

SI No	Description & Required Quantity
10	<p>TECHNICAL SPECIFICATIONS OF 12000KVA STARTING DUTY AUTO TRANSFORMER</p> <p>REQUIRED QUANTITY = 1 NOS</p> <p>A. GENERAL:</p> <ol style="list-style-type: none"> 1. Applicable Indian Standard: IS: 2026 - 1977 with latest amendments. 2. Service duty : Starting duty Auto Transformer 3. Installation : Outdoor 4. Make: NGEF, Crompton Greaves, Alstom, Bharat Bijlee. <p>B. SITE CONDITION:</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a) Maximum Ambient air temperature: 40 ° C b) Minimum Ambient air temperature: 6.0 ° C 2. Maximum humidity at site (at 40 ° C): 98 % 3. Surrounding atmospheric condition : Humid 4. Site altitude : 120mtr 5. Seismic design co-efficient : As per IS: 1983 6. Rainfall : High. <p>C. RATING AND GENERAL DATA:</p> <ol style="list-style-type: none"> 1. Short time KVA Rating: 12000KVA. 2. No. of phases: 3. 3. Frequency: 50HZ ± 3 % 4. Type: Oil - immersed (mineral oil as per IS: 335/1963) 5. Type of cooling: ONAN 6. Installation: Outdoor 7. Vector group: YNaO 8. Rated no load voltage

a) Primary: 11000

b) Secondary: 7150-6600-6050

9. Amperes Short time

a) Primary: 630

b) Secondary: 969-1050-1145

10. Temperature rise over ambient 40° C

a) In oil : 45° C

b) In winding by resistance : 55° C

11. This transformer should be designed for starting duty of 5000HP, 11KV, 3 phase, squirrel cage induction motor. Short time rating is for one minute. Maximum permissible starts are 3 nos. per hour, starting from cold including 2 consecutive starts.

12. Only one secondary voltage tap will be used at one time. Winding terminals 1U2, 1V2, 1W2 brought out to a separate cable box to form star point will be made through 11KV breaker by OIL.

13. TERMINAL ARRANGEMENT:

11000 Volt winding line end : Cable box with bushings.

Star Point end : Cable box with bushings.

7150 Volt end : Cable box with bushings.

6600 Volt end : Cable box with bushings.

6050 Volt end : Cable box with bushings.

14. BUSHING:

Suitable for site condition mention in Para- B & conforming to IS: 2099.

15. CABLE BOX:

a) Each cable box should be suitable for termination of 1 no. 3 C, 240sq. mm XLPE, armoured, stranded copper conductor cable with heat shrink type cable termination. Bottom plate should be detachable. Cable Boxes (Outdoor type) as per IP55. Suitable bushings are required for supporting the cable connection.

b) Terminals should be marked as per IS: 2026 - 1977.

16. TRANSFORMER CORE

a)Material: High-grade cold rolled grain oriented Silicon steel.

b)Structure: Sharp corners avoided.

c)Lamination: Treated & coated with suitable insulations.

17. TRANSFORMER WINDING:

a) Permanent joints : Welded /brazed.

b) Threaded connection : Provided with locking devices.

c) Drying : Circulating air oven and vacuum impregnated.

18. LIST OF FITTINGS AND ACCESSORIES:

a)Bushings inside 11000 Volt winding line end - cable box : 3 nos.

b) Bushings inside Star Point end- cable box : 3 nos.

c) Bushings inside 7150 Volt end - cable box : 3 nos.

d) Bushings inside 6600 Volt end- cable box : 3 nos.

e) Bushings inside 6050 Volt end- cable box : 3 nos.

d) Lifting lugs. - 04 nos.

e) Earthing terminals - 2 nos.

f) Jacking lugs.

g) Base channels with bi-directional rollers.

h) Conservator with oil filling hole cap and drain plug. Oil level indicator with minimum and maximum marking should be fitted in the conservator.

i) Any other accessories which bidders think essential & required as per IS should also be included.

j) All the bushings must be suitable for 11000volts.

