence made by the Contractor in this regard will not be entertained.

Performance security may in the form of

- (i) A Bank Guarantee from any Nationalized Banks (list specified) as per list enclosed in the specification, State Bank of India or its Associate Banks/ Nationalized banks in favour of Chief Engineer / 400kV/Vidyut Soudha/TSTRANSCO/Hyderabad.
- (ii) A Banker Cheque, crossed Demand Draft, pay order on any Nationalized Bank/ State Bank of India or its associate banks in the Headquarters in favour of Pay Officer/TSTRANSCO.

All Bank Guarantees, which are executed in accordance with this specification, shall be only on TSTRANSCO State Non- Judicial Stamp paper purchased in Telangana State to the value of not less than Rs.100/- (Rupees one hundred only). Bank Guarantee executed on the Non- Judicial stamp paper of value less than Rs.100/- will not be accepted.

In case of the non-execution of works within the stipulated completion period the bidder shall extend the bank guarantee suitably to cover the 12 Months performance and 2 Months claim period from the expected date of commission of the project.

In case of replacement/repair of any material/works after commissioning of the Sub-Stations and Transmission lines and before expiry of Guarantee / Warranty period, the contractor shall furnish separate bank guarantee valid for 12 Months with 2 Months claim period from the date of repair / replacement covering the value of such materials / works.

TSTRANSCO will discharge the Performance Security after completion of the contract and within 60 days of the expiry of the warranty.

8.0 CONTRACT AGREEMENT:

The written agreement to be entered into between the Chief Engineer / 400kV/ TSTRANSCO /VidyutSoudha / Hyderabad and Contractor shall be the foundation of the rights and obligations of both the parties and the contract shall not be deemed to be completed until the agreement has first been signed by the Contractor and then by the officer authorized to enter into contract on behalf of the Transmission Corporation of TELANGANA Limited (or 'TSTRANSCO').

9.0 INSPECTION AND FACTORY TESTS:

- 9.1 The Engineer, his duly authorized representative and/or 3rd Party inspection agency acting on behalf of TSTRANSCO shall have at all reasonable times access to the Contractor's premises or Works and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the Works during its manufacture or erection and if part of the Works is being manufactured or assembled at other premises or works, the Contractor shall obtain from TSTRANSCO and/or his duly authorized representative permission to inspect as if the works were manufactured or assembled on the Contractor's own premises or works. **TSTRANSCO reserves the right to witness any or all type (if any), acceptance and routine tests specified, for which at least 21 (twenty one) days in advance shall be given by the Contractor. Contractor shall ensure before giving notices for type test that all drawings and quality plans have been got approved.** The equipment shall be dispatched to site only after approval of test certificates by TSTRANSCO.
- 9.2 TSTRANSCO or Inspector shall, within fifteen (15) days from the date of inspection as defined herein give notice in writing to the Contractor, of any objection to any drawings and/or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due consideration to such objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to TSTRANSCO giving reasons therein, that no modifications are necessary to comply with the Contract.
- 9.3 When the factory tests have been completed at the Contractor's or Sub-Contractor's works, TSTRANSCO shall issue a certificate to this effect within fifteen (15) days after completion of tests but if the tests are not witnessed by TSTRANSCO the certificate shall be issued within fifteen (15) days of receipt of the Contractor's Test certificate by TSTRANSCO. Failure of TSTRANSCO to issue such a certificate shall not prevent the Contractor from proceeding with the Works. The completion of these tests or the issue of the certificate shall not bind TSTRANSCO to accept the equipment, should it on further tests after erection, be found not to comply with the Contract.
- 9.4 In all cases where the contract provides for tests whether at the premises or works of the Contractor or of any Sub-Contractor, the Contractor except where otherwise specified shall provide free of charge such items as labour, materials, electricity, fuel water, stores, apparatus and instruments as maybe reasonably demanded by TSTRANSCO/Inspector or his authorized representative to carry out effectively such tests of the equipment in accordance

with the Contract and shall give facilities to TSTRANSCO/Inspector or to his authorized representative to accomplish testing.

- 9.5 The inspection by TSTRANSCO and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed quality assurance program.
- 9.6 Dispatch Instruction shall be issued by TSTRANSCO after inspection of the equipment. TSTRANSCO may waive off the presence of TSTRANSCO's inspecting engineer. In that case, test will be carried out as per approved QP & test certificate will be furnished by the Contractor for approval. D.I will be issued only after review & approval of the test reports. As per the clause No. 43.1.7 of Section-VII GTC.
- 9.7 TSTRANSCO will have the right to insist on any test(s) of reasonable nature carried out at Contractor's premises or at site or in any other place to satisfy that the material comply with the specification.
- 9.8 TSTRANSCO reserves the right for getting any field tests conducted on the completely assembled equipment at site.
- 9.9 The equipment offered shall be of type tested and shall be subjected to all routine and acceptance tests as per the relevant standards specified. Please refer clause no 43 of Section GTC of Volume-I.

10.0 TYPE AND ROUTINE TESTS:

10.1 ROUTINE TESTS:

After completion of manufacture of the equipment routine tests shall be performed as per relevant standards and requisite copies of test certificates shall be furnished to TSTRANSCO. Various components of the equipment shall be routine tested in accordance with approved standards and manufacturer's standards.

Each completely wired cubicles/Panels shall be tested to ensure that all of its protective control systems are satisfactorily functioning as required. Please refer clause No.43 of Section GTC of Volume-I.

10.2 TYPE TESTS:

10.2.1 The equipment/material offered against this order should have been successfully type tested in line with the specified standards and this Technical Specification. These tests should have been conducted within a period of 5 years prior to the date of opening of the Part-I “Pre-qualification and Technical Bid”, subject to no alteration in the design. The Contractor shall furnish 4 copies of the Type test reports within 15 days of Letter of Intent. In case these type tests were carried out earlier to the five years period mentioned above or some type tests were not carried out at all as per the present specification, all the relevant type tests as per relevant standards shall be carried out by the Contractor in the presence of TSTRANSCO's representative at the cost of the Contractor.

10.2.2 If there is any change in the components or design in the equipment since after earlier passing of the Type Test, the Contractor shall bring out in his offer all such changes made in the components, materials, designs, etc. In such case the Contractor shall carry out the type tests at his cost and in presence of the TSTRANSCO's representative. If any change in design was made, latest type tests shall be furnished along with approved drawing.

10.2.3 TSTRANSCO reserves the right to conduct tests included in the list of Type Tests in the respective technical specifications on requisite number of samples/items from any of the lots during the tenure of the supply, at TSTRANSCO's cost in the presence of TSTRANSCO's representatives. If the equipment/material does not withstand the type test, the equipment/material supplied till then will be liable for rejection. The supplier, in such an eventuality, shall be allowed to modify the equipment and type test the same again at his cost in the presence of the TSTRANSCO's representative.

These type tests shall however be conducted by the Supplier within a reasonable time. After successful passing of the type tests, all the equipment/materials supplied earlier shall be modified in line with the equipment/materials which has successfully passed the type test. In case Supplier fails to carry out the type test within reasonable time or does not agree to carry out the type test at his cost his equipment/material supplied earlier shall be rejected and order placed shall be cancelled and payment made earlier for these Suppliers shall be recovered by TSTRANSCO.

10.2.4 The type tests should have been either conducted in a recognized institution or laboratory and should have been witnessed by a TSTRANSCO or an independent agency. The name(s) of the institutions/Laboratories where the Contractor intends to get type testes

performed shall be as mentioned in your bid and informed TSTRANSCO prior to the Type Test.

11.0 PACKING AND MARKING.

11.1 The Contractor shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the contract. The packing shall be sufficient to withstand without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into considerations where appropriate, the remoteness of the goods final destination and the absence of heavy handling facilities at all points in transit.

11.2 The packing, marking and Documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to Clause 8, GCC, Volume-I in any subsequent instructions given by the TSTRANSCO.

