

By Regd. Post Ack. Due :**In duplicate :****NORTHERN POWER DISTRIBUTION COMPANY OF T.S. LIMITED**
CORPORATE OFFICE, WARANGAL-506 004.**(REPEAT PURCHASE ORDER)****Phones: 0870-2461507.****Ph : 9963254449.****Fax : 0870-2461519.****Fax: 040-23702046.****From**The Chief General Manager / P&MM,
2-5-31/2, 1st Floor, Vidyuth Bhavan,
T.S.N.P.D.C.L, Corporate Office,
Nakkalagutta, Hanamkonda,
Warangal – 506 001.**To**M/s. Transcon Industries
Survey No. 102 & 103,
Plot No. 11-13-173/15/15A/20/21,
Sifco Road, APIE, Balanagar,
Hyderabad – 500 037.**GSTIN No. 36AABCN2875L3Z1.**

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P.O.No.CGM/P&MM/NPDCL/Wgl./GM/DE-2/P3/RPM-5541/18, Dt.29-05-2018.

Dear Sir,

Sub :-P&MM - NPDCL - Wgl – Repeat Purchase Order for supply of
300 Nos. 3 Phase 63 KVA Aluminum Conductor Distribution
Transformers with BIS Energy Efficiency Level-2 (Star-1) – Issued
– Reg.**Ref :** 1. Tender specification No. OT-52/2017-18.
2. Lr.No.CGM/P&MM/NPDCL/Wgl/GM/DE-2/A3/PM-5319/17,
Dt.25-09-2017.
3. Office Note approved on Dt.26-05-18.**@ @ @**

- 1. Acceptance :-** I, acting for and on behalf of and by the order and direction of the TSNPDCL accept the rate for supply of 3 Phase 63 KVA Aluminum Conductor Distribution Transformers with BIS Energy Efficiency Level-2 (Star-1) with guaranteed losses as mentioned in “Schedule of Materials” as per the above cited correspondence subject to the following terms and conditions.
- 2. Prices :-** The prices noted below are in rupees free at destination stores (FADS) inclusive of Freight & Insurance, inclusive of SGST@9% & CGST@9%. The prices are variable as per IEEMA Formula/Tender Specification with base date as on 01-07-2017 (i.e., 1st working day of one month prior to date of tendering) with 30% ceiling on positive side and no ceiling on negative side.

Cost of CSP component is Rs. 3,000/- which is included in Ex-works and is a firm price.

For Aluminum Winding:

$$P = \frac{P_0}{100} \left\{ 10 + 19 \frac{AL}{AL_0} + 30 \frac{ES}{ES_0} + 13 \frac{FE}{FE_0} + 4 \frac{IM}{IM_0} + 11 \frac{TO}{TO_0} + 13 \frac{W}{W_0} \right\}$$

Any variation up or down taxes or other statutory levies, or new levies introduced after placing of the order, under this specification, shall be to the TSNPDCL's account, provided that, the delivery schedules are adhered to by the supplier. In case, if there are increase in tax or other statutory levies or new levies after the agreed delivery dates, the supplier shall bear the impact of these levies and if there is downward variation/revision TSNPDCL shall be given credit to that extent.

The unloading charges at destination stores shall be to TSNPDCL's account.

The price variation bills shall be claimed separately which will be paid after approval of the same by this office, and after payment of recoveries, if any, intimated by field officers. You shall claim only the prices as indicated in the Purchase Order in your regular bills.

3. Schedule of Materials:-

Sl. No.	Description	Qty. in Nos.	FADS Rate per Unit in		Amount	
			Rs.	Ps.	Rs.	Ps.
1	11KV/433 – 250V 63 KVA CSP oil immersed naturally cooled three phase, 50 Hz double wound, CRGO Core/Amorphous Core Aluminum Winding, outdoor type, BIS Energy Efficiency Level-2 Distribution Transformers top cover fixed with nut and bolt and neoprene continuous gasket arrangement generally conforming to IS-1180 (Part-I) : 2014 and IS-2026/1977 latest versions except where specified otherwise with first filling of oil generally as per IS-335/1983 (latest version) and as per specification. Guaranteed Maximum Losses Maximum Losses @ 50% – 340 W (Max) Maximum Losses @100% – 1140 W (Max)	300	Ex Works : 82,959.33 F&I : 600.00 SGST @ 9% : 7,520.34 CGST @ 9% : 7,520.34 Total Cost : 98,600.01			2,95,80,003.00
TOTAL						2,95,80,003.00
(Rupees Two Crores Ninety Five Lakhs Eighty Thousand and Three Only)						

- The Transformer shall be supplied with arcing Horns
- The drawings shall be submitted within 15 days of receipt of Purchase Order with all the particulars indicated in the list of fittings for according approval.
- THE ABOVE TRANSFORMERS ARE GUARANTEED FOR A PERIOD OF 5 YEARS FROM THE DATE OF SUPPLY.
- The transformers shall be supplied as per the Spec.No.OT-52/17-18.

4. Contract Form:-

The contract form in the prescribed proforma is here with enclosed and requested to execute the agreement on stamp paper worth of Rs. 100/- duly signing and submit the same in token of acceptance of P.O condition in Toto after receipt of P.O with in one week

5. **Delivery :-** The supplies shall be made as follows :

Date	Quantity in Nos.
10.07.2018	50
10.08.2018	70
10.09.2018	80
10.10.2018	100
Total	300

- However you may advance the supplies to meet the urgent requirements of TSNPDCL's works.
- Delay in delivery of materials free at destination stores due to non availability of transport facility and such any reasons will not be considered. It is the responsibility of the supplier to make alternate arrangements for transporting the materials, so as to see the Material reaches the destination within the stipulated period.

