

**COMPREHENSIVE REGION URBAN TRANSPORT****Govt Of Odisha****Plot No 548/1452, Kalarahanga,
Patia, Bhubaneswar-751031, Odisha****Phone No. 0674-3501580,****E-Mail Id:-crutbbsr@gmail.com****No. 1791****Date. 01.07.2026****NOTICE INVITING TENDER (NIT)****BID IDENTIFICATION No. 1791 /G.M (Engg.)/CRUT of 2026-27**

General Manager (Engg.), CRUT, Bhubaneswar on behalf of CRUT invites percentage rate bids in **DOUBLE COVER SYSTEM** conforming to the Detailed Tender Call Notice (DTCN) from Electrical Contractors having valid H.T. license registered under Government of Odisha and having PAN, GSTIN Certificate and valid EPF & ESI registration certificate with up to date payment till May' 2026 for the item of works as indicated in the table below.

SI No	Name of work	Estimated Cost (in ₹)	Class of Contractor	EMD (in ₹)	Cost of Tender Paper	Period of Completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Pokhariput, Bhubaneswar. (Under P.M e-Bus Seva)	₹ 2,90,57,999.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)
2.	Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)	₹ 2,90,57,999.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)
3.	Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Chhend Rourkela. (Under P.M e-Bus Seva)	₹ 2,23,57,999.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)
4.	Construction of 33KV line & Installation of 2 X 1600 KVA 33/0.4KV conventional on load tap changing Substation to effect power supply 2300 KW/3200KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at	₹ 1,38,22,397.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)

	Modipada Sambalpur. (Under P.M e-Bus Seva)					
5.	Construction of 33KV line & Installation of 2 X 1600 KVA 33/0.4KV conventional on load tap changing Substation to effect power supply 2300 KW/3200KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Haldipadar, Berhampur. (Under P.M e-Bus Seva)	₹ 1,68,72,397.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)

1. The Bid documents will be available in the website: <https://tendersodisha.gov.in> from **06.07.2026 to 5.30 P.M. of 24.07.2026.**
2. Bids shall be received only **"On line"** on or before **5.30 P.M. of 24.07.2026.** The bidder must possess compatible Digital Signature Certificate (DSC) of Class-II or Class-III.
3. Other details can be seen in the bidding documents.
4. The authority reserves the right to cancel any or all bids without assigning any reason.
5. Any addendum / corrigendum / cancellation shall only be uploaded in the website: <https://tendersodisha.gov.in>

Sd-

General Manager (Engg.), CRUT, Bhubaneswar
(on behalf of CRUT, Bhubaneswar)

Memo No. 1792

Dated. 01.07.2026

Copy forwarded to the Information & Public Relation dept., Odisha, Bhubaneswar (email id- ipr.advt@gmail.com) for favour of information & necessary action with request to publish the above invitation of the Tender Call Notice in **one issue two Odia News paper Dailies and one issue of National English News paper Dailies** with a minimum space to be published on or before **06.07.2026** & complimentary copy in the News papers containing the proposal may be sent to this Office for reference and record.

Sd-

General Manager (Engg.), CRUT, Bhubaneswar
(on behalf of CRUT, Bhubaneswar)

**COMPREHENSIVE REGION URBAN TRANSPORT****Govt Of Odisha****Plot No 548/1452, Kalarahanga,
Patia, Bhubaneswar-751031, Odisha****Phone No. 0674-3501580,****E-Mail Id:-cruthbsr@gmail.com****No. 1791****Date. 01.07.2026****NOTICE INVITING TENDER (NIT)****BID IDENTIFICATION No. 1791 /G.M (Engg.)/CRUT of 2026-27.**

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SI No	Name of work	Estimated Cost (in ₹)	Class of Contractor	EMD (in ₹)	Cost of Tender Paper	Period of Completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Pokhariput, Bhubaneswar. (Under P.M e-Bus Seva)	₹ 2,90,57,999.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)
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	metering to CRUT Bus Depot at Modipada Sambalpur. (Under P.M e-Bus Seva)					
5.	Construction of 33KV line & Installation of 2 X 1600 KVA 33/0.4KV conventional on load tap changing Substation to effect power supply 2300 KW/3200KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Haldipadar, Berhampur. (Under P.M e-Bus Seva)	₹ 1,68,72,397.00	H.T License	1% of the Estimated Cost	₹10,000.00 + 18% GST	60 (Sixty days)

N.B: The quoted rate should be all inclusive of all taxes and duties but excluding GST applicable under works contract. As per requirement under GST act 2017, the supplier of goods or service or both should submit tax invoice for release of payment and Tax invoice should include all particulars and content as required under section 31 of CGST/SGST Act, 2017.