11.3 In general each package shall be marked to indicate:

- a) Name of the Supplier
- b) Details of items in the package
- c) Name of the consignee
- d) Purchase order number
- e) Gross, net and tare weights of the items
- f) Destination.

11.4 Refer packing and marking of the Technical Specifications for further details. All the requisite documents as per specification for delivery of equipment and material shall be submitted.

12.0 TRANSPORTATION:

12.1 The Contractor is required under the contract to deliver the Goods free at Destination. Transport of goods to the destination, shall be arranged and paid for by the supplier, and the cost thereof shall be included in the contract price. It shall be the total responsibility of the Contractor to ascertain transportation limitations if any before the supplies.

12.2 Where the Contractor is required to effect delivery under any other terms, for example, by post or to another address, the supplier shall be required to meet all transport and storage expenses until delivery.

- 12.3 In all of the above cases, transportation of the goods after the delivery at destination Site/stores shall be the responsibility of the contractor unless specified otherwise.

13.0 INSURANCE:

- 13.1 The Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, and material supplied by TSTRANSCO should be insured against 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 **45 days storage before taking into account** thereafter on “All Risks” basis including War Risks and Strike Clauses.
- 13.2 The Contractor shall arrange secure and maintain insurance as may be necessary and for all such amounts to protect the materials of the TSTRANSCO against all risks till the Goods and services is taken over as detailed herein. The form and the limit of such insurance as defined herein together with the underwriter thereof in each case shall be acceptable to the TSTRANSCO. However irrespective of such acceptance the responsibility to maintain insurance at all times during the period of “Contract” shall be that of contractor alone. The contractor’s failure in this regard shall not relieve him of any of his contractual responsibilities and obligations.
- 13.3 The contractor shall take Insurance cover in their name. The above insurance shall be made in freely convertible currency. The contractor shall be responsible for preferring all claims and releasing the amounts from insurance. The scope of such insurance shall cover the entire value of the “Goods and Services”.

Contractor shall

- a) **Initiate and pursue insurance claim till settlement and**
 - b) **Promptly arrange for repair and / or replacement of any damaged items in full irrespective of settlement of insurance claim by the under writers.**
- 13.4 All costs on account of insurance liabilities covered under the contract will be on “Contractor’s” account. The CONTRACTOR shall provide the TSTRANSCO with a copy of all insurance policies and documents taken out by him in pursuance of the ‘Contract’. Such copies of documents shall be submitted to the TSTRANSCO immediately after such insurance coverage. The CONTRACTOR shall also inform the TSTRANSCO in writing at least sixty (60) days in advance, regarding the expiry, cancellation and / or change in any of such documents and ensure revalidation / renewal etc., as may be necessary well in time. The Purchase shall assist the contractor if required in obtaining Licenses/port clearances, etc., in respect of foreign supply required for the purpose of replacement of Goods lost in transit.

The risks that are to be covered under the insurance shall be comprehensive and shall include but not be limited to, the loss or damage in transit, storage, due to theft, pilferage, riot, civil commotion, weather conditions, accident of all kinds, fire, flood, war risk (during ocean transportation) bad or rough handling etc. The scope of such insurance shall cover the entire value of the 'Works'.

- 13.5 All costs on account of insurance liabilities covered under the 'Contract' will be on CONTRACTOR'S account and will be included in 'Contract Price'. **The insurance beneficiary shall be TSTRANSCO.**

Contractors are advised to claim the bills for Supplies / works and insurance separately. Insurance premiums will be paid only after getting confirmation from the Insurance companies. Wherever the bills are claimed combined, the insurance amount will be excluded initially and paid only after getting the confirmation from the insurance companies, so that the main bills are paid without delay. This clause shall be read with Clause No. 10.0 of GCC and Clause No. 29.0 of GCE of Volume-I of Specification.

14.0 DISPATCH INSTRUCTIONS:

The details of Consignee and Paying Officer for supply of equipment and materials are as follows. The equipment and materials covered in Schedule-A shall be delivered to the site after getting approval from CE/400kV/Vidyut Soudha/ TSTRANSCO.

Sl. No.	Address for Despatch	Consignee	Paying officer.
1.	Pump House – I at B.G. Kothur 220/11kV SS and connected lines. Pump House – II at Ramavaram 220/11kV SS and connected lines Pump House – III for 400/220/11kV LIS Kamalapuram, 400kV Quad Bay Extension at Julurupadu SS and connected Lines	Executive Engineer/400kV/ Construction/ Warangal.	Superintending Engineer/ 400kV/Construction/ Warangal
2.	Diversion of 3.2kMs 400kV TMDC Line from 400kV Gajwel SS to 400kV Shankarpally SS	Executive Engineer/ 400kV/Construction/ Rural//TSTRANSCO/ Erragadda/Hyderabad.	Superintending Engineer/ 400kV/Construction/ Rural//TSTRANSCO/ Erragadda/Hyderabad.

TSTRANSCO reserves the right to allot any surplus material from TSTRANSCO stores to project site and in such cases transportation charges will be given as per SSR Rates and the Contractor has to transport such material invariably and the balance quantity of material shall only be offered for supply.

15.0 VARIATION IN QUANTITIES:

The quantities indicated in the Schedules– A(I) to A(IX) (Materials / Equipment) are only provisional and are likely to change during actual execution.

For material and equipment covered in Schedules– A(I) to A(IX)

The rates accepted for individual items of material / equipment (except for material/equipment for which Price variation is applicable) covered under Schedule-A(I) to A(IX) shall hold good for the actual quantities of material supplied, including any increase necessitated during actual execution.

16.0 TSTRANSCO RIGHT TO VARY THE SCOPE DURING THE PERIOD OF CONTRACT:

TSTRANSCO may change the scope of the contract (No. of line & bays etc.) based on the priorities and may subsequently extend for balance scope with the prices quoted if required.

TSTRANSCO reserves the right to increase or decrease the scope stated above as per requirement up to + or - 50% during the execution of the order with quoted prices.

16.1 SUPPLEMENTAL/NEW ITEMS AND PROCEDURE FOR WORKING OUT RATES

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

For the items relating to Schedules– A(I) to A(IX)

where the rates of new items cannot be deduced from the estimate, 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 TSTRANSCO.

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.

The contractor shall plan and procure the materials indicated in Schedules Pump House – A(I) to A(IX) duly verifying with the approved layout and profile so that the procured quantities match with actual requirements to avoid excess supply of materials.

17.0 WARRANTY/GUARANTEE:

17.1 The Contractor shall guarantee, among other things the following:

- i. Quality and strength of materials / equipment used.
- ii. Adequate factors of safety for the material / equipment to withstand the mechanical and/or electrical stresses developed therein. These shall be stated in the Bid.
- iii. The delivery and erection periods given in the Bid.
- iv. The Contractor shall warrant further that the services to be carried out under this contract shall conform with generally accepted professional standards and engineering principles.
- v. The materials/ equipment supplied and erected shall be guaranteed for satisfactory operation for a minimum period of 12 months from the date of commissioning of works / project. By the time of completion of commissioning, Bank Guarantee for performance security and Bank Guarantee for final payment shall be valid to cover Guarantee/warranty period.

However any Engineering error, omission, wrong provision, Goods failure etc., shall be attended to by the Contractor up to and on the date of actual Commissioning of the Goods without any revision in the price or extra cost.

17.2 If during the period of guarantee, any of the materials, are found defective and/or fail in test or operation, such materials, shall be repaired or replaced by the Contractor free of cost to the TSTRANSCO irrespective of the reimbursements from the insurance company within reasonable time which shall in no circumstance be more than 30 days or such other reasonable time as the TSTRANSCO may deem proper to afford failing which the cost of the failed material will be deducted from the subsequent bills/Bank Guarantee.

17.3 The contractor shall bear all the expenses incurred in connection with the repair or replacement against such defective Goods inclusive of all freight both inland overseas, insurance, customs levies, forwarding and clearing and demurrage and other incidental charges involved in delivering the said Goods to the TSTRANSCO's specified destination. The decision whether correction of the defects should be by the repair or replacement shall be the sole discretion of the TSTRANSCO.