19. RATING PLATE

Should be as per IS: 2026 -1977 and following additional informations should be given in addition to standard informations.

a) This transformer is designed for starting duty of 5000HP, 11KV, 3 phase, squirrel cage induction motor. Short time rating is for one minute. Maximum permissible starts are 3 nos. per hour, starting from cold including 2 consecutive starts.

b) Only one secondary voltage tap should be used at one time. Winding terminals 1U2, 1V2, 1W2 brought out to a separate cable box to form star point will be made through 11KV breaker by customer.

c) Name of Customer: OIL INDIA LIMITED

d) P.O. Order No. _____ dated _____.

D. GENERAL TERMS AND CONDITIONS FOR TRANSFORMER

1. Party should furnish all relevant technical particulars as mentioned in Appendix #B of IS: 2026 #1977, Part-I along with the offer. Offer should also cover all points mentioned above under headings A, B & C.

2. Bidder should mention the no load losses, load losses & efficiency at 50% & 75% and 100% load (0.8 pf) on transformer with the offer.

3. This Auto Transformer (outdoor type) will replace the existing 12000KVA Auto Transformer (outdoor type) and will be placed in the same foundation without any modification of the foundation.

4. Size of foundation: (length) 1610 mm X (breadth) 1000 mm X (height) 300mm. Bidder should confirm the same along with the offer. Bidder may visit OIL's LPG Recovery Plant for exact requirement at their own cost.

5. Bidder should submit with offer the list of customers to whom transformers of similar rating & type (as per NIT) have been sold during last five years.

6. Routine and type test certificate for similar transformer should be furnished along with the offer.

7. Dimensional / drawing of similar transformer including cable box (both HV and LV), etc. should be furnished along with the offer.

8. Confirmation to guarantee clause as per point no. 17 should be mentioned in the offer.

9. Offer must be complete with technical catalogue/ literature and drawings giving details as required by NIT.

10. Materials should be procured either from manufacturer or their authorized dealers only.

11. Dealers must submit valid authorized dealership certificate along with the offer, otherwise offer will not be considered for evaluation.

12. Dealers should submit with offer an undertaking from the transformer manufacturer that in the event of an order on the party the transformer manufacturer will supply the transformer through the party as per specifications of the tender and order.

13. In case of an order the party should get the detail transformer drawings approved from OIL within one month of placement of order. The manufacture of the transformer should start only after approval of drawings by OIL.

14. The transformer should be offered for pre-dispatch inspection and all routine tests as per IS: 2026 should be carried out in presence of OIL engineer.

15. Four sets of manufacture's routine test certificates should be provided to OIL's

	<p>engineer after inspection.</p> <p>16. Four sets of instruction manuals for commissioning, operation and maintenance and four copies of guarantee certificate are to be supplied with transformer.</p> <p>17. The transformer should be guaranteed for trouble free operation for a period of 18 months from the date of supply or 12 months from the date of commissioning.</p> <p>18. Transformer should be dispatched filled with transformer oil to the required level so that the winding does not absorb moisture. Remaining oil should be sent to site with 20% extra oil in M.S. drum as per relevant IS.</p> <p>19. Dissolve Gas Analysis and Tan Delta testing must be carried out at manufacturer's premises in presence of OIL's Engineer and relevant test certificate must be submitted along with the supply of transformer.</p> <p>20. Packing should be adequate to avoid transit damage and ingress of water.</p>
20	<p>TECHNICAL SPECIFICATIONS OF 1000KVA CAST RESIN DRY TYPE TRANSFORMER</p> <p>REQUIRED QUANTITY = 2 NOS</p> <p>1000KVA, 11kV/415V, 3 Phase, 50 Hz, double winding, copper conductor, Dry type, Cast Resin Insulated, natural air cooled distribution transformer for indoor use & as per following data sheet:</p> <p>A. GENERAL:</p> <ol style="list-style-type: none"> 1. Applicable Indian Standard: IS: 11171 with latest amendments. 2. Service duty : Continuous. 3. Installation : Indoor. 4. Auxiliary power supply : 240V AC \pm 10 % 5. Control Voltage : 240V AC \pm 10 % 6. Make: NGEF, Crompton Greaves, Alstom, Bharat Bijlee (as per OIL's standardized item list no. 25). <p>B. SITE CONDITION:</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a) Maximum Ambient air temperature: 40 ° C b) Minimum Ambient air temperature: 6.0 ° C 2. Maximum humidity at site (at 40 ° C): 98 % 3. Surrounding atmospheric condition : Humid 4. Site altitude : 120mtr 5. Seismic design co-efficient : As per IS : 1983