1. The Bid documents will be available in the website: <https://tendersodisha.gov.in> from **06.07.2026 to 5.30 P.M. of 24.07.2026**. Any addendum / corrigendum / cancellation of tender can only be seen in the said website.
2. Bids shall be received only "On line" on or before **5.30 P.M. of 24.07.2026**. The bidder must possess compatible Digital Signature Certificate (DSC) of Class-II or Class-III.
3. A pre-bid meeting shall be held on **14/07/2026 at 11.30 AM** at Conference hall of **Comprehensive Region Urban Transport (CRUT), Plot No. 548/1452, Patia, Kalarahanga, Bhubaneswar – 751031**.
4. Bids received on line shall be opened **at 11.30 A.M on 30.07.2026** in the office of General Manager (Engg.), CRUT, Bhubaneswar in the presence of the bidders who wish to attend. Bidders can witness the opening of bids after logging on to the site through their DSC. If the office happens to be closed on the last date of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.
5. Validity of Tender: Validity of tender shall be for a period of **90 days** from the date of opening of the tender (Financial bid).
6. Bids must be accompanied by scanned copies of Registration Certificate, Bid Security (EMD) and required affidavit in the prescribed form appended in DTCN indicating name of the work and Bid Identification No., PAN, GSTIN Certificate, EPF and ESI certificate with up to date payment details till May'2026, MAF in prescribed format and cost of bid documents. The cost of bid documents including GST shall be in shape of **Demand Draft** issued from any Nationalized Scheduled Bank located in the state in favour of **COMPREHENSIVE REGION URBAN TRANSPORT BHUBANESWAR**. Bid submitted without the above documents in the prescribed format will be rejected.
7. After the date & time of receipt of bid is over, the bidders must submit the MAF certificate as mentioned in Minimum Eligibility Criteria, **Demand Draft towards cost of BID DOCUMENTS** and **TDR/NSC/BG towards ORIGINAL BID SECURITY (EMD)** from any Nationalized /Scheduled Bank and shall be pledged in favour of **COMPREHENSIVE REGION URBAN TRANSPORT** in the office of the General Manager (Engg.), CRUT, Bhubaneswar in a sealed envelopes to be received on or before **5.30 P.M of 29.07.2026** by **speed post or registered post** on working days failing which the bid will be rejected. Only envelopes containing these documents shall be opened on the date of opening prior to opening of the Technical bid for evaluation. The Authority is not responsible for any postal delay in receipt of these documents within stipulated date and time. The validity of the EMD shall be for a minimum of 30 months from the date of opening of Bid.
8. Other details can be seen in the bidding documents.
9. The authority reserves the right to cancel any or all bids without assigning any reason.
10. The ST/SC contractors willing to avail the facilities as fixed by Government shall have to upload

scanned copy of the affidavit for the same along with tender document and the original affidavit along with original RC book, otherwise they will not be entitled to avail such facilities.

11. Additional Performance Security:

After careful observation, Government has been pleased to abolish the extant provisions of threshold negative bid caps (14.99%) introduced in Appendix-IX, Clause 36 of OPWD Code Volume-II in the procurement of works undertaken by the Govt. of Odisha and its agencies to ensure the procurement process results in a viable and successful manner with adoption of following incremental Additional Performance Security (APS) system:

1. Additional performance security shall be taken on an incremental basis from the selected bidder for low bid prices in the project works as under:

- I. Where the bid price is below 0% but not below 10% of the project cost put to bid, no additional performance guarantee/security percentage is required.
- II. Where the bid price is below 10% but not below 20% of the project cost put to bid, the additional performance guarantee/security percentage shall be incremented by 0.1% for every percentage of bid price below 10% of the project cost put to bid starting at 11% with the additional bid performance guarantee being 0.1% and this additional

Performance guarantee percentage shall be applied on the bid price;