- 17.4 Provision of this clause shall also apply to all materials and services repaired or replaced under the provision of this until the expiration of period of 12 (twelve) months from the date of such repair or replacement. In case of replacement/repair of any material/works after commissioning of the Sub-Station and before expiry of Guarantee / Warranty period, the contractor shall furnish separate bank guarantee valid for 12 Months with 2 months claim period from the date of repair / replacement covering the value of such materials / works.
- 17.5 The cost of any special or general overhaul rendered necessary during the guarantee period due to defective Goods and Services furnished by the contractor shall be borne by the contractor.
- 17.6 The taking over of the Goods and services by the TSTRANSCO shall in no way relieve the contractor of his obligation under this clause.
- 17.7 The Contractor shall co-operate with the TSTRANSCO in all ways in repair or replacement of the defective part, so as to minimize to the extent possible the interruption in operation of Goods.
- 17.8 Where the sub-contractors provide longer periods of warranty than mentioned above, the TSTRANSCO shall be entitled for such longer guarantees.
- 17.9 If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the TSTRANSCO may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the TSTRANSCO may have against the Supplier under the contract.
- 17.10 The Contractor's full and extreme liabilities under this clause shall be satisfied by the payments to the TSTRANSCO of the extra cost, of such replacement procured including erection as provided for in the contract, such extra cost being the ascertained difference between the price paid by the TSTRANSCO for such replacements and the contract price portion for such defective plants. Should the TSTRANSCO not so replace the defective plant, the contractor's extreme liability under this clause shall be limited to repayment of all sums paid by the TSTRANSCO under the contract for such defective plant.

18.0 FORCE-MAJEURE CONDITIONS:

- 18.1 Notwithstanding the provisions of clauses 21, 22 and 23 of Section GCC of Volume-I of Specification the Contractor/Supplier shall not be liable for forfeiture of his performance security, Penalty or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the contract is the result of an event of force Majeure.
- 18.2 For purposes of this clause, "Force Majeure" means an event beyond the supplier/contractor and not involving the supplier's/contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, wars or revolutions, fires, earthquakes, floods, epidemics, quarantine restrictions, freight embargoes, riots, civil commotions.
- 18.3 If a Force Majeure situation arises, the supplier shall promptly notify the TSTRANSCO in writing of such condition and the cause thereof. Unless otherwise directed by the TSTRANSCO in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. No price variance will be allowed during the period of force majeure.

19.0 PENALTY FOR LATE SUPPLIES:

The completion period mentioned in the Clause No.5 of this Order is the essence of contract. Penalty will be levied as follows for the delay in supply of material.

- (i) In case of delay in supply of material / equipment beyond over all delivery period, whatever may be the reasons, the TSTRANSCO shall levy and collect the penalty @ 0.5% per week of the delay on the delayed value of the material / equipment subject to a maximum of **10%** of the total value of the contract. Once the maximum is reached, TSTRANSCO shall 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 supplies from other agencies at the risk and cost of the Contractor. And also in case the Contractor fails to execute the supplies as per the program or in the opinion of TSTRANSCO, the supplies are progressing at a slow pace, TSTRANSCO reserves its right to get the balance supplies executed through other agencies at the risk and cost of the Contractor. This is in addition to the right of the TSTRANSCO to forfeit the deposit, to recover any damage from the contractor and also blacklisting.

- (ii) The date of receipt of materials/equipment at the destination stores in good condition (check measurement date mentioned in Form-13) will be taken as the date of delivery.

For penalty, the number of days of delay would be rounded off to the nearest week and interest calculated accordingly. Materials / equipment which are not of acceptable quality or are not conforming to specification would be deemed to be not delivered. The penalty specified shall be levied and would be adjusted against same bill / subsequent pending bills.

- (iii) Penalty shall be calculated while admitting the final bill, duly taking into account, extension of completion period if any, and the penalty shall be recovered along with applicable GST.
- (iv) However, to ensure availability of sufficient amount for deducting penalty a recovery of 0.5% of the value of supply/work, delayed per week (or part thereof, as the case may be) shall be adjusted against the Penalty (GST) levied while admitting the final bill.

Please refer clause 22 of GCC of Volume-I of Specification.

20.0 QUALITY ASSURANCE PROGRAMME:

20.1 To ensure that the equipment and services under the scope of this contract whether manufactured or performed within the Contractor's works or at his Subcontractor's premises or at the TSTRANSCO's site or at any other place of work are in accordance with the specifications, the Contractor shall adopt suitable quality assurance program to control such activities at all points, necessary. Such program shall be outlined by the Contractor and shall be furnished as applicable. A quality assurance programme of the Contractor shall generally cover the following.

- a) His organization structure for the management and implementation of the proposed quality assurance programme;
- b) Documentation control systems;
- c) Qualification data for Contractors key personnel;
- d) The procedure for purchase of materials, parts, components and selection of Sub-Contractor's service including vendor analysis, source inspection, incoming raw material inspection, testing, verification of materials purchased, etc.
- e) System for shop manufacturing and site erection controls including process controls and fabrication and assembly controls;
- f) Control of nonconforming items and system for corrective actions;
- g) Inspection and test procedure both for manufacture and field activities

- h) Control of calibration and testing of measuring and testing equipment;
- i) System for indication and appraisal of inspection status
- j) System for quality audits;
- k) System for authorizing release of manufactured product to the TSTRANSCO
- l) System for handling storage and delivery;
- m) System for maintenance of records; and
- n) A quality plan detailing out the specific quality control procedure adopted for controlling the quality characteristics relevant to each item of equipment/component furnished.

21.0 QUALITY ASSURANCE DOCUMENTS:

The Contractor shall be required to submit the following Quality Assurance Documents within before dispatch of the equipment

- i) All Nondestructive Examination procedures, stress relief and weld repair procedure actually used during fabrication,
- ii) Welder and welding operator qualification certificates,
- iii) Welder identification lists, listing welders and welding operator's qualification procedure and welding identification symbols.
- iv) Material mill test reports on components as specified by the specification.
- v) The inspection plan with verification, inspection plan check points, verification sketches, if used, and methods used to verify that the inspection and testing points, in the inspection plan were performed satisfactorily.
- vi) Sketches and drawings used for indicating the method of trace ability of the radiographs to the location on the equipment
- vii) Non-destructive Examination result, reports including radiography interpretation reports.
- viii) Factory test results for testing required as per applicable codes and standards referred in the specification.
- ix) Inspection reports duly signed by Quality Assurance personnel of the TSTRANSCO and Contractor for the agreed inspection hold points. During the course of inspection, the following will also be recorded:
 - a) When some important repair work is involved to make the job acceptable; and
 - b) The repair work remains part of the accepted product quality.

22.0 DESIGN AND DRAWINGS

The Contractor shall design all the systems covered under the scope of this Purchase Order documents and obtain approval of all the design drawings duly indicating all the required bill of quantities (BOQ) on the A-1 Size drawing.

Soon after award of the contract, the Contractor shall furnish the list of drawings (Equipment/material/erection) to be furnished by him in accordance with the specification as required for the scope of Supply, Erection & Commissioning.