6. Rainfall : 250cm annually.

C. RATING AND GENERAL DATA:

1. Rating: 1000KVA continuously rated.
2. No. of phases: 3.
3. Frequency: 50 ± 3 %
4. Type of Insulation: Cast Resin winding, Class-F. Temp. rise-90 ° C
5. Partial discharge: As per IS-11171, IS-6209.
6. Type of cooling: AN
7. Installation: Indoor
8. Vector group: Dyn 11
9. Percentage impedance: Below 5%. Tolerance as per IS-2026.
10. Nominal voltage ratio: 11kV/415V.
11. Type of neutral earthing : Directly grounded Neutral.
12. Symmetric short circuit withstand capacity: As per IS-11171.
13. Rated short duration power frequency withstand voltage: As per IS 11171.
14. Rated lightning impulse withstand voltage: As per IS 11171 (List-2).

15. TAP CHANGER:

Type : OFF Circuit.

Total tapping range : ± 5.0 %

Tapping steps : In steps of 2.5 %.

16 TERMINAL ARRANGEMENT:

HV winding line end : Cable box with bushings.

LV winding line end : Cable box with bushings.

One LV Neutral bushing inside the cable box and one (additional) outside the cable box.

17. BUSHING:

Made from non hygroscopic epoxy resin cast material suitable for site condition mention in para- B & confirming to IS-2099.

18. CABLE BOX:

a) HV cable box should be suitable for termination of 1 no. 3 C, 240sq. mm XLPE, armoured, stranded copper conductor cable with heat shrink type cable termination. Bottom plate should be detachable. Cable Box as per IP-54. Suitable non hygroscopic bushings are required for supporting the cable connection. Looking from the front, HV cable box should be on the right hand side of the transformer.

b) LV cable box should have brought out electro-tinned copper busbars of suitable rating & size for termination of 6 nos. of 3 ½ C x 225 sq. mm PVCA Aluminium cable. The busbar should have suitable holes (two nos. for each cable lug as lug with double hole will be used for termination) and provided with hardwares for termination of cables. The cable box should have detachable cable gland plate fitted with suitable heavy duty single compression cable glands for the cables mentioned above. Support for busbar in LV cable box should be made from FRP/SMC non hygroscopic material. Cable Box as per IP-54. Supports should be able to withstand the short circuit stresses. Looking from the front, LV cable box should be on the left hand side of the transformer.

c) Terminals should be marked as per IS: 2026 #1977.

19. TRANSFORMER CORE:

a) Material: High grade cold rolled grain oriented silicon steel for very low iron loss.

b) Structure: Grounded and sharp corners avoided.

c) Lamination: Treated and coated with suitable insulations. The core limbs & yokes are banded by means of resiglass tape to reduce vibration & noise.

20. TRANSFORMER WINDING:

The winding material should be high conductivity electrolytic grade copper. The insulation should be Cast Resin type, Class-F. Conductor should have thermally upgraded paper (Nomex) insulation reinforced with fibreglass. The coil assembly is to be impregnated & cast under vacuum with epoxy resin for achieving non-hygroscopic, acid & alkali resistant insulation. The complete winding should have smooth cylindrical finish after impregnation to ensure high mechanical strength. The thickness of resin should be uniform. The insulation should be self- extinguishing type.