- c). The Company shall have the right to vary the delivery schedule mentioned in the Purchase Order due to any operational exigencies at any time during the execution of the order by the supplier after due notice.
- d). Unloading of the materials at destination stores shall be TSNPDCL's responsibility and any expenditure incurred for unloading is to TSNPDCL's account only.

6. Performance Security:- Performance Security to the extent of 10% of the Contract Value shall be furnished for the proper fulfillment of the Contract within 15 days of receipt of Purchase Order, which will include the Warranty Period and completion of Performance and Warranty obligations. The Performance Security will cover a period of six months over and above the period of Performance Guarantee against defective supplies etc.

The Performance Security will be,

- 1) A Bank Guarantee in the prescribed proforma issued by a Scheduled Bank acceptable to the Purchaser.

(OR)

- 2) A Banker's Cheque or Crossed Demand Draft or Pay Order payable at the Head Quarter of the Purchaser.

7. PAYMENT : 100% Payment would be made through cheque on or after 30 days from the date of delivery of materials at the destination stores in good condition duly certified by the consignee (i.e., from the date of issue of Form-13) or after approval of Test Certificates or after submission of bills in full shape whichever is later, subject to furnishing of Performance Security to the extent of 10% of the Contract Value.

NOTE:

- i). The date of delivery would be the date on which the stores officer signs the Form-13 acknowledging receipt of materials at stores and certified the receipt of goods in good condition.
The following documents of title to goods shall be sent by the supplier to the paying officers concerned.
 - a. Detailed packing list.
 - b. Detailed Invoice.
 - c. Test Certificate approval letter.
 - d. Form - 13

With regard to segmenting the equipment i.e., equipment which requires several accessories before it is fully operational and which have been ordered as such the date of receipt will be the date on which the last such accessory is received at the Stores.

- a. The TSNPDCL may at its option get the material inspected by the third party if it feels necessary and all inspection charges in this connection shall be borne by supplier.
- b. The bills of exchange along with the certified receipt of goods and the following documents of title to goods shall be sent by the supplier or his Bankers to the Paying Officer concerned who will accept to release the same.

- ii). You shall furnish the 100% routine Test Certificates for the equipment being offered for inspection along with your offer and got approved by this office before the bills become due for payment, failing which the payment against the bills would be stopped.
- iii). One additional copy of the each delivery challan, Form-13, Invoice, packing list and Test Certificates shall be sent to CGM/P&MM/NPDCL, Warangal , immediately after delivery at destination stores.
- iv). The performance guarantee to be executed in accordance with this Purchase Order shall be furnished on stamp paper of value of Rs.100/-. The bank guarantee shall be extended suitably in case the equipment/ materials found defective within guarantee period. The defective portion/ whole of the equipment/ materials so replaced or renewed should get satisfactory performance till the expiry of 12 months from the date of such replacement/ renewal or until the end of guarantee period whichever is be later.
- v). If you have received any over payments by mistake or if any amounts are due to the TSNPDCL due to any other reason when it is not possible to recover such amounts under the contract resulting out of this specification, the TSNPDCL reserves the right to collect same from any other amounts and or bank guarantees given by you due to or with the TSNPDCL.
- vi). When you do not at any time, fulfill your obligation in replacing/ rectifying etc., of the damaged/ defective materials/ equipment in part or whole promptly to the satisfaction of the T.S.NPDCL officers, the TSNPDCL reserves the right not to accept the materials/ equipment against subsequent dispatches made by the supplier and only the supplier will be responsible for any demurrages, wharfages or damage occurring to the consignment dispatched.

8. DESIGN & CONSTRUCTION : CORE

- 8.1. CRGO Material:** (a) The core shall be Stack/wound generally of M4 or high grade cold rolled grain oriented annealed steel lamination having low loss and good grain properties, coated with hot oil proof insulation, bolted together and to the frames firmly to prevent vibration or noise. All core clamping bolts shall be effectively insulated. The complete design of core must ensure permanency of the core losses with continuous working of the transformers.
- b) The transformer core shall be suitable for over fluxing due to combined effect of voltage and frequency upto 12.5% without injurious heating at full load conditions and shall not get saturated. The bidder shall furnish necessary design data in support of this situation.
- c) **Flux density should not be more than 1.55 Tesla for CRGO core** .No load current shall not exceed **2%** of full load current and will be measured by energizing the transformer at 433 volts 50 c/s on the secondary. Increase of voltage of 433 volts by 12.5% shall not increase the no load current disproportionately high and shall not exceed i.e., 6%. Test for magnetic balance by connecting the LV phase by phase to rated phase voltage and measurement of an, bn, cn voltage will be carried out.
- d) Core clamping:

- i. MS Channel of 75 x 40 mm min. size shall be used on top and bottom (for stacked core transformers).
 - ii. 2 x 12 mm high tensile bolts to be used in parallel at each end.
 - iii. Channel on LV side to be reinforced at equidistance, if holes/cutting is done for LT lead in order to avoid bending of channel.
 - iv. MS channel shall be painted with varnish or oil-resistant paint.
- e) Tie-rods : 4 Nos. of M12 dia HT steel rods shall be effectively insulated.
- f) i) All top and bottom yoke nuts & bolts and tie rods shall be painted with oil and corrosion-resistant paint before use.
- ii) Core base and bottom yoke shall be supported with 75 x 40 mm MS channel (for stacked, CRGO wound and amorphous core transformers) with proper bolting/welding. Flat or cut channels will not be accepted.
- iii) Only prime quality CRGO sheets should be used in the transformers and no Second/Defective/Scrap CRGO finds way into transformers. Therefore regarding quality control following documents are to be furnished along with bid documents.