- 22.1 Contractor shall submit for approval, as per the above schedule two sets of assembly drawing erection/construction and sufficient detailed drawings to demonstrate fully that the apparatus furnished and erection/construction work carried out shall conform to the provision and intent of these specifications. Detailed drawings or design data proving the adequacy of the Contractor's designs by calculations shall be submitted for approval by the TSTRANSCO.
- 22.2 The design data and the drawings submitted by the Contractor will be reviewed by the TSTRANSCO as far as practicable within four (4) weeks of their receipt and shall be modified by the Contractor if any modifications and/or corrections are required by the TSTRANSCO. The Contractor shall incorporate such modifications and/or corrections and submit the final drawings for approval. Any delays arising out of failure by the Contractor to rectify the drawings in good time shall not alter the contract completion date.
- 22.3 When revised drawings are submitted for approval, the changes from the previous submittals shall be clearly identified on the drawings, with every revision made during the life of the contract shown by number, date and subject, in a revision block and a notation shall be given in the drawing margin. The drawings shall be clear and legible in all respects. The corrected and approved drawings shall be submitted both in Hard copies and Auto-CAD soft copies in three sets of CDs.
- 22.4 TSTRANSCO shall have the right to require the Contractor to make any changes in the design which may be necessary in the opinion of the TSTRANSCO to make equipment construction cum erection work conform to the provisions and intent of these specifications, without additional cost to the TSTRANSCO. One set of the drawings marked "APPROVED" will be returned to Contractor. He shall thereupon furnish the TSTRANSCO with ten sets of prints, soft copy in CD after incorporating all corrections.

- 22.5 Further work by the Contractor shall be in strict accordance with these drawings and no deviation shall be permitted without the written approval of the TSTRANSCO, if so required.
- 22.6 All manufacturing fabrication work and construction / erection in connection with the equipment before the approval of the drawings shall be at the Contractor's risk. The Contractor may make any changes in the design, which are necessary to make the equipment construction/erection conform to the provisions and intent of the contract and such changes will again be subject to approval by the TSTRANSCO.
- 22.7 Approval of drawings by the TSTRANSCO shall not be held to relieve the Contractor of any part of his obligation to meet all the requirements stipulated in the specification of responsibility for correctness.
- 22.8 One month prior to dispatch of the equipment final approved drawing sets, operation, maintenance and erection manuals shall be supplied to the TSTRANSCO in 6 copies. Also a soft copy of the drawings in Auto CAD latest version shall also be supplied.
- 22.9 The Contractor shall mark in red in one (1) set of drawings all deviations/alterations carried out at site during construction work. After final testing and commissioning, any corrections in the, field test, actual erection, testing and commissioning shall be incorporated in the drawings and the Contractor shall furnish to TSTRANSCO ten (10) copies of the revised drawings/manuals and marked as "As Built" drawings shall be supplied in the Office of the Chief Engineer/400kV /Vidyut Soudha /Hyderabad. However, no alternations/deviations shall be carried out without the prior approval of the STRANSCO.
- 22.10 The Contractor shall also furnish two sets of reproducible along with soft copy in CD of all reference drawings and documents/designs after approval and two sets of reproducible of all as built drawings as certified by the field engineer of TSTRANSCO.
- 22.11 Drawings shall include all installation and detailed piping drawings. All piping 100 millimeter and larger shall be routed in detail and smaller pipe shall be shown schematically or by isometric drawings.
- 22.12 Each drawing shall be complete with Bill of Materials and legends. It shall contain technical requirements of quality assurance to be observed at shop and technical requirements for work at site like welding length, weld size, type of electrodes etc.

23.0 INSTRUCTION MANUALS & STANDARDS:

The Contractor shall submit to TSTRANSCO instruction manuals for all equipment to be supplied against this Order covering technical details, erection procedures, testing, operation and maintenance including troubleshooting. Each manual shall also include a complete set of approved drawings together with performance/rating curves of the equipment and test certificates wherever applicable. The 'Contract' shall not be considered to be completed for purposes of taking over until such instruction manuals and drawings have been supplied to TSTRANSCO. The manuals shall be submitted in 12 copies duly incorporating the comments after review by TSTRANSCO on the model manuals to be submitted by the Contractor.

A separate section of the manual shall be for each size / type of equipment and shall contain a detailed description of construction and operation, together with all relevant pamphlets, drawings and a list of parts with procedure for ordering spares. Maintenance instructions shall include charts showing lubrication checking, testing and replacement procedures to be carried out daily, weekly, monthly and at longer intervals to ensure trouble free operation.

Where applicable, fault location charts shall be included to facilitate finding the cause of mal-operation or breakdown. A collection of the manufacturer's standard leaflets will not be accepted, to be taken as a compliance of this clause. The manual shall be specifically compiled for the concerned project.

24.0 SURPLUS MATERIALS:

On completion of works, all the surplus material which has been already billed by contractor to TSTRANSCO 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.

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 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.

25.0 TERMINATION OF CONTRACT:

The TSTRANSCO may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier/ Contractor, terminate the contract in whole or in part:

- a) If the supplier/Contractor fails to deliver any or all of the goods and to complete any or all works commensurate with progress of completion within the time period(s) specified in the contract or any extension thereof granted by the TSTRANSCO.
- b) If the supplier/Contractor fails to perform any other obligation(s) under the contract.
- c) If the supplier/Contractor, in the judgment of the TSTRANSCO has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

Termination of contract :

If it is found that supplies and 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 the TSTRANSCO 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 Chief Engineer/400kV/Vidyut Soudha. 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 Chief Engineer / 400kV/Vidyut Soudha 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.

However, the Supplier /Contractor shall continue performance of the Contract to the extent not terminated.

26.0 APPLICABLE LAW, RESOLUTION OF DISPUTES & JURISDICTION:

The contract shall be interpreted in accordance with the laws prevailing in India.

TSTRANSCO and the Contractor shall make every effort to resolve amicably by direct informal negotiation any dis-agreement or dispute arising between them under or in connection with the contract. If, after thirty (30) days from the commencement of such informal negotiations, TSTRANSCO and the Contractor have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms. These mechanisms may include, but are not restricted to, conciliation mediated by a third party. The dispute resolution mechanism shall be as follows.

- a) All and any disputes or differences arising out of or touching the order based on this specification shall be decided by a panel of arbitrators as detailed below:

Value of Claim	Panel of Arbitrators
Disputes involving amounts up to Rs.10,000/- and below.	Superintending Engineer of the TSTRANSCO other than the circle to which the disputes relate.
Disputes involving amounts ranging from Rs.10,001 to Rs.50,000/-	Any Chief Engineer of the TSTRANSCO.

There shall not be any reference of disputes, the value of which is above Rs.50,000/- to arbitration. The parties shall approach the competent Civil Courts situated in Hyderabad/ Secunderabad twin cities only, if any such disputes shall arise involving more than Rs.50,000/-.

A reference for adjudication under this clause shall be made by either party to the contract, within one year from the date of intimating the Contractor of preparation of final bill or his having accepted the payment.

- b) For the settlement of any dispute arising out of the contract, the venue of arbitration proceedings will be in Hyderabad/Secunderabad as per jurisdiction.
- c) All and any disputes or differences arising out of or touching this Order shall be decided by courts or tribunals situated in Hyderabad / Secunderabad cities only. No suit or other legal proceedings shall be instituted elsewhere.

27.0 CORRESPONDENCE:

All the correspondence regarding the technical matters /works / payments and other field matters shall be addressed to the Superintending Engineer / 400kV/Construction / Warangal&Superintending Engineer / 400kV/Construction / Rural / Hyderabad (Diversion work) with copies marked to this office.

28.0 GENERAL CONDITIONS OF CONTRACT:

Except it is provided otherwise in this contract, all the general, technical, commercial terms and conditions stipulated in the bidding documents for this contract shall be complied with.

29.0 DETAILS OF ENCLOSURES:

The following are the enclosures to this order, which form part of the contract.

1. Appendix-A
2. Annexure - I (Price Variation Clause)
3. Schedules– A(I) to A(IX)Prices.

Please note that all terms & conditions of Volume-I of specification will form part of this Order.

Yours faithfully,

CHIEF ENGINEER/ 400kV
(For and on behalf of TSTRANSCO)

Copy to be returned to TSTRANSCO by the Contractor duly signed on every page of this order in acknowledgement and acceptance of this order.

We accept the terms and conditions of this order.

SIGNATURE OF THE CONTRACTOR.