Joints in the winding should be as under.

a) Permanent joints : Welded/ brazed.

b) Bolted connection : Provided with locking devices.

21. ENCLOSURE:

The core & winding assembly should be housed inside a sheet steel enclosure with removable inspection & tap changer covers. The enclosure should offer IP-23 protection as

per IS-2147 & should have suitably designed louvres for circulation of cooling air. All the gaskets should be of neoprene rubber. Enclosure should be powder coated with DA Grey paint after surface treatment for corrosion protection. All openings in enclosure should be guarded with suitable screen to guard against entry of rodents and reptiles.

22. LIST OF FITTINGS AND ACCESSORIES:

a) HV bushings - Inside HV cable box: 3 nos.

b) LV bushings - Inside LV cable box: 4 nos.

Outside LV cable box: 1 no. for neutral earthing.

c) Winding temperature scanner connected with three nos. RTDs, one each for each LV winding, should be provided in a metallic enclosure that is mounted on the main enclosure. The scanner should provide indication, alarm & trip contacts. Winding temperature indicator should show maximum temperature attained. The RTDs should be properly wired upto the scanner terminals. Suitable hole with gland is required for control cable connecting scanner alarm/ trip contacts to HT Breaker.

d) Lifting lugs.

e) Earthing terminals - 2 nos.

f) Jacking lugs.

g) Inspection cover

h) Base channels with bi-directional rollers.

i) Any other accessories which bidders think essential & required as per IS may also be included.

23. RATING PLATE

Should be as per IS: 11171 and following additional informations should be given in addition to standard informations.

a) Name of Customer: OIL INDIA LIMITED

b) P.O. Order No. _____ dated _____.

D. GENERAL TERMS AND CONDITIONS FOR TRANSFORMER

1. Party should furnish all relevant technical particulars as mentioned in Appendix #B of IS: 2026 #1977, Part-I along with the offer. Offer should also cover all points mentioned above under headings A, B & C.

2. These Transformers (indoor type) will replace the existing 1000KVA Transformers (indoor type) and will be placed in the same foundations without any modification of the foundations. Size of foundation: (length) 1360mm X (breadth) 700 mm X (height) 300mm. Bidder should confirm the same along with the offer. Bidder may visit OIL's LPG Recovery

Plant for exact requirement at their own cost.

3. These transformers must be suitable for parallel operation. Due to unavoidable circumstances if one no. 1000KVA dry type transformer is not commissioned then one dry type and one existing 1000KVA oil type transformer shall be made parallel for some time. Detail specifications of the existing transformers are as per ANNEXURE - A.

4. Bidder should mention the no load losses, load losses & efficiency at 50%, 75% and 100% load (0.8 pf) on transformer with the offer.

5. The transformer will be housed inside a room with brick walls on two sides & XPM sheet wall on the other two sides.

6. Bidder should submit with offer the list of customers to whom transformers of similar rating & type (as per NIT) have been sold during last five years.

7. Routine and type test certificate for similar transformer should be furnished along with the offer.

8. Dimensional / drawing of similar transformer including cable box (both HV and LV), Marshalling box, etc. should be furnished along with the offer.

9. Confirmation to guarantee clause as per point no. 14 should be mentioned in the offer.

10. Offer must be complete with technical catalogue/ literature and drawings giving details as required by NIT.

11. Materials should be procured either from manufacturer or their authorized dealers only.

12. Dealers must submit valid authorized dealership certificate along with the offer, otherwise offer will not be considered for evaluation.

13. Dealers should submit with offer an undertaking from the transformer manufacturer that in the event of an order on the party the transformer manufacturer will supply the transformer through the party as per specifications of the tender and order.

14. In case of an order the party should get the detail transformer drawings approved from OIL within one month of placement of order. The manufacture of the transformer should start only after approval of drawings by OIL.