NOTE : Equal Weightage shall be given to the transformers with Amorphous metal core and CRGO.

The bidder should offer the core for inspection and approval by the purchaser during manufacturing stage. Bidder shall give note for inspection with the following documents as applicable as a proof of towards use of prime core material.

1. Invoices of supplier
 2. Mill's test certificate
 3. Packing list.
 4. Bill of landing
 5. Bill of entry certificate by custom
 6. Description of material, electrical analysis, Physical inspection, certificate for surface defects, thickness and width of the material.
- Subjecting to at least 10% of the transformers to routine tests and no load and load loss measurement
- It is note that, using seconds /defective CRGO sheets or Load losses found to be more than stipulated limit ,heavy penalty will be imposed or the suppliers will be black listed.

8.2. WINDINGS :

Material : Double paper covered insulated electrolytic Aluminium conductor.

- a) Current density for HV and LV should not be more than 1.6 A/sq.mm for Alluminium wound transformers.
- b) All delta leads from the HT Coils as well as HT line leads should be taken out through DPC covered copper wires of sufficient cross sectional area, to impart the desired strength. The current density in HV lead wires shall not exceed 0.8 A/ Sq.mm.
- c) L.V winding shall be in even layers so that neutral formation will be at top.
- d) Vertical ducts and spacers shall be provided within each coil for HV & LV windings. Dovetail spacers shall be used in between HV coils and they shall be fixed to vertical ducts which are provided between HV & LV.
- e) Wedges of 3 mm shall be provided at 50% of the HV coil and LV coils in all types of transformers.
- f) The no. of HV coil for HV winding is four numbers for stacked core and one for wound core /amorphous core transformers.

- g) Proper binding of inter layer insulation with the conductors shall be ensured. Test for binding strength conducted.
- h) Dimensions of winding coils are very critical. Dimension tolerance for winding coils shall be within limits (+1% and no negative tolerance).
- i) Inter layer insulation shall be *Epoxy dotted paper. Minimum 2 Nos. of 2 mil Epoxy Dotted papers are to be used for interlayer insulation in HV & LV winding.*
- j) Formation of Delta on HV side shall be with 13 SWG super enameled copper wire with multi layered (not less than 13 layers) paper insulation.
- k) Necessary resin bonded paper insulation tubes or backlite bits may be used through. This shall be done with ferrules and crimping.
- l) The star point shall be done with aluminum ferrules for aluminum windings and copper ferrules for copper winding and crimping.
- m) The Un-balanced current i.e., current flowing in neutral during Short Circuit test at full load current shall not be more than 2% of the full load current.
- n) All the sleeves used in construction shall be fiber glass material
- o) No tapping shall be provided upto 63 KVA.

9. TANK :

- 9.1. The transformer tank shall be of robust construction rectangular in shape and shall be built up of tested MS sheets of the following thickness and no negative tolerance is allowed (No radiators allowed)
- i) Side walls (min) : 3.15 mm thickness.
 - ii) Top and bottom plates (min) : 5 mm thickness.
 - iii) Bottom plates (Min.) : 5 mm thickness.
- 9.2. The internal clearance of tank shall be such that, it shall facilitate easy lifting of core with coils from the tank without dismantling LV bushings. The four walls of the tank shall be made of TWO "L" shaped sheets (without joints) fully welded at the corners from inside and outside of the tank. Two sides corner shall be welded for withstanding a pressure of 1Kg/Sq.cm for 10 minutes.
- All the tank plates shall be of such strength that the complete transformer with oil and fittings can be lifted bodily by means of lifting lugs provided. The top cover of the tank shall be bent 'L' shape four sides to avoid entry of water through cracks of gasket.
- 9.3. All joints of tank and fittings shall be oil tight and no bulging should occur during service. The tank design shall be such that the core and windings can be lifted freely. The tank plate shall be of such strength that the complete transformer when filled with oil may be lifted bodily by means of lifting lugs provided. Inside of tank shall be painted with *hot oil proof paint*.
- 9.4. Manufacturer should carry out all welding operations as per the relevant ASME standards and submit a copy of the welding procedure qualifications and welder performance qualification certificate to the customer.
- 9.5. The tank shall be reinforced by welded angle (40x40x5 mm) on all the outside wall on the edge of the tank to form two equal compartments. Permanent deflection when the tank without oil is subject to a vacuum of 760 mm of mercury shall not be more than 5 mm up to 750 mm length and 6 mm up to 11000 mm length. The tank shall further be capable of withstanding a pressure of 1.0 kg/sq.cm (g) and a vacuum of 0.3 kg/sq.cm (g) without any deformation.