Copy to:

1. P.S. to Chairman & Managing Director /TSTRANSCO/VidyutSoudha/Hyderabad.
2. P.S to JMD (Finance, Comm & HRD)/TSTRANSCO/VidyutSoudha / Hyderabad.
3. DE(T) to Director (Projects & Grid Operation)/TSTRANSCO/VidyutSoudha/Hyd.
4. ADE (T) to Director (Lift Irrigation Schemes)/TSTRANSCO/VidyutSoudha/ Hyd.
5. FA&CCA(Accounts & CFO)/TSTRANSCO/Vidyut Soudha/Hyderabad.

6. Executive Director (Finance)/TSTRANSCO/VidyutSoudha/Hyderabad.
7. Chief Engineer/400kV/Warangal Zone /TSTRANSCO/Warangal.
8. Chief Engineer/400kV/Civil/TSTRANSCO/VidyutSoudha/Hyderabad.
9. Chief Engineer/ Telecom /TSTRANSCO/VidyutSoudha/ Hyderabad.
10. Chief Engineer/ Rural Zone / Hyderabad.
11. Superintending Engineer/400kV/Construction/Warangal.
12. Superintending Engineer/400kV/Construction/Rural/Hyderabad.
13. Superintending Engineer/Civil/TSTRANSCO/Warangal.
14. Superintending Engineer/Telecom/TSTRANSCO/Warangal.
15. Executive Engineer/400kV/Construction/Warangal.
16. Executive Engineer/400kV/Construction/Rural/Hyderabad.
17. Executive Engineer / Civil/ Construction Division/Warangal.
18. SAO/P&A/TSTRANSCO/VidyutSoudha/Hyderabad.

Appendix-A**Supply**

P.O.No. /OM-09/ CE / 400kV/ SE-I/D2-A3 / e-EHVT-02/2018, D.No. / 2018,Dt:- 08-2018.

1. The terms and conditions of the Bidding Documents for Insurance shall be complied with in total.
2. For the Supply of equipment and materials the final list of manufacturers / sub vendors shall be submitted, chosen from the list mentioned in the Bid. The final list of sub vendors will be as per the approved list of TSTRANSCO / Power Grid for their substations. The type test reports, technical particulars for all these equipment and materials shall be submitted by M/s.Megha Engineering & Infrastructures Ltd, and get the approval of TSTRANSCO before procurement action is initiated.
3. M/s.Megha Engineering & Infrastructures Ltd, will furnish the detailed programme in the form of Master Network for Supply to meet the completion Schedule as stipulated.
4. The TSTRANSCO has the option to reduce / increase the scope of supply as required for the final system requirement and as per approved design and drawings during the execution of the contract at the prices quoted.
5. All the equipment offered will be of type tested and in the absence of valid relevant type test reports, these type tests will be conducted at no extra cost to the TSTRANSCO.
6. Two copies of all the relevant Standards along with latest amendments, applicable for the equipment and material covered in the order shall be provided by the Contractor at free of cost to TSTRANSCO during Engineering.
7. All the design calculations, Drawings, Bill of materials, Cable Schedules etc. for the equipment & works covered in the scope of the contract shall be furnished to TSTRANSCO, in a soft copy also, at no extra cost during Engineering.
8. Any and all the other Technical Deviations and Commercial Deviations to the Bidding Documents in M/s.Megha Engineering & Infrastructures Ltd., Bid if any are deemed to have been withdrawn.
9. M/s.Megha Engineering & Infrastructures Ltd., shall take delivery of certain equipment and material allocated available elsewhere at TSTRANSCO stores / sites required for Sub-stations, Bays and Transmission Lines as directed by TSTRANSCO and in such cases transportation charges will be given as per SSR Rates and the Contractor has to transport such materials invariably.

Structures:

10. The structures are to be delivered at TSTRANSCO's stores/ 400kV, 220kV Substation /Site Stores.
11. Any wastage at site regarding bolts & nuts during erection stage in the switchyard shall be taken care of in the supply itself. 2 ½% extra bolts & nuts spring washers, flat washers and step bolts & nuts and balance materials should be handed over after erection of structures for future maintenance works.
12. The templates are painted only and should be returned to TSTRANSCO stores/ 400kV sub-station after completion of work if procured in the contract. The templates should be repainted after usage before handing over to stores.
13. The prices indicated in the schedule shall be inclusive of the cost of foundation bolts and base plates of various sizes wherever required as per the design. Hence no separate rate will be paid for.
14. Approved drawings for structure shall be adopted by the contractor. The quantities include structural requirement for bus arrangement & equipment erection.
15. Site handling includes transportation from stores to site & stores.

Earthing and Earth Mat:

16. The payment will be limited to actual quantities for the complete requirement of main earth mat as per the design requirements and standards specified in the bidding documents for the total area of 400kV Switchyard & 220kV Switchyards covered in the scope. Risers and equipment earthing for the equipment and structures covered in the scope shall be based on the approved drawing.
17. The installation cost includes charges for welding at the joints for earth mat and other locations of the earthing system and applying Bitumen compound.
18. Earthing of Power Cables as specified and Earthing of motors by 25 x 6 mm GS Flat shall be free of cost.

Bus Bar Materials:

19. The payment will be limited to actual quantities required as per the approved design drawings.
20. The cost of 4.5" IPS aluminum conductor /pipe includes cost of bending and welding etc. as required for erection of this conductor for equipment inter-connections.
21. Any other items not specifically quoted above shall also be provided at the free of cost to the TSTRANSCO to meet the system requirement.

Power and Control Cables:

22. The Contractor shall prepare complete power and control cable schedules for indoor and outdoor for the substation detailing the cable sizes, cable routing with route lengths, termination details without any extra cost and obtain approval for these schedules.
23. As required above, the contractor shall supply complete quantity of cable conduits etc., termination accessories, as per the system requirements including two sets of cable termination kits for each size of power cable at no extra cost.
24. The quantity of Cables to be supplied shall be as required duly considering the cables to be taken delivery from the stock of cables available with TSTRANSCO in other site/stores.

Indoor and Outdoor Illumination:

25. The payments will be based on actual quantities as per approved drawings.
26. Contractor shall design indoor and outdoor illumination as per specification for 400/220kV substation, Control House, Switchyard, Street lighting etc.
27. The prices are inclusive of supply of complete requirement of indoor / outdoor Junction Boxes, Conduits, Lighting wires, lugs, ferules etc., for completing Indoor and outdoor Lighting system for 400kV & 220kV Substation, Lines and Bays.

Fire Protection, Detection, & Alarm Systems:

28. The quantities are purely tentative. Contractor shall design the system as per the bidding documents and execute the same as per the approved drawings.
29. The payments will be based on actual quantities as per approved drawings. Price adjustment for the size / capacity of the items which are not indicated will be done as per the price for nearest lower size / capacity of the item of this schedule.
30. Any other item required for completion of the system as per bidding document is deemed to have been included in this schedule.
31. MS Pipe prices are for ERW pipes to API-5L GRB above 150NB and carbon steel pipe heavy class black for the pipes of 150NB and below as per IS: 3589 and IS: 1239 with anti-corrosion treatment.
32. 'Set' mentioned above include total number of equipment's to be covered therein including the standby equipment to meet the requirement as per specification in Bidding document.
33. Fire Protection, Detection & Alarm System shall be erected as per the Tariff Advisory Committee standards and regulations for getting maximum permissible rebates in fire insurance premium. The contractor shall obtain approval of the system by TAC also.

Air-Conditioning and Ventilation System:

34. The above quantities are purely tentative M/s.Megha Engineering & Infrastructures Ltd.,, all design the system as per the bidding document and execute the same as per the approved drawings.
35. The above prices are on lump sum basis and payments will be limited to the above for complete requirement of supply of the system as per the specification.
36. Any other item as considered necessary for completion of the system as per bidding document is deemed to have been included in this schedule.

Diesel Generator Set:

37. Within the Total Price it is deemed that all the other items which are not specifically mentioned but required are deemed to have been included for Supply, Civil, Erection, Testing and Commissioning as per the schedule of the DG set.
38. The prices are on lump sum basis and payments will be limited to the above for complete requirement of the system as per the specification requirement.
39. Any other item as considered by the Contractor for completion of the system as per bidding document is deemed to have been included in the above prices.
40. 'Set' mentioned include total number of equipments to be covered therein including the standby equipment as specified in the bidding documents.