15. The transformer will be offered for pre-dispatch inspection and all routine tests as per IS: 11171 will be carried out in presence of OIL engineer.

16. Four sets of manufacture's routine test certificates as mentioned in point no. 11 above should be provided to OIL's engineer after inspection.

17. Four sets of instruction manuals for commissioning, operation and maintenance and four copies of guarantee certificate are to be supplied with transformer.

18. The transformer should be guaranteed for trouble free operation for a period of 18 months from the date of supply or 12 months from the date of commissioning.

19. Packing should be adequate to avoid transit damage and ingress of water.

30	<p>INSTALLATION, EARTHING, TESTING AND COMMISSIONING OF 12000KVA AUTO TRANSFORMER - 01 NO.</p> <p>A. INSTALLATION</p> <ol style="list-style-type: none"> 1. Entire installation, testing and commissioning work including supply of all items, materials, tools, instruments, manpower etc required for the job shall be carried out by the party. OIL will not supply any item as mentioned under various headings in this annexure. 2. All equipment shall have to be delivered to substation site of LPG Recovery Plant in Duliajan and placed accordingly by the party. The party will arrange for proper storage of all equipment at its premises after receipt from the factory and before transfer to site. The storage will be done as per recommendation of manufacturer. Any damage to the equipment during transportation from factory to party's godown, storage at party's godown and during transfer to Duliajan and placement inside the substation will be to party's account and the party will have to carryout necessary repair or replacement to OIL's satisfaction at their own cost. All tools, vehicles, manpower and any other facility required for storage, transfer & placement of equipment in the substation will be arranged by the party at their own cost. The delivery to site from the party's storage location & placement has to be completed during daytime only. OIL WILL PROVIDE CRANE FACILITY FOR LOADING, UNLOADING, DISMANTLING AND PLACING OF THE TRANSFORMER AT OIL'S LPG RECOVERY PLANT ONLY. 3. Party shall have to remove the existing 1no. 12000KVA transformer from the existing foundation after removal of the existing HT cables. Removal of HT cables shall also include de-compounding of the HT cable boxes. 4. Party shall have to place the new 1 no. 12000KVA transformer in the existing foundation without any modification of the foundation. Party may visit OIL's LPG Recovery Plant for exact size requirement at their own cost. 5. Connection of all cables in the transformer terminal boxes shall be under the scope of the party. 6. The size of the existing foundation : (length) 1610 mm X (breadth) 1000 mm X (height) 300mm 7. The transformer will be checked for any defect / discrepancies in presence of OIL's engineer and rectification of the same will be done to OIL's satisfaction by the party at their own cost. 8. After placement in the existing foundation the equipment will be grouted to the floor by the party. Wheels of the transformer shall be locked in its final installed position. <p>B. EARTHING:</p> <ol style="list-style-type: none"> 1. All material required for earthing job as mentioned below shall be supplied and installed by the party. 2. GI straps of 50x6mm size shall have to be provided for earthing of the transformers to the existing earth electrodes. Earthing connections should be as per IS-3043. 3. Any excavation required for erection/replacement of the earth strips shall be under
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the scope of the party.

C. COMMISSIONING OF TRANSFORMER

1. External earth of the transformer should be properly connected to two nos. of earth electrodes as per detail mentioned under EARTHING.
2. Commissioning of the transformer should be carried as per manufacturer's recommendations and by competent Engineer of OEM.
3. Additional transformer oil filling should be done as per manufacturer's recommendations. Only oil filtering machine will be provided by OIL.
4. All damaged or defective components must be replaced by the party at their own cost with suitable replacement from the manufacturer.
5. The transformer will be energized in the presence of OIL's engineer after clearance from OIL.
6. All the pre-commissioning tests like IR values, no load current, full load current, dielectric test etc shall have to be carried out by the party in presence of OIL Engineer at site.