- 9.6 Pressure test will be conducted by the inspecting officer on a transformer vent pipe against each lot offered for inspection. The diaphragm should burst at a pressure between 0.76Kg./Sq.mm to 0.95Kg./Sq.mm. For any operational failure of vent pipe and consequent damaged to the tank an addition to insisting for free replacement of the tank, the TSNPDCL may at its option, recover an estimated loss sustained by it from the manufacturer.
- 9.7 The transformer tank top cover shall be fixed with M12/M10 bolts (hot dip galvanized) spaced not more than 100 between each bolt. Four M12/M10 anti theft SS bolts (fasteners) shall be fixed with provision to put seals (2 mm hole on tail side) and four corner bolt-nuts shall be welded to prevent opening of the cover at site by miscreants and suitable continuous neoprene gasket (Rectangular) to avoid leakage of Nitrogen/dry air and all the fittings including bushings in position shall be tested for leakage at a pressure of 0.7Kg./Sq.cm inside the tank for 10 minutes. The above test shall be carried out before final sealing of the transformers.
- 9.8. Heat dissipation by tank walls up to oil level should be limited to 500 W/sq.m (excluding top and bottom) cooling tube limited to (300) W/Sq.m. The cooling tubes shall not be provided underneath the LV bushing to avoid puncturing of the tubes due to falling down of LV lead on them. Heat Dissipation calculation shall be furnished with respect to the maximum 100% load losses specified to the corresponding.
- 9.9. Lifting Lugs : 4 Nos. welded heavy duty lifting lugs of MS plate 8 mm thick suitably reinforced by vertical supporting flat welded edgewise below the lug on the side wall.
- 9.10. Top cover shall be fixed with 6 mm continuous Neoprene gaskets (Rectangular) without any joint conforming to IS: 4352 Part-II will be placed between tank and cover. The bolts outside tank shall have 2 flat washers & one spring washer.
- 9.11. The size of the tank shall be such that sufficient space is available for the oil to expand at extreme conditions. The volume of the free space above oil level shall not be less than 55% of the volume of the oil.

All transformers shall be capable of giving their continuous rated output without exceeding the specified temperature rise.

- 9.12. Top Cover:** The transformer tank top cover shall be fixed with M12/M10 bolts (hot dip galvanized) spaced not more than 100 mm between each bolt. Four M12 anti theft SS bolts (fasteners) shall be fixed with provision to put seals (2 mm hole on tail side) and Anti theft fasteners to prevent opening of the cover at site by miscreants. Suitable continuous neoprene gasket (Rectangular) to avoid leakage of Nitrogen/dry air and all the fittings including bushings in position shall be tested for leakage at a pressure of 0.7Kg./Sq.cm inside the tank for 10 minutes. The above test shall be carried out before final sealing of the transformers.

- 9.13. FITTINGS :** The following standard fittings shall be provided.

- a) Rating and terminal marking plates non detachable -1No.
- b) Earthing terminals with bolt, nuts & washers for connecting earth wire - 2Nos.
- c) Lifting lugs – 2 Nos. for main tank and 2Nos. for top cover
- d) Bimetallic terminal connectors on the HV/LV bushings – 7 Nos.

- e) U shaped Pressure relief vent pipe of 2' dia with 0.0025 mm diaphragm on the tope of the top cover for breaking at a pressure of 0.76 to 0.95 Kg/cm² such that the pressure released should be directed to the ground and other end of the vent pipe shall be guarded with suitable mesh against entering of worm and resting.
- f) HV bushings – 3 Nos.
- g) LV bushings – 4 Nos.
- h) Stiffener angle 40x40x5 mm (and vertical strip of 50x6 mm flat if required).
- i) Cooling tubes – No. & lengths may be mentioned (as per heat dissipation calculations)..
- j) Base channels 75 x 40 mm.
- k) LV epoxy bushings – 4 Nos.
- l) Internally oil flow screwing fixing arrangement of die cast oil gauge indicating three positions of oil marked as minimum and maximum.
- m) Tank and over all dimensions.
- n) Weight content of a) core b) windings c) tank & fittings d) weight/qty. of oil e) over all weight.

10. CHALLENGE TESTING: “The other manufacture can also request challenge testing for any test based on specification and losses. The challenger would request for testing with testing fee. The challenge test fees are proposed at least three times the cost of testing. This is likely to deter unnecessary challenges. The challenger would have the opportunity to select the sample from the store and any such challenge should be made within the guarantee period. The party challenged, and the utility could witness the challenged testing.

11. BUSHINGS :

- 11.1 The bushings shall conform to the relevant standards specified and shall be outdoor. The bushing rods and nuts shall be made of brass material 12 mm diameter for both HT & LT. The bushings shall be fixed to the transformers on sides with straight pockets and in the same plane. The tests as per IS:2099/1962 shall be conducted on the transformer bushings as detailed below.
 - i) Dry flashover voltage.
 - ii) Wet flashover voltage.
 - iii) Dry 1 min. withstand voltage.
 - iv) Wet 1 min. withstand voltage.
 - v) Impulse withstand voltage (1.2/50 micro sec. Positive wave).
- 11.2 For 11 KV, 17.5 kV class bushings shall be used and for 0.433 KV, 1.0 KV class bushings shall be used. Bushings of plain sheds as per IS: 3347 shall be mounted on the side of the tank and not on top cover.
- 11.3 Dimensions of the bushings of the voltage class shall conform to the standards specified.
- 11.4 A minimum phase to phase clearance of 75 mm for LV (up to 1.0 kV Bushing) and 255 mm for HV (3.3 kV and above) bushings shall be obtained with the bushing mounted on the transformer.
- 11.5 The bushings shall be fixed on sides with pockets in the same plane. Arcing horns shall not be provided and instead brass caps shall be provided.