Control House Furniture:

41. All the furniture items shall be of Godrej or other standard make as approved by TSTRANSCO.

Battery & Battery Charges, AC & DC DB, Control & Relay Panels:

44. The quantities mentioned in the price schedules are purely tentative. M/s.Megha Engineering & Infrastructures Ltd.,, shall design the system as per the bidding documents and execute the same as per the approved drawings.
45. Any other item as considered necessary for completion of the system as per bidding document is deemed to have been included in this price schedule.

CHIEF ENGINEER / 400KV

Annexure- I

P.O.No. / OM- 09/ CE / 400kV / SE-I/D2-A3 /e-EHVT-02/2018/

D.No: / 2018, Dt:- 08-2018.

Date of tender opening: 08.06.2018.

1.0 Price variation clause for Sub-Station Structures,Sub-station Earth Rod /Flat:

The Price Variation applicable in respect of Sub-Station Structures, 220kV Transmission lines and Earth Rod / Flat (in Earthing) shall be as per G.O. Ms. No. 94, Dt: 16.04.2008, the T.O.O. (CE - Construction) Ms. No. 50, dt.10-06-2008 and the T.O.O. (CE - Construction) Ms. No. 87, Dt : 29-07-2008, T.O.O. (CE – Construction-2) Ms. No. 242, Dt : 08-11-2012 subject to the following conditions:

- a) Price variation shall be applicable for both upward and downward variation in prices of respective items.
- b) The price adjustment for sub-station Structures, Earth Rod / Flat shall be as per absolute variation between the estimated rate and the rate approved by the TSTRANSCO based on the Govt. of TS orders.
- c) Basic Rate for Galvanized Structures, Earth Rod/Flat will be communicated every month. The adjustment scheme will be applied in all cases where the variation between the estimated rates and the approved rates (increase or decrease) is more than 5% for the month. Thus if the price excess is 10%, payment will be made only to the extent of 5% (10%-5%). Further, the same procedure should be also followed for Negative Price variation.
- d) For the purpose of Price adjustment where material is supplied within the scheduled delivery period, the date of delivery is the date on which the material is notified as being ready for inspection/ dispatch. (In the absence of such notification, the date of manufacturer' dispatch note shall be considered as the date of delivery) If the date of delivery is beyond the scheduled delivery period, the scheduled delivery date or the actual delivery date (Check measurement date as indicated in Form-13 date) whichever is advantageous to the Purchaser will form the basis for calculation of price variation. For the purpose of calculation of price variation, the prices of Sub-Station Structures, shall be taken as those prevailing on the first working day of the calendar month two months prior to the date of delivery and the prices of Earth Rod / Flat shall be taken as those prevailing on the first working day of the calendar month one month prior to the date of delivery.

For the time extension period due to department fault, the price variation is applicable (both +ve and -ve). For the time extension period due to contractor's fault, only -ve price variation is applicable. 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) The Basic rate of Substation Structures and Earth Rod/Flat (G.I/M.S) as taken in the estimate are as per Circular Reference: Lr.No. TST/CE(Trans)/SE(Const)/DE-2/F.Monthly Steel rates /D.No.2555/ 2017, Dt.12.10.2017 (Exclusive of all taxes) for the month of March-2017 as follows .

Sl. No.	Material	Month/Year March'2017.
1	Galvanized Transmission line towers per MT	Rs.68,238.00
2	Galvanized Substation structures per MT.	Rs. 63,630.00
3	M.S. Flat per MT	Rs. 33,333.00
4	GI Flat per MT	Rs. 52,643.00

The rates are inclusive of fabrication and galvanization charges, Excluding taxes and duties.

For Sub-station Structures Transmission line rates are considered and for Pipe Structures, Substation structure rates are considered.

- g) The total adjustment for structural steel and earth flat/Rod 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.

2.0 Price variation clause for Sub-station Equipment/ Material:

2.1 The Price Variation applicable in respect of Circuit Breaker, Instrument transformers, Surge Arresters, Transformers, Isolators and cables is subject to the following conditions:

- a) Price variation shall be applicable for both upward and downward variation in prices of respective items. Price variations for all equipments and cables have been updated with IEEMA.
- b) The prices are variable. Price variation will be calculated as per IEEMA formulas mentioned under clause 19.2.2 below.
- c) For the purpose of Price adjustment where material are supplied within the scheduled delivery period, the date of delivery is the date on which the material 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. If the date of delivery is beyond the scheduled delivery period, the scheduled delivery date or the actual delivery date (Check measurement date as indicated in Form – 13 date) whichever is advantageous to the TSTRANSCO will form the basis for calculation of price variation.
- 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) The total adjustment for Circuit Breaker, Instrument transformers, Surge Arresters, Isolators and cables 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.

- f) 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.
- g) IEEMA indices have been taken into consideration for arriving the base rates of all equipments, cables, etc.

2.2 PRICE VARIATION FORMULA APPLICABLE FOR CIRCUIT BREAKERS:

$$P = \frac{P_0}{100} \left\{ 19 + \frac{17 \times IS}{IS_0} + \frac{17 \times C}{C_0} + \frac{13 \times AL}{AL_0} + \frac{19 \times IN}{IN_0} + \frac{15 \times W}{W_0} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/accepted.

IS₀ = **109.60** Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)

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

C₀ = **4,73,602/-** Average LME settlement price of copper wire bars.

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

AL₀ = **2,37,800/-** Price of Busbar grade Aluminum.

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

IN₀ = **112.90/-** IEEMA Index for Insulator (Base: January 2003=100)

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

(refer circular No.59,Dt:23,2017)

W₀ = **287/-** All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 2001 = 100)

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

IS = Whole sale price index number for "Iron & Steel (Base : 1993-94=100)"

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

C = Average LME settlement price of copper wire bars

This price is as applicable for the month, three months prior to the date of delivery.

AL = Price of Busbar grade Aluminium

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

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

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

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

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

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/SWGR (R-2)/_/ _ prevailing as on first working day of the month, one month prior to the date of tender opening.

2.3 PRICE VARIATION FORMULA APPLICABLE FOR INSTRUMENT TRANSFORMERS(CT & CVT)

$$P = \frac{P_0}{100} \left\{ 18 + 13 \times \frac{C}{C_0} + 12 \times \frac{ES}{ES_0} + 12 \times \frac{IS}{IS_0} + 23 \times \frac{IM}{IM_0} + 6 \times \frac{TB}{TB_0} + 16 \times \frac{W}{W_0} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/ accepted.

C₀ = **4,73,602/-** Average LME settlement price of copper wire bars.

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

ES₀ = **2,00,711/-** C & F price of CRGO Electrical Steel Sheets

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

IS₀ = **109.60** Wholesale price index number for 'Iron & Steel' (Base: 1993-94=100)

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

IM₀ = **112.90** IEEMA index for Insulator. (Base : January 2003=100)

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

(refer circular No.59,Dt:23,2017)

TB₀ = **69,812/-** Price of Transformer Oil Base Stock.

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

Wo = **287/-**All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 1982=100)

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

C = Average LME settlement price of copper wire bars.

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

ES = C & F price of CRGO Electrical Steel Sheets

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

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

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

IM = IEEMA index for Insulator. (Base : January 2003=100)

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

TB = Price of Transformer Oil Base Stock.

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

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

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

The above index numbers are as published by IEEMA vide circular reference number IEEMA (PVC)/INST.TR./) / _ / _ prevailing as on first working day of the month, one month prior to the date of tender opening.