D. GENERAL NOTES FOR INSTALLATION, TESTING AND COMMISSIONING.

1. Party should submit an undertaking with their offer confirming compliance to all point mentioned in the headings A, B, C of this annexure.
2. All works of installation shall be carried out in complete with latest IS, IE rules and National Electric Code.
3. All works of installation, testing and commissioning shall be performed by persons having valid electrical license under the direct supervision of a competent service personnel of the party having a minimum experience of at least 5 years in installation and commissioning of HT transformers and possessing appropriate license valid for operating in ASSAM. Expert services are required from manufacturer of transformer at site for installation and commissioning.
4. Copy of license of all the persons engaged for installation and commissioning work has to be submitted to OIL for approval before start of work.
5. All tests/ checks shall be done in presence of OIL's Engineer-in- Charge or his representative.
6. The supplier should obtain the permit to work from Engineer - in- Charge of respective Installation Managers before taking up work, if any.
7. The party shall be responsible for safe custody and proper storage of materials till handing over.
8. All tools and instruments and equipment required for installation, testing and commissioning shall be arranged/ provided by the party.
9. All safety and local/government regulations shall be followed during installation, testing and commissioning. Party shall be responsible for compliance to such regulations on

	<p>their own.</p> <p>10. All tests results shall be recorded in a proper manner. Four sets of all the test results and checks for all the equipment as required shall be submitted to OIL. The results shall be typed and properly documented.</p> <p>11. The transformer will be kept energised and observed for any abnormal heating, noise, vibration for next 72 hrs.</p> <p>12. After successful operation with power ON for 72hrs the transformer will be technically acceptable to OIL.</p> <p>13. All equipment shall be treated as successfully commissioned after installation, testing and commissioning as mentioned under para nos. A,B,C,D and technically accepted to OIL and submission of four sets of test results signed by licensed supervisor, corrected wiring diagram in bound form and all the documents mentioned against each equipment in the respective equipment description.</p> <p>14. Installation and commissioning of the Transformer will be carried out during next annual overhauling of LPG Recovery plant in the month of April/May, 2010(tentatively). Party will be informed 15 days ahead of annual overhauling; they shall have to mobilize manpower and other related materials within that period only.</p>
40	<p>INSTALLATION, EARTHING, TESTING AND COMMISSIONING OF 1000KVA TRANSFORMERS - 02 NOS</p> <p>A. INSTALLATION</p> <p>1. Entire installation, testing and commissioning work including supply of all items, materials, tools, instruments, manpower etc required for the job shall be carried out by the party. OIL will not supply any item other that LT cables as mentioned under various headings in this annexure.</p> <p>2. All equipment shall have to be delivered to substation site of LPG Recovery Plant in Duliajan and placed inside the substation by the party. The party will arrange for proper storage of all equipment at its premises after receipt from the factory and before transfer to site. The storage will be done as per recommendation of manufacturer. Any damage to the equipment during transportation from factory to party's godown, storage at party's godown and during transfer to Duliajan and placement inside the substation will be to party's account and the party will have to carryout necessary repair or replacement to OIL's satisfaction at their own cost. All tools, vehicles, manpower and any other facility required for storage, transfer & placement of equipment inside the substation will be arranged by the party at their own cost. The delivery to site from the party's storage location & placement inside the room has to be completed during daytime only. OIL WILL PROVIDE CRANE FACILITY FOR LOADING, UNLOADING, DISMANTLING AND PLACING OF THE TRANSFORMERS AT OIL'S LPG RECOVERY PLANT ONLY.</p> <p>3. Party shall have to remove the existing 2 nos. of 1000KVA transformers from the existing foundation after removal of the existing HT/LT cables. Removal of HT cables shall also include de-compounding of the HT cable boxes.</p> <p>4. Party shall have to place the new 2 nos of 1000KVA transformers in the existing foundations without any modification of the foundations inside the substation. Party may visit OIL's LPG Recovery Plant at Duliajan for exact size requirement.</p>

5. Connection of HT and LT cables to transformer primary and secondary shall be under the scope of the party. Lugs and nut bolts etc. required for connecting LT cables shall have to be provided by the party.