- 11.6 Brazing of all inter connections, jumpers from winding to bushing shall have cross section larger than the winding conductor. For Aluminium standard make Aluminium Brazing rods shall be used.
- 11.7 In the case of LV bushing, the internal bushing shall be made of tough insulating material like epoxy and shall have embedded stem and a strong coupling connection (screwed) properly secured shall be used between stem of the internal and external bushings. The bushing shall be LV bushing pocket such that in case of active part to be lifted the LV epoxy and porcelain bushes need not be removed.
- 11.8 The LV bushings shall be so located that even under the hottest conditions the level of the transformer oil shall be below the opening meant for fixing the LV bushings. The LV jumpers and bushing material shall be selected and designed for this condition.
- 11.9 The design of the internal bushing for LV shall be such as to provide adequate earth clearance and creepage distance as stipulated in the standards specified. All other tests as per relevant standards shall be applicable.
- 11.10 The bushings shall be of reputed make supplied by the those manufacturers who are having manufacturing and testing facilities for manufacture of HT insulators.
- 11.11 The terminal arrangement shall not require a separate oil chamber not connected to oil in the main tank. The LV & HV bushing rods shall be made of brass of dia 12 mm as IS 3347.
- 11.12 The LV bushing and HV bushing stems shall be provided with suitable terminal connectors so as to connect the jumper without disturbing the bushing stem. High voltage phase windings shall be marked both in the terminal boards inside the tank and on the outside with capital letters 1U, 1V, 1W and low voltage winding for the same phase marked by corresponding small letters 2u, 2v, 2w. The neutral point terminal shall be indicated by the letter 2n.
- 11.13 The vector diagram plate shall clearly indicate the method adopted for marking the terminals both outside and interior.

12. Terminal connectors:

The LV bushing and HV busing stems shall be provided with suitable terminal connectors so as to connect the jumper without disturbing the bushing stem. Connectors shall be of (Bimetallic Connectors) so as to receive 55 sq.mm. conductor for HV Terminal connectors must have type tested as per IS:5561

12.1. Rating Plates :

The rating plates on the transformer containing the information specified in clause 15.2 of IS : 2026-1977 (Part-i). 50% & 100% load losses of the transformer should also be mentioned on the rating plate.

12.2. Arcing Horns:

Arcing Horns are to be provided as per relevant standard, one number per phase shall be fitted under the HV bushings with GI earth strip 25x4 mm connected to the body of the transformer with necessary clamping arrangement shall be provided

- 13. Despatch :-** Please arrange to supply the materials specified herein and dispatch them by goods train/ lorry freight prepaid to the persons and destination Stores which will be issued/intimated to you separately.

14. Acknowledgement :- The Transport receipt should be sent to the persons noted against each item and should be accompanied by two copies of the invoice/ challan, one of which will be returned to you direct in token of acknowledgement of receipt of the goods. A copy of the invoice shall be sent to this office as soon as dispatch is made.

15. Loss or damages :

- a). You are responsible for the safe delivery of the goods in good condition at destination stores. You should acquaint yourself of the conditions obtaining for handling and transport of the goods to destination and shall include and provide for security and protective packing of the goods so as to avoid damage in transit.
- b). External damages or shortages that are prima facie the results of rough handling in transit or due to defective packing will be intimated within a fortnight of the receipt of the materials. Internal defects, damages or shortages of any internal parts which cannot ordinarily be detected on superficial visual examination though due to bad handling in transit or defective packing would be intimated within 2 months from the date of receipt of these articles. In either case, the damaged or defective materials should be replaced by you free of cost to the TSNPDCL.
- c). If no steps are taken within 15 days of receipt of intimation of defects or such other reasonable time as the TSNPDCL may deem proper to afford, the TSNPDCL may without prejudice to its other rights and remedies cause to be repaired or rectified the defective materials or replace the same and recover the expenditure incurred there for from the deposits such as Earnest Money, Security Deposit and Performance or other monies available with the TSNPDCL or by resorting to legal action and also decline to accept further delivery of materials/equipment.
- d). Where the Plant / Machinery or other materials supplied by you is found defective in whole or in part WITHIN THE GUARANTEE PERIOD, you will be intimated of the same. You should take immediate steps to rectify the defect or to replace the defective materials free of cost within 30 days from the date of receipt of the intimation.
- e). The defective portions or whole of the equipment so replaced or renewed should give satisfactory performance till the expiration of 6 months (six) from the date of such replacement or until the end of guarantee period whichever is later.
- f). For the purpose of any legal construction, the materials shall be deemed to pass into TSNPDCL's ownership only, at the destination Stores where they are delivered and accepted.
- g). The TSNPDCL reserves the right, apart from the above said provisions, not to accept further despatches of materials and the connected bills etc. under conditions of your continued negligence to rectify repair or replace any equipment or materials supplied earlier and received in damaged condition or failed during the guarantee period or not conforming to the Purchase Order/ specification conditions.