- III. where the bid price is 20% or more below of the project cost put to bid, the additional performance guarantee percentage shall be incremented by 0.2% for every percentage of bid price below 20% of the project cost put to bid in addition to 1% of the bid price and this additional performance guarantee percentage shall be applied on the bid price;
- IV. The additional performance guarantee percentage shall be rounded off to the next lower percentage based on whether the decimal point of the percentage of bid price is below 0.5% or next higher percentage based on whether the decimal point of the percentage of bid price is 0.5% or more.
- V. The additional performance security shall be treated as part of the performance security.
- VI. Justification for abnormally low bids shall be scrutinized by the Departmental Technical Committee and recommended to the competent Authority of the Department for the approval of the Additional Performance Security (APS). An abnormally low bid is one in which the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns as to the capability of the Bidder to perform the contract at the offered price. Procuring Entity may, in such cases, seek written clarifications from the Bidder, including detailed price analyses of its Bid price in relation to scope, schedule, resource mobilization, allocation of risks and responsibilities, and any other requirements of the bid document. If, after evaluating the price analyses, the procuring entity determines that the Bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Procuring Entity may reject the Bid/Proposal. However, it would not be advisable to fix a normative percentage below the estimated cost, which would automatically be considered as an abnormally low bid.

1. These amendments shall take effect from the date of issue of the O.M.

2. Accordingly, the relevant existing Codal/contractual provision stands modified with effect from the date of issue of this O.M.

3. This has been concurred in by the Finance Department vide FileNo.FIN-WF1-MISC- 0102-2025

Sub- Clarification on Works Department Office Memorandum No.173 dt 03.01.2026 regarding Amendment of Codal and Contractual Provisions.

The following clarifications are issued on Works Department Office Memorandum No. 173 dated. 03.01.2026.

1. The phrase "... to abolish the extant provisions of threshold negative bid caps (14.99%) introduced....." in the first para of the Works Department OM No. 173 dated. 03.01.2026 may be read as....."to abolish the extant provisions of threshold negative bid caps of 15% introduced vide Works Department OM No. 12366/W dt. 08.11.2013 and amended vide Works Department OM No. 1437 dt, 31.01.2023....."

2. If more than one bid is quoted (decimal up to two numbers will be taken for all practical purposes), either at the estimated cost put to tender or less than the estimated cost put to tender, the tender accepting Authority will finalize the tender through a transparent lottery system, where all the concerned bidders/their authorized representatives, the concerned SE/EE of the concerned Division and Divisional Accounts Officer (DAO) will remain present.

3. If the rate quoted by the SC and ST Category Contractors comes to the rate quoted by the L1 bidder (decimal up to two numbers will be taken for all practical purposes) after availing 10% price preference as per Para 2 of Works Department Resolution No. 27748 dated. 11.10.1977, the tender shall be finalized by the tender accepting authority through a transparent lottery system along with other categories of contractors.

4. As regards the bidding process in which the tender has been floated before the issue of Works Department Office Memorandum No.173 dt 03.01.2026, the bid shall be finalized as per the earlier provisions in Appendix-IX, Clause 36 of OPWD Code Volume-II.

5. This has been concurred in by the Finance Department in File No FIN-WF1-MISC-0102-2025.

12. Minimum Eligibility criteria:

- i. The bidder has to upload willingness to give comprehensive guarantee with maintenance on all the works executed for a period of two years from the date of completion of the work during online bidding or else the bid shall be rejected.
- ii. The bidder has to upload Manufacturer's Authorization form (MAF) in prescribed format as mentioned in Annexure-B from at least 02 Nos. of manufacturer of Transformer, UG Cable and HT and LT Switch-gear countersigned by REGION/local head of the company with proper seal, signature and name as mentioned in Technical specification or else the bid shall be liable for rejection.
- iii. The bidder has to upload Manufacturer's Authorization form (MAF) in prescribed format as mentioned in Annexure-B from at least 2 Nos of panel builders as mentioned in Technical

specification or else the bid shall be liable for rejection.

iv. The bidder has to upload information regarding Current litigation, Debarring, Expelling of tender or Abandonment of work by the tenderer and Affidavit as appended in the DTCN. If the information furnished is found to be incorrect or concealed at any stage, the bid shall be rejected.

v. The bidder should have satisfactorily executed similar nature of work in the last five F.Y in any Govt./Semi- Govt./PSU from the following parameters

Completion of one similar nature of work of 80% of the estimated amount put to tender.