6. The size of the existing foundation : (length)1360mm X (breadth)700 mm X (height) 300mm

7. The transformers will be checked for any defect / discrepancies in presence of OIL's engineer and rectification of the same will be done to OIL's satisfaction by the party at their own cost.

8. After placement inside the substation the equipment will be grouted to the floor by the party. Wheels of the transformer shall be locked in its final installed position.

B. EARTHING:

1. All material required for earthing job as mentioned below shall be supplied and installed by the party.

2. GI straps of 50x6mm size shall have to be provided for earthing of the transformers to the existing earth electrodes. Earthing connections should be as per IS-3043.

3. Any excavation required for erection/replacement of the earth strips shall be under the scope of the party.

C. COMMISSIONING OF TRANSFORMER

The following commissioning checks will be done on the transformer by the party.

1. Party shall have to commission the transformers one after another.

2. External earth and neutral point of the transformer should be properly connected to two nos. of earth electrodes as per detail mentioned under EARTHING. Neutral shall have to be grounded by 2 nos. single core, 120sqmm PVC insulated cable(party shall have to provide the cable)

3. Remove inspection covers, check for any foreign object, clean the interior with dry cloth or blower as required, check all the connections for specified tightness, check all the insulating supports for any damage, set tap links as per site requirement and fix-back the inspection cover.

4. Check insulation resistance and PI of HV (5.0kv megger) and LV (1.0kv megger) windings. Their values should be as per manufacturer's recommendation. In case the transformer insulation needs drying up the same is to be done by the party as per manufacturer's recommendation and to OIL's satisfaction at their own cost.

5. Check resistance of RTDs for three windings, their connections in the marshalling box.

6. All damaged or defective components must be replaced by the party at their own cost with suitable replacement from the manufacturer.

7. In case the result of checks mentioned above are as per manufacture's pre-commissioning check list and acceptable to OIL then the HV power cables and power

supply cable for RTD monitor, control cable from marshalling box to HT panel shall be connected in their respective cable boxes. All the cables will be meggered after laying but before final connection. All LT power and control cables shall be supplied by OIL.

8. The transformer will be energised in the presence of OIL's engineer after clearance from OIL.

9. The transformer output voltage will be checked for proper value and balancing. Tap switch to be adjusted if required.

10. The transformer will be kept energised and observed for any abnormal heating, noise, vibration for next 72 hrs.

11. After successful operation with power ON for 72hrs the transformer will be technically acceptable to OIL.

12. After completion of commissioning of one transformer the second transformer shall have to be commissioned by the party by following all the above instructions.

13. Party shall have to carry out all pre-commissioning tests like IR values, functioning of RTD and winding temperature, no load test, load test, parallel operation of the transformers etc. with expert from manufacturer in presence of OIL's Engineer. All necessary precautions shall have to be followed for parallel operation the transformers.

D. GENERAL NOTES FOR INSTALLATION, TESTING AND COMMISSIONING.

1. Party should submit an undertaking with their offer confirming compliance to all point mentioned in the headings A,B,C of this annexure.

2. All works of installation shall be carried out in complete with latest IS, IE rules and National Electric Code.

3. All works of installation, testing and commissioning shall be performed by persons having valid electrical license under the direct supervision of a competent service personnel of the party having a minimum experience of at least 5 years in installation and commissioning of HT transformers and possessing appropriate licence valid for operating in ASSAM.

4. Copy of license of all the persons engaged for installation and commissioning work has to be submitted to OIL for approval before start of work.

5. All tests/ checks shall be done in presence of OIL's Engineer-in- Charge or his representative.

6. The supplier should obtain the permit to work from Engineer - in- Charge of respective Installation Managers before taking up work, if any.

7. The party shall be responsible for safe custody and proper storage of materials till handing over.

8. All tools and instruments and equipment required for installation, testing and commissioning shall be arranged/ provided by the party.