16. Guarantee :-

- i). The Conventional Transformers have been guaranteed by you for satisfactory operation for a period of 5 Years from the date of supply. The 5 Years guarantee shall be embossed on a separate metal sheet, painted prominently and welded to the Transformer tank below the Name Plate.
- ii). For strict implementation of this Clause you may note :

- a). On failure of a Transformer, a telegraphic intimation will be given to you and the Transformer will be shifted to SPM Centre. You should either rectify the Transformer or replace it with a good Transformer within 30 days of intimation.
- b). Please note that you shall rectify or replace the defective materials within 30 days of receipt of intimation of defects failing which payment to the extent of failed units will be deducted from the subsequent bills/ bank guarantees.
- c). If the Transformer is repaired or replaced beyond 3 months of date of telegraphic intimation to you, you should note that the 5 Year guarantee period will be extended by the number of days by which 90 days are exceeded from the date of telegraphic intimation of failure to you.
- d). In case the Transformer is repaired or replaced by you after 180 days of date of telegraphic intimation you should note that 5 Year Guarantee will be counted from the date from which the transformer is replaced and commissioned successfully by us.
- e). The TSNPDCL shall get the Transformer repaired at your cost, in case if you fail to repair in 30 days from the date of intimation.

17. Defective Supplies :- If, during the guarantee period, any of the materials/goods are found to be defective in materials or workmanship, they shall be replaced by you free of cost.

18. Penalty for Late Delivery :-

- i). **General :** The delivery of materials/ Equipment as per the agreed schedule of delivery is the essence of the contract.
- ii). In case of delay in delivery of materials/ Equipment at destination for whatever be the reason, the TSNPDCL may at its option demand and recover from you an amount equivalent to half percent (1/2%) of the value of the materials not delivered within the prescribed time limit for every week of delay or part there of, subject to a max. of 5% of **total ex-works value**. This right of the TSNPDCL, shall be without prejudice to its right under the law including the right to cancel the contract, forfeit the deposit and or recover damages for breach of contract.

The date of receipt of materials/ Equipment at the destination stores in good condition will be taken as the date of delivery.

- iii). Materials/ Equipment which are not of acceptable quality or not conforming to specification would be deemed to be not delivered.
- iv). In case of supplier who has not adhered to the delivery schedule TSNPDCL reserves the right to Purchase the balance quantity from the open market and recover the extra expenditure thus incurred from the supplier. This is in addition to the rights of the TSNPDCL mentioned in the first para of this clause.

19. Force Majeure :- You shall not be liable for any liquidated damages for delay or for failure to perform the contract for reasons of Force Majeure such as acts of God, acts of Public enemy, acts of Govt., fires, floods, epidemics, Quarantine restrictions, strikes, lockouts, riots freight embargoes and provided that you shall within ten (10) days from the beginning of such delay notify the TSNPDCL in writing of the cause of delay, the TSNPDCL shall verify the facts and grant such extension as facts justify. No price variation shall be allowed during the period of Force Majeure and penalty would not be levied for this period.

- 20. Extension of Time:** If the completion of supplies is delayed due to reason beyond the control of the supplier, the supplier shall without delay give notice to the Purchaser in writing of his claim for an extension of time. The Purchaser on receipt of such notice may agree to extend the contracted delivery to such date as may be reasonable but without prejudice to other terms and conditions of contract.
- 21. Drawings and Manuals:** The drawings in (6) sets shall be got approved by this office before taking up the manufacture of the equipment.
1. Completely dimensioned drawings indicating general outline arrangements showing plan, elevation and end view, list of fittings, clearances and Winding details.
 2. Drawings of internal constructional details such as Core Coil assembly and Coils, Tank dimensions, weights of main component parts, positions of internal fittings, clearances between the leads within the transformer, core area, grade of laminations, distance of core centers, area of conductor bare and with insulation, No. of coils, No. of turns per coils, material of bushing metals etc.
 3. Name & Rating plate details and schematic drawing.
 4. Heat dissipation calculations shall be furnished along with the drawings.
 5. Makers Type Test Reports of L.T. Circuit Breakers shall be furnished along with the Drawings.

A detailed operational and maintenance manual with each unit shall be supplied @ 2 copies by you for our consignees.

22. Inspection :-

- a). Our accredited representative shall have access to your or manufacturer works, at any time during working hours for the purpose of inspecting the materials during manufacturing of the plant and equipment and for the testing and may select test samples from the material going into plant and equipment.
- b). You shall provide facilities for testing such samples at any time. As soon as the materials are ready you shall duly advise the TSNPDCL 15 days well in advance, enabling us to arrange for deputation of our representative and carryout the tests for any characteristics as specified in the Guaranteed Technical Particulars, before the representative of the TSNPDCL. The dispatches should be effected only if the test results comply with the specification stipulated in the order. The dispatches shall be made only after the inspection by the TSNPDCL's Officers is completed to the TSNPDCL's satisfaction or such inspection is waived by this office.

You shall offer the inspector representing the purchaser all reasonable facilities, without charges, to satisfy him that the material is being supplied, in accordance with the ISS/Specification.

- c). 10% of the offered quantity for inspection will be inspected at the premises of the supplier by the accredited representative of TSNPDCL for conducting routine & acceptance tests and no-load/ load loss measurements.

The Supplier shall furnish the following documents as proof of purchase of Core, Transformer Oil, Copper/Aluminium winding and other important materials along with each inspection offer for ensuring quality control :

- a) Invoice of the supplier.
- b) Mill's Test Certificate.
- c) Packing List.
- d) Bill of landing.
- e) Bill of entry certificate by Custom.
- f) Description of material, electrical analysis, physical inspection, certificate of surface defects, thickness and width of material wherever applicable.