Or

Completed two similar nature of work of 50% each of the estimated amount put to tender.

Or

Completed three similar nature of work of 40% each of the estimated amount put to tender.

The agency shall have to upload satisfactory completion certificate from officer not below the rank of Executive Engineer or else the bid is liable for rejection.

vi. **Turnover:**

The agency should have annual turnover of a minimum of 1.5 times the estimated amount put to tender in the last three financial year (2022-2023, 2023-2024, 2024-2025). The agency has to furnish the confirmation certificate of the annual turnover for the said period from the Chartered Accountant as per the prevailing rules of the Income Tax Act with reference to the works executed or else the bid shall be liable for cancellation.

Sd-

General Manager (Engg.), CRUT,
Bhubaneswar (on behalf of CRUT,
Bhubaneswar)

Memo No. 1792

Dated. 01.07.2026

Copy forwarded to the Information & Public Relation deptt., Odisha, Bhubaneswar (email id- ipr.advt@gmail.com) for favour of information & necessary action with request to publish the above invitation of the Tender Call Notice in **one issue two Odia News paper Dailies and one issue of National English News paper Dailies** with a minimum space to be published on or before **06.07.2026** & complimentary copy in the Newspapers containing the proposal may be sent to this Office for reference and record.

Sd-

General Manager (Engg.), CRUT,
Bhubaneswar (on behalf of CRUT,
Bhubaneswar)

Memo No. 1793

Dated. 01.07.2026

Copy submitted to Managing Director, CRUT for favour of kind information.

Sd-

General Manager (Engg.), CRUT,
Bhubaneswar (on behalf of CRUT,
Bhubaneswar)

Memo No. 1794

Dated. 01.07.2026

Copy to General Manager (P&A)/ CFO, CRUT for favour of kind information and necessary action. It is requested to display this Notice in their Notice Board for wide circulation.

Sd-

General Manager (Engg.), CRUT,
Bhubaneswar (on behalf of CRUT,
Bhubaneswar)

Memo No. 1795

Dated. 01.07.2026

Copy to Office Notice Board of CRUT, Bhubaneswar for publicity and copy to Guard file for record.

Sd-

General Manager (Engg.), CRUT,
Bhubaneswar (on behalf of CRUT,
Bhubaneswar)

INFORMATION TO BIDDER (ITB)
COMPREHENSIVE REGION URBAN TRANSPORT, BHUBANESWAR

Name of work: Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)

- | | |
|---|---|
| 1. ESTIMATED COST (TENDER VALUE) | : Rs. 2,90,57,999.00 |
| 2. COST OF TENDER PAPER (NON REFUNDABLE) | : Rs. 10,000.00 + 18 % GST. |
| 3. EARNEST MONEY DEPOSIT | : Rs. 1% of the Estimated Cost. |
| 4. AVAILABILITY OF BID DOCUMENTS IN THE website: https://tendersodisha.gov.in | : From 06.07.2026 to 5.30 P.M. of 24.07.2026. |
| 5. LAST DATE OF RECEIVING QUERIES | : Dt. 13.07.2026 upto 5:30 PM. |
| 6. TIME AND DATE OF PRE-BID MEETING | : Dt. 14.07.2026 at 11:30 AM. |
| 7. LAST DATE OF ONLINE ISSUE OF THE TENDER | : Dt. 24.07.2026 up to 5.30P.M. |
| 8. DATE OF ONLINE RECEIPT OF TENDER | : Dt. 24.07.2026 up to 5.30P.M. |
| 9. DATE OF OPENING OF TENDER | : Dt. 30.07.2026 at 11.30 A.M. |
| 10. TIME OF COMPLETION | : 60 (Sixty) days |
| 11. VALIDITY OF TENDER | : After a period of 90 days from the date of opening of tender(Financial Bid). |

The bid shall be opened on **30.07.2026 at 11.30 AM**, only in the O/o General Manager (Engg.), CRUT, Bhubaneswar, in the presence of the tenderers or their authorized representatives.