2.4 PRICE VARIATION FORMULA APPLICABLE FOR ZINC OXIDE GAPLESS LIGHTNING ARRESTER

$$P = \frac{P_0}{100} \left\{ 20 + 15 \times \frac{ZN}{ZNo} + 15 \times \frac{CO}{COo} + 10 \times \frac{BI}{Blo} + 10 \times \frac{BC}{BCo} + 10 \times \frac{FP}{FPo} + 15 \times \frac{W}{Wo} + 5 \times \frac{AL}{ALo} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/accepted.

ZN₀ = **2,37,800.00** Price of electrolytic high grade zinc.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

$CO_0 = 6,874.04$ Price of Cobalt.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

$BI_0 = 819.71$ Price of Bismuth.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

$BC_0 = 4,675/-$ Price of Ball Clay.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

$AL_0 = 1,77,269/-$ Price of Aluminium Ingots.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

$FP_0 = 98/-$ Whole scale price index number for fuel, power, Light & Lubricants.

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

$W_0 = 287/-$ All India Average Consumer Price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 1982 = 100)

This index number is as applicable for the month, three months prior to the date of tender opening.

$ZN =$ Price of electrolytic high grade zinc.

This price is as applicable for the first working day of the month, two months prior to the date of delivery.

$CO =$ Price of Cobalt.

This price is as applicable for the first working day of the month, two months prior to the date of delivery.

$BI =$ Price of Bismuth.

This price is as applicable for the first working day of the month, two months prior to the date of delivery.

$BC =$ Price of Ball Clay.

This price is as applicable for the first working day of the month, two months prior to the date of delivery.

$AL =$ Price of Aluminium Ingots.

This price is as applicable for the first working day of the month, two months prior to the date of delivery.

$FP =$ Whole scale price index number for fuel, power, Light & Lubricants.

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

$W =$ All India Average Consumer Price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 1982 = 100). This index number is as applicable for the month, four months prior to the date of delivery.

The above index numbers are as published by IEEMA vide circular reference number IEEMA (PVC)/ARSTR./) /_/_ prevailing as on first working day of the month, one month prior to the date of tender opening.

2.5 PRICE VARIATION FORMULA APPLICABLE FOR ISOLATORS:

i) Price Variation Calculation for Insulator Portion of Isolators :

$$P = \frac{P_0}{100} \left\{ 15 + 5 \times \frac{Z_n}{Z_{n0}} + 53 \times \frac{IN-INSLR}{IN_0-INSLR} + 27 \times \frac{W}{W_0} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/accepted.

ZN₀ = **2,37,800/-** Price of electrolytic high grade zinc.

This price is as applicable on the first working day of the month, one month prior to the date of tender opening.

IN₀-INSLR₀ = **112.90** Index number for Insulators based on relative prices and weightages (as given in brackets) of Wholesale price index number for Fuel, Power, Light and Lubricants (28), Wholesale price index number for Basic metals, Alloys, and Metal Products (15), Wholesale price index number for wood and wood products (6), and Ball Clay (4) calculated considering their values as on 1st January 2003 as base equal to 100.

This index number is as applicable on the first working day of the month, one month prior to the date of tender opening.(refer circular No.59,Dt:23,2017)

W₀= **287/-** All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 1982= 100)

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

ZN = Price of electrolytic high grade zinc.

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

IN₀-INSLR = Index number for Insulators based on relative prices and weightages (as given in brackets) of Wholesale price index number for Fuel, Power, Light and Lubricants (28), Wholesale price index number for Basic metals, Alloys, and Metal Products (15), Wholesale price index number for wood and wood products (6), and Ball Clay (4) calculated considering their values as on 1st January 2003 as base equal to 100.

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

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India. (Base 1982 = 100)
This index number is as applicable on the first working day of the month, four months prior to the date of delivery.

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

ii) Price Variation Calculation for Metallic Portion of Isolators :

$$P = \frac{P_0}{100} \left\{ 19 + 17 \times \frac{IS}{IS_0} + 17 \times \frac{C}{C_0} + 13 \times \frac{AL}{AL_0} + 19 \times \frac{IN}{IN_0} + 15 \times \frac{W}{W_0} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/accepted.

IS₀ = **109.60** Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)

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

C₀ = **4,73,602/-** Average LME settlement price of copper wire bars.

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

AL₀ = **2,37,800 /-** Price of Busbar grade Aluminium.

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

IN₀ = **112.90** IEEMA Index for Insulator (Base: January 2003=100)

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

W₀ = **287/-** All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt of India (Base 2001 = 100)

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

IS = Whole sale price index number for "Iron & Steel (Base : 1993-94=100)"

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

C = Average LME settlement price of copper wire bars

This price is as applicable for the month, three months prior to the date of delivery.

AL = Price of Busbar grade Aluminium

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

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

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

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

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

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/SWGR (R-2)/_/_ prevailing as on first working day of the month, one month prior to the date of tender opening.

2.6 - PRICE VARIATION FORMULA APPLICABLE FOR CABLES

i) For Aluminium conductor PVC Insulated Cables :

$$P = P_0 + AIF(AI - AI_0) + CCFAI(CC - CC_0) + FeF(Fe - Fe_0)$$

Wherein,

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

P₀ = Price quoted/accepted in Rs per Km

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

AI₀= **1,76,998/-**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 tender opening.

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

CC₀ = **1,32,500/-**Price of PVC Compound

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

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

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

CC = Price of PVC Compound

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

ii) For Steel Armoured PVC Insulated Copper Control Cables :

$$P = P_0 + CuF(Cu - Cu_0) + CCFCu(CC - CC_0) + FeF(Fe - Fe_0)$$

Wherein,

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

P₀ = Price quoted/accepted in Rs per Km

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

Cuo= **4,95,543/-** 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 tender opening.

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

CCo = **1,32,500/-** Price of PVC Compound

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

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

Feo = **76,500/-** 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 tender opening.

Cu = Price of CC copper rods

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

CC = Price of PVC Compound

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

Fe = Price of steel strips/steel wires

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

2.7 Price variation clause for Auto Transformer :

The Price variation formula applicable as per IEEMA circular No. IEEMA/ PVC/ POWER/2003(R-1), dt: 01.04.2015, communicated by IEEMA transformer division.

$$P = \frac{P_0}{100} \left\{ 10 + 29 \frac{C}{C_0} + 27 \frac{ES}{ES_0} + 7 \frac{IS}{IS_0} + 5 \frac{IM}{IM_0} + 7 \frac{TO}{TO_0} + 15 \frac{W}{W_0} \right\}$$

Where,

P = Price payable as adjusted in accordance with the above formula.

P₀ = Price quoted/confirmed

C₀ = **4,86,819/-** Average LME settlement price of copper wire bars (refer notes)

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

- ES_o = **2,36,130/-** Price of CRGO Electrical Steel Lamination (refer notes)
This price is as applicable on the 1st working day of the month, ONE month prior to the date of tendering.
- IS_o = **48,850/-** Average price of Steel Plates 10mm thick (refer notes)
This price is as applicable on the 1st working day of the month ONE month prior to the date of tendering.
- IM_o = **499.87** Price of Insulating Materials (refer notes)
This price is as applicable on the 1st working day of the month, ONE month prior to the date of tendering.
- TO_o = **89,998/-** Price of Transformer Oil (refer notes)
This price is as applicable on the 1st working day of the month, ONE month prior to the date of tendering.
- W_o = **287/-** All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001=100)
This price is as applicable on the 1st working day of the month, THREE months prior to the date of tendering.

The above prices and indices are as published by IEEMA vide circular reference number No. IEEMA/PVC/PWR_TRF_upto 400kV/2015/_/_ one month prior to the date of tendering.

- C = Average LME settlement price of Copper wire bars (refer notes)
This price is as applicable for the month, two months prior to the date of delivery.
- ES = C&F price of CRGO Electrical Steel Sheets (refer notes)
This price is as applicable on the 1st working day of the month, TWO months prior to the date of delivery.
- IS = Average price of Steel Plates 10mm thick (refer notes)
This price is as applicable on the 1st working day of the month ONE month prior to the date of delivery.
- IM = Price of Insulating Materials (refer notes)
This price is as applicable on the 1st working day of the month, TWO months prior to the date of delivery.
- TO = Price of Transformer Oil (refer notes)
This price is as applicable on the 1st working day of the month, one month prior to the date of delivery.
- W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base: 2001=100)

This index number is as applicable on the 1st working day of the month, THREE months prior to the date of delivery.