Only prime quality CRGO Core should be used in the Transformers and no second/ Defective/ Scrap CRGO Core finds way into the Transformers.

It is to note that, using seconds/ defective/ scrap CRGO Sheets or No-Load/ Load losses found to be more than the stipulated limit, heavy penalty will be imposed or Suppliers will Blacklisted or both at the discretion of NPDCL.

- d). The NPDCL may at its option get the materials inspected by the third party against any one lot offered for inspection for conducting acceptance tests along with a TSNPDCL's representative if it feels necessary and all inspection charges in this connection shall be borne by the Supplier.
- e). The NPDCL reserves the right to insist for witnessing the acceptance/ routine testing of the bought out items.

23. Test Certificates:-

- a). The latest certificates containing the results of the tests as per IS-2026/1977 (or Latest issue) must be submitted to the Chief General Manager, (P&MM), TSNPDCL, Warangal and got approved by him before sending bills for payment which will not be paid unless these are approved (vide Clause-7).
- b). Heat run test- One unit of the ordered quantity of each rating.
- c). Functional test on Over-load Protection System to check the function of Over-load Protection System at full load current and at 20% overload current (or as per approved GTP).
- d). The tank shall be subjected to Air Pressure test and Vacuum test as per relevant IS/ Specification before the inspecting officer on One Unit against each lot offered for inspection and the test results shall be furnished.
- e). TSNPDCL shall have all rights to conduct type tests at its own cost by an independent agency on a transformer either in service or from stores at its discretion. In the event of failure of transformer in such tests, the expenses incurred in testing shall be to the suppliers account. The failed unit will not be accepted for supply to TSNPDCL even after repairs.
- f). If the similar transformer is tested for impulse & short circuit tests previously, copy of the same may be furnished. Otherwise impulse & short circuit tests shall be carried out on one unit free of cost without affecting the contractual delivery schedule.
- g). Proof of Purchase of CRGO/Amorphous Core, Transformer oil and Copper Winding Wire must be furnished along with each inspection offer.

24. Guarantee and Penalty for Exceeding the Losses :

- a). The no-load losses in Watts at the rated voltage and rated frequency and the total losses in Watts at rated full load current and rated frequency at 75 Deg. C shall be guaranteed under penalty for each transformer. For the purpose of penalty computations, all the transformers offered for inspection shall be tested for evolution of no load and full load losses and the test figures of the no load and the load losses will be compared with the corresponding guaranteed figures mentioned in Guaranteed Technical particulars as per Annexure – I enclosed.

- b). The penalties shall be separately evaluated at the rates indicated below in sub para (c) From:
- i). The excess of test figures of the no-load loss in Watts over the corresponding guaranteed value and
 - ii). The excess of the test figures of the load losses in Watts over the corresponding guaranteed value.
 - iii). The penalty amount will be recovered from any one of the bill amount against the lot offered for inspection. For the purpose of price variation, the penalty amount will be deducted from the cost of transformers, whose losses have exceeded the guaranteed value, price variation will be admitted on an average basis for all these Transformers which exceed the guaranteed losses.
- c). The penalties shall be calculated at double the rate of Rs.2,17,515-00 per KW for the excess of no-load loss and at double the rate of Rs.28,772-00 per KW for the excess of load losses, if the test figures of the losses are less than guaranteed values no bonus is allowed.
- d). The TSNPDCL reserves the right to test any one transformer from any one lot offered for inspection/supplied in any recognized laboratory of national repute for the purpose of testing the no-load and load losses. These tests shall be conducted in presence of TSNPDCL's representative. The entire expenses for conducting these tests including transportation shall be borne by you and the results obtained shall be considered and applicable in the lot offered inspection/supplied, from which the transformer was selected for testing.
- e). In case during testing as explained in (d) above, the test figures obtained are found to be more than the guaranteed figures, TSNPDCL besides levying penalty as explained in (c) above, to the above lot of transformers, reserves the right for repetitions of these tests on any other Transformer selected from subsequent lots offered/ supplied at your cost.
- f). Should any inspected or tested transformer fail to confirm to the specifications, the TSNPDCL may reject them and in that eventuality you shall either replace the rejected transformers (or) make all necessary alterations to meet the specification requirements free of cost to TSNPDCL. In such case, the Item (c) related to penalties shall not be operated.
- g). The TSNPDCL reserves the right to reject any transformer, if during tests at supplier/s works, the tested no load losses and total losses exceeds the corresponding maximum guaranteed losses.
- 25. Guaranteed Technical Particulars :** The technical particulars as per Annexure-I have been guaranteed by you for the supplies against this order.
- 26. Despatch Instructions :** All the materials detailed in Clause-3 must be consigned and despatched as per despatch instructions to be issued after inspection and the bills sent to as follows :

Sl. No.	To be sent to the TSNPDCL's Stores at	Materials to be consigned and despatched to ADE/Dist.Stores/ NPDCL	Paying Officer to whom bills & RR to be sent to Accounts Officer/ Expr.,O/o.SE/OP.
1	Warangal	Warangal	Warangal
2	Karimnagar	Karimnagar	Karimnagar
3	Khammam	Khammam	Khammam
4	Nizamabad	Nizamabad	Nizamabad
5	Nirmal	Nirmal	Adilabad