GENERAL CONDITIONS

1. The contractor shall be responsible for payment of all royalties other incidental charges for quarrying materials all local taxes including Sales Tax and Income Tax. The contractor shall pay Ferry and toll charges and other local taxes shall be paid by the Contractor.
2. The Engineer-in-charge and/or Assistant Executive Engineer, CRUT and/or Asst. Manager- in-charge of the work shall have the right to inspect the scaffolding and centering etc. made for the work and project partly of fully such structures. If found defective in his / her opinion.
3. It should be understood clearly that no claims whatsoever shall be entertained as regards extra item of work or extra quantity of any items in excess of the estimate. Written order must be obtained from the General Manager (Engg.) and or Executive Engineer and/or Assistant Executive Engineer and/or Asst. Manager-in-charge for such extra items or quantity of work.
4. The contractor shall be responsible for the loss, damage or theft of any department materials supplied to him under clause 4 & 7 during execution of the work due to reason whatsoever, and the cost of such materials shall be recovered from him at the prevailing stock issue rate or market rates whichever is higher.
5. No part of contract shall be sublet without written permission of the Managing Director, CRUT, Bhubaneswar or transfer is made by power of attorney authorizing others to receive payment on contractor's behalf.
6. The authority shall not after acceptance of contractors rates be liable to pay extra charges for load or for any other reason in case the contractor is found afterwards to have misjudged the materials available.
7. **The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.** Rates quoted should be fairly reasonable rates containing abnormal, super-flous and unworkable liable for rejection.
8. The contractor shall have to furnish certificates along with the tender to the effect that he is not in any way related to any officer of the rank Assistant Engineer and above of the Urban Development Dept., Govt. of Orissa and or to any member or officer of the authority.
9. During execution of the work **the contractor shall arrange to take shutdown from concerned DISCOM as and when necessary and also after completion of the work, the contractor shall arrange at his own cost, all requisite and equipment's for testing of electrical installations, the contractor shall get the installations inspected by the Electrical Inspector/ MRT/ EMR / DISCOM authorities and bear the entire cost of such test.** CRUT will deposit the inspection fees, if any with Government of Odisha. It is also the responsibility of the contractor to get GTP approval of all required materials from DISCOM.
10. The General Manager (Engg.)/Engineer-in-charge and/or Assistant Executive Engineer-in- charge shall have power to make any alterations or additions to the original specification,

Drawings, designs and instructions that may appeal to him to be necessary or advisable during the progress of the work. The contractor shall be bound to carry out the work in accordance with any instructions which may be issued to the contractor or after being signed by the Engineer-in-charge and or Assistant /Asst. Manager-in-charge and such alterations shall not invalidate the contract and any addition work such the contractor may be directed to do in the manner above specific works shall be carried out by the contractor on the same conditions in all respects on which they agreed to do the main work and at the same rates as are specified in the tender for the main work. The time for the completion of the work shall be extended in the proportion that the Engineer-in-charge shall be conclusive as to such proportion. And if the additional work includes any class of work for which no rates is specified in this contract, then such class of work shall be carried out at the rates entered in the sanctioned schedule of rates of the State Govt. of Odisha, Dist. of Khorda during the period when the work is being carried out on and if such mentioned class of work is not entered in the schedule of rates of Odisha, Khorda Dist. as followed by the Government of Odisha, then the contractor shall within seven days of the date of his receipt of the order to carry out the work inform the Engineer-in-charge of the rate which it is his intention to change for such class of work and if the G.M (Engg.) and / or Engineer-in-charge on behalf of the M.D, CRUT does not agree to this rate he shall be notice in writing be at liberty to cancel his order to carry out such class work and arrange to carry out in such manner as he may consider advisable PROVIDED ALWAYS that if the contractor shall commence work of any expenditure in regard thereof the rates, shall have been determined as lastly here in before mentioned, then and in such case he shall only be entitled to be paid in respect of the carried out or expenditure incurred by him prior to the of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the G.M (Engg.)/Engineer-in-charge on behalf of the M.D, CRUT. In the event of a dispute the decision of the M.D, CRUT of the Authority shall be final.