The above prices and indices are as published by IEEMA vide circular reference number no.IEEMA/PVC/PWR_TRF_upto 400kV/2015/_/_ one month prior to the date of delivery.

The “date of delivery “ shall be the date on which the Transformer 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 shall be earlier for calculation Price Variation applicable.

Irrespective of the increase in the prices of raw materials the price variance (increase) will be limited to a maximum of 50% over the original quoted price and no ceiling for negative variation.

The proportionate taxes and duties on such increase or decrease in the price is to the TSTRANSCO’s account, as per actual on production of the gate pass relating to the consignments for which price variation is claimed.

If the date of delivery as defined in the P.V. formula is beyond the contracted/ scheduled delivery date, the scheduled delivery date or the actual (Form-13) delivery date whichever is advantageous to the Purchaser will form the basis for calculation of price variation.

3.0 PRICE VARIATION CLAUSES FOR 400KV TRANSMISSION LINES ITEMS :

3.1 The Price Variation applicable in respect of the items Transmission towers including Bolts & Nuts, Moose ACSR Conductor and GSS earth wire is subject to the following conditions:

- (a) Price variation shall be applicable for both upward and downward variation in prices
- (b) The indices adopted for calculation of price variation shall be

For Transmission line towers including Bolts & Nuts	-	IEEMA
For ACSR Moose Conductor	-	CACMAI
For Earth wire	-	CACMAI
- (c) The price variation is limited to maximum of 50% over the Price quoted/accepted mentioned above (own manufactured / bought out items as the case maybe). However there is no ceiling for negative variation.
- (d) If the delivery of the material is within the scheduled delivery period, the Price variation applicable will be based on the actual delivery (the date on which Transmission line towers are notified as being ready for inspection / dispatch) for transmission towers and check measurement date as per Form-13 in case of conductor and earth wire.
- (e) In the case the TSTRANSCO advance the delivery, the price variation applicable will be based on the actual delivery (the date on which Transmission line towers

are notified as being ready for inspection / dispatch) for transmission towers and check measurement date as per Form-13 in case of conductor and earth wire.

- (f) If the date of delivery as defined in the P.V. formula is beyond the contracted delivery date, the contracted delivery date (the date on which Transmission line towers are notified as being ready for inspection / dispatch) for transmission towers and check measurement date as per Form-13 in case of conductor and earth wire whichever is advantageous to the TSTRANSCO will form the basis for calculation of price variation.
- (g) Notwithstanding the formula applicable for regulating the price variation, if at any time any documentary evidence 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) The proportionate taxes and duties on such increase or decrease in the price is to the TSTRANSCO's account, as per actual on production of the gate pass relating to the consignments for which price variation is claimed.
- (i) 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.
- (j) In specific cases for which the contractor is not responsible, extension of the agreement period may be given duly rescheduling the programme of *delivery* with the approval of competent authority. In all such cases, TSTRANSCO will consider application of Price variation clause case to case.

3.2 Applicable formula for calculating Price Variation for Transmission towers including Bolts & Nuts

Prices are variable. Price Variation will be calculated according to IEEMA formula as given below.

$$P = \frac{P_o}{100} \left\{ 11 + 32 \times \frac{SBLR}{SBLR_o} + 25 \times \frac{SBIR}{SBIR_o} + 09 \times \frac{Zn}{Zn_o} + 23 \times \frac{W}{W_o} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with the above formula.

Po = Price quoted/accepted

SBLRo = **42,744/-** Price of Steel Blooms Retail

This price is as applicable on the 1st working day of the month, One month prior to the date of tender opening.

SBIRo = **42,511/-** Price of Steel Billets Retail

This price is as applicable on the 1st working day of the month, One month prior to the date of tender opening.

Zno = **2,37,800/-** Price of Electrolytic high grade zinc

This price is as applicable on the 1st working day of the month, One month prior to the date of tender opening.

Wo = **287/-**-All India average consumer price index number for industrial workers, published by the Labour Bureau, Ministry of Labour, Govt of India (Base : 2001 = 100). This index number is as applicable on the first working day of the month, three months prior to the date of tender opening.

SBLR = Price of Steel Bloom Retail
This price is as applicable on the 1st working day of the month, Two months prior to the date of delivery.

SBIR = Price of Steel Billets Retail
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

Zn = Price of Electrolytic high grade zinc
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

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

The date of delivery is the date on which Transmission line towers are 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).

3.3. **PRICE VARIATION FOR ACSR MOOSE CONDUCTOR**

The price shall be based on and subject to adjustment due to variation in the following factors:

- i) E.C. Grade Aluminium(**Base : 2,11,825/-**): The ex-works cost of indigenous E.C. grade aluminium wire rod based on average price of M/s. Nalco, Balco, Hindalco, and Malco as given in CACMAI circulars prevailing as on 30 days prior to the Bid opening.
- ii) HTGS Wire:(**Base: 1,16,250/-**)The ex-works cost per MT of HTGS wire exclusive of duties and taxes prevailing as on 30 days prior to the Bid opening corresponding to 3.00 to 4.09 mm size, as given in CACMAI circulars prevailing as on 30 days prior to the Bid opening.
- 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 aluminium wire rod and HTGS wire the corresponding increase or decrease in price per KM of finished conductor allowable shall be as given below:

CONDUCTOR TYPE	Variation in Rs. Per Km of Conductor
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	For Aluminium	For HTGS wire 3.00 mm to 4.09 mm
MOOSE ACSR CONDUCTOR	1.467	0.537

$$P = P_0 + 1.467 * (A_1 - A_0) + 0.537 * (S_t - S_0)$$

- v) For the purpose of calculation of price variation, the prices of HTGS wire and EC grade aluminium 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.
- 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 the price variation calculations.
- viii) Irrespective of increase in the prices of raw materials, the price increase per kM of the conductor in the Price quoted / accepted will be limited to a maximum of 50% over the original Price quoted / accepted mentioned above (own manufactured / bought out items as the case maybe). However there is no ceiling for negative variation.
- ix) In case of conductors, where the supplier makes his own arrangements to get the Rod made out of Aluminium Ingots, the prices of Aluminium Rod as per CACMAI mentioned above will only be taken into consideration for arriving at the price variation claims irrespective of whatever expenditure the supplier might have incurred in getting the ingot converted into Rod.

3.4 PRICE VARIATION FOR GSS EARTHWIRE:

Prices are Variable :

- i) The formula for calculation of the price adjustment to be applied to the Price quoted / accepted component of Galvanised Steel Earth wire is as below:

$$EC_{EW1} = EC_{EW} [0.15 + 0.74 (A_1/A_0) + 0.11(L_1/L_0)] - EC_{EW}$$

Where,

EC_{EW1} = Price adjustment amount payable on Price quoted / accepted of Earth wire, shipment-wise.

EC_{EW} = Ex-works price for Earth wire, shipment-wise.

A = **1,16,250/-** Published price indices for high tensile steel galvanized wire, as published by CACMAI.

L = **288/289/-** All India consumer price index for industrial workers as published by Labour Bureau, Shimla (Govt. of India).

- a) Subscript '0' refers to indices as on thirty (30) days prior to date of opening of Bids, for materials & labour.

- b) Subscript '1' refers to indices as on 60 (sixty) days prior to the date of delivery, for materials & labour.
- ii) The Base and final prices/ indices shall correspond to same manufacturers as given in the CACMAI.
- iii) 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 the price variation calculations.
- iv) Irrespective of increase in the prices of raw materials, the price increase per KM of the conductor in the Price quoted / accepted will be limited to a maximum of 50% over the original Price quoted / accepted mentioned above(own manufactured / bought out items as the case maybe. However there is no ceiling for negative variation.

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