9. All safety and local/government regulations shall be followed during installation, testing and commissioning. Party shall be responsible for compliance to such regulations on

their own.

10. All tests results shall be recorded in a proper manner. Four sets of all the test results and checks for all the equipment as required shall be submitted to OIL. The results shall be typed and properly documented.

11. All equipment shall be treated as successfully commissioned after installation, testing and commissioning as mentioned under para nos. A,B,C,D and technically accepted to OIL and submission of four sets of test results signed by licensed supervisor, corrected wiring diagram in bound form and all the documents mentioned against each equipment in the respective equipment description.

12. Installation and commissioning of the Transformer will be carried out during next annual overhauling of LPG Recovery plant in the month of April/May, 2010(tentatively). Party will be informed 15 days ahead of annual overhauling; they shall have to mobilize manpower and other related materials within that period only.

GENERAL NOTES FOR TENDER:

1. Transformer of following Makes are only acceptable: BHARAT BIJLI, NGEF, CROMPTON GREAVES, ALSTOM.
2. The entire work of supply, installation and commissioning of all equipment as mentioned in the tender document must be completed by the party as per terms of tender.
3. All items shall be supplied, installed and commissioned by one party only as per specifications mentioned in the tender. The offer will not be acceptable if the party do not quote for all items of the tender i.e. supply, installation, commissioning of all items.
4. In their offer the party must mention their detailed comments point-wise against each point of tender specifications. Any deviation from the tender specification will be specifically mentioned. Specific type and make of equipment should be mentioned. All the information required as per tender specifications must be submitted.
5. Other than manufacturer, party must enclose with the offer an undertaking from respective equipment manufacturer confirming that in the event of an order on the bidder the equipment supplied by them through the bidder will fully meet all the points of the tender and order against each item.
6. In case of an order the complete tender specification shall be mentioned in the order. However, deviations from tender specifications, as mentioned by party in their offer and subject to acceptance by OIL shall be mentioned in the order.
7. In the event of an order the party will submit to OIL within one month of placement of order all documents as required against each item.
8. The manufacture of the equipment is to be started only after written approval of the drawings/ documents by OIL as mentioned in tender against each item.
9. **In case the documents furnished by the bidder as per point no. 7 above do not comply with any of the points mentioned in the order then the order will be cancelled without any obligation on part of OIL. IN CASE OF SUCH CANCELLATION OIL WILL RECOVER FROM THE PARTY THE COST INCURRED BY OIL IN PROCESSING THE TENDER TILL THE TIME OF CANCELLATION.**

10. Party must have experience in supply, installation of transformers, similar to those mentioned in the tender, in PSUs, Govt Depts and Railway. Detail including minimum 50 nos. of such supply, installation work for dry type transformers done during last five years with order details and completion and performance certificates must be submitted with the offer.
11. Party other than OEM must have valid electrical contractor license for the state of Assam and the copy of the valid contractor license is required with the offer.
12. List of skilled electricians with copy of valid license must be submitted with the offer.
13. Party will provide with the offer the list of tools and equipment available with the bidder to carryout the installation and commissioning work as per tender.
14. Party will be responsible for safety of its personnel and safety of all the equipment. All the safety gadgets required for safely carrying out the job shall be provided by the party.
15. Party will be responsible for safe custody of all the items before handing over to OIL.
16. Handing over to OIL means supply, installation and commissioning of all items satisfactorily as per order and submission of all the documents and drawings as per order.
17. No environmental damage at site shall be done while carrying out the job. Any damage done during the execution of work must be corrected by the party at their own cost.
18. All the test reports must be signed by licensed electricians and supervisors who have carried out the installation and commissioning work as per order.
19. Bidder may visit OIL's LPG Recovery Plant, Duliajan, Assam to make an assessment for exact requirement at their own cost.
20. Party shall have to fill up and submit technical check list along with the quotation as per Annexure - B.