- 27. Packing :-** i). The packing may be in accordance with the manufacturer's standard practice unless otherwise specified. You should however ensure that the packing is such that the equipment reach the departmental stores without damages after transport by Road. The packing should withstand unloading and inter stores transfer with reasonable care.
- ii). Whenever you despatch materials to consignee. You should prepare the following information in the form of packing slip in quadruplicate and send the same to the consignee and obtain his acknowledgement on the same. The consignee will return to you one copy of the packing slip with his remarks. The proforma of the packing slip shall be as follows :

PACKING SLIP

1. Purchase Order No. and Date.
 2. Qty. allotted to the stores and rate applicable.
 3. Qty. so far supplied to the stores and rate applied.
 4. Qty. now supplied and rate applied.
 5. Total qty. supplied under the Purchase Order with rates applied.
 6. Programme for supplying the balance quantity to the stores.
- iii). You shall invariably send to the Purchasing Officer a copy of the delivery challan whenever materials are despatched.

28. Note :- It may be noted that

- a). The prices cited are 'Variable' and are as per Clause (2) above.
- b). The ownership of the materials would rest with you till they are all received at destination in good condition.
- c). Freight charges shall be prepaid.
- d). The materials may be duly insured at your cost as per specification.
- f). **Interchangeability** : All similar materials and removable parts of similar equipment shall be interchangeable with each other.
- g). **Name Plate** : The equipment shall be marked with your trade mark, Sl.No. and the year of Manufacture, capacity and other details as specified in the relevant ISS or other specification stipulated. The Purchase Order No. & date and Year of supply and the words "TSNPDCL" must be etched on the Name Plate. 50% full load / 100% load losses to be furnished on the name plate.

29. General:-

- i). Your bills in duplicate along with a duplicate copy of invoice and sub standing vouchers for all extra claims to be made separately should be forwarded to the paying officers mentioned in the dispatch instructions.
- ii). All general and technical correspondence should be addressed to the Chief General Manager/P&MM/NPDCL/Warangal.
- iii). All correspondence regarding bills, payments etc., should be addressed to the Paying Officers, cited in despatch instructions with a copy to the Pay Officer, TSNPDCL, Warangal.

- iv). All and any disputes or differences arising out of or touching this order shall be decided by courts or tribunals situated in Warangal/Hanamkonda cities. No suit or other legal proceedings shall be instituted elsewhere.
- v). Unless otherwise, specified, you shall abide by all the terms and conditions specified in the Specifications No.OT-52/17-18.
- vii). Please return within a period of 15 days one copy of the Purchase Order duly signed in token of acceptance of all terms and conditions of this order.

Yours faithfully,
Sd/-
(B. ASHOK KUMAR)
CHIEF GENERAL MANAGER,
P&MM/NPDCL/WARANGAL.

We accept all the terms and Conditions of this order.

SIGNATURE OF THE CONTRACTOR

Copy Communicated to :-

The Chief General Manager/ Finance./NPDCL/Warangal.

The Chief General Manager/O&M/NPDCL/Warangal.

The Chief General Manager/P&MM/CPDCL/4th Floor, Corporate Office,
Mint Compound, Hyderabad – 500 004.

Copy to:-

All The Superintending Engineer/Operation/TSNPDCL/Warangal

All The Divisional Engineer/Transformers/ TSNPDCL/ Warangal

All The Accounts Officer/Expr. O/o. SE/Opn./ Warangal.

All The Asst. Divisional Engineer/Stores/ Warangal.

The Divisional Engineer/IT/TSNPDCL/Warangal :

(Place the Scanned Purchase Order copy in the TSNPDCL Website).

// FORWARDED BY ORDER//

Divisional Engineer/P&MM-2
TSNPDCL/Warangal.

CONTRACT FORM

THIS AGREEMENT made the. day of. 200 Between.(Name of Purchaser) of the one part and.(Name of Supplier) of the other part:

WHEREAS the Purchaser invited bids for certain Materials / equipment and ancillary services viz., (Brief description of Materials / equipment and Services) and has accepted a bid by the Supplier for the supply of those Materials / equipment and services in the sum of(Contract Price in Words and Figures) (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions will have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents will be deemed to form and be read and construed as part of this Agreement, viz.:

- (a) the Bid Form and the Price Schedule submitted by the Bidder;
- (b) the Schedule of Requirements;
- (c) the Technical Specifications;
- (d) the General Conditions of Contract;
- (e) the Purchaser's Notification of Award.

3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Materials / equipment and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Materials / equipment and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the Materials / equipment and services which will be supplied/ provided by the Supplier are as under:

	Brief Description of Materials/Equipment & services	Quantity to be supplied	Unit Price Rs.	Total Price Rs.	Delivery Terms

TOTAL VALUE: (Rupees _____ only)

DELIVERY SCHEDULE:

IN WITNESS whereof the parties hereto have caused this Agreement to be executed on the day and year first above written.

Signed, Sealed and Delivered by the

said.(for the Purchaser)

in the presence of.

Signed, Sealed and Delivered by the

said.(for the Supplier)

in the presence of.

NOTE: To be executed on a Rs.100/- Non-judicial stamp paper.

Sd./-
(B. ASHOK KUMAR)
CHIEF GENERAL MANAGER,
P&MM/NPDCL/WARANGAL.