11. For delay in land acquisition no compensation or claims on that account will be entertained. Extension of time maybe granted, if considered reasonable.
12. Item work not covered by tender notice will be paid at the current schedule of rates Public Health Department / Public Works Department and those not covered by the S.R. will be paid on actual analysis approved by the authority of CRUT.
13. Standard Public Works Department/Public Health Department Electrical Department specification of Govt. of Orissa I.S.I. specification where applicable as to be decided by the Engineer-in-charge will be followed in executing the work.
14. The contractor will make no claim on the rates, quantities and amounts that will appear in the agreement and the total work in a complete shape will be handed over to CRUT within the stipulated time allowed by CRUT.
15. If required, all the Electrical installations will be tested at factory site by the representatives of CRUT/ DISCOM. All the arrangement for above testing and cost involved thereof shall be the responsibility of the contractor.
16. In case of any dispute in the meaning of specification description of items rates conditions of agreement or due to errors/typo-graphical errors, omissions or due to any other reasons the decision of the G.M (Engg.) is final and binding on both parties.
17. Pre-inspection of all electrical items at the factory site and post inspection of all electrical items at the Project site shall be done by CRUT and the entire cost shall be borne by the Agency.
18. INSPECTION COST:

18.1 Expenses in respect of CRUT representative for witnessing the inspection & testing of the offered

- equipment/materials at the inspection and testing site.
- 18.2 The testing and inspection of the equipment/ materials at manufacturer works are in the scope of work of the Contractor/Supplier. Travel Expenses of CRUT Representative shall be borne by the Contractor.
- 18.3 CRUT inspecting officer, on receipt of offer for inspection from the contractor/supplier, shall proceed to the manufacturer works to witness the Type/Acceptance/Routine test.
- 18.4 The travel expenses under the following heads, in respect of CRUT representative for witnessing the inspection & testing of the offered equipment/materials at the inspection and testing site, shall be borne by the Contractor.
19. All bidders can participate in the tendering process, however a single bidder will be awarded tender for a maximum of two nos. projects/locations, keeping in view of the urgency of the work.
20. The Bidder must upload copies of the relevant Work Orders along with Handing Over and Taking Over Certificate or Client certified copies of Completion Certificate in proof of successful execution of Works and Performance Certificates duly signed by the competent authority of the Client in proof of successful operation of the above quantum of works from any State / Central, Distribution / Transmission / Generation Utility / PSU / PSU (JV) in India. The works experience schedule shall be as per pro forma given here under.

Table: Tech-1 Work Experience Schedule

Work Order Ref.				Sub-Stations/Lines Installed, Erected & Commissioned		
Sl. No.	FY	Name of the Client	Work Order Ref (No. & Date)	Qty (No. of Sub-Stations/ Kms of Lines) Installed/ Erected	Date of Completion of Commissioning	Documents provided in proof of having completed the works and/or of successful operation as the case may be. (As Attachment)

Contractor

Signature
Designation of the Officer of the CRUT

SPECIAL TERMS & CONDITION

1. The bidder has to upload willingness to give comprehensive guarantee on all the works executed for a period of two years from the date of completion of the work during online bidding or else the bid shall be rejected.
2. The bidder has to upload Manufacturer's Authorization form (MAF) in prescribed format as mentioned in Annexure-B from at least 02 Nos. of manufacturer of Transformer, UG Cable and HT and LT Switch-gear countersigned by REGION/local head of the company with proper seal, signature and name as mentioned in Technical specification or else the bid shall be liable for rejection.
3. The bidder has to upload Manufacturer's Authorization form (MAF) in prescribed format as mentioned in Annexure-B from at least 2 Nos of panel builders as mentioned in Technical specification or else the bid shall be liable for rejection.
4. The bidder has to upload information regarding Current litigation, Debarring, Expelling of tender or Abandonment of work by the tenderer and Affidavit as appended in the DTCN. If the information furnished is found to be incorrect or concealed at any stage, the bid shall be rejected.
5. The bidder should have executed similar nature of work amounting not less than 50% of the estimated cost put in tender in a single work order and in the last five F.Y in any Govt./Semi- Govt./PSU. The agency shall have to upload satisfactory completion certificate from officer not below the rank of Executive Engineer or else the bid is liable for rejection.
6. Bids must be accompanied by scanned copies of Registration Certificate, required affidavit in the prescribed form appended in DTCN indicating name of the work and Bid Identification No., Authorization Certificate from the Manufacturer (as mentioned in Minimum Eligibility criteria), Manufacturers Guarantee certificate (as mentioned in Minimum Eligibility criteria), valid H.T. license registered under Government of Odisha, PAN, valid EPF & ESI registration No. with Payment clearance up-to March'2026, GST Certificate and cost of bid documents, Cost towards EMD and other documents required under Minimum eligibility criteria of the DTCN or else the bid shall be liable for cancellation.
7. The bidder is not allowed to have consortium / JV with HT electrical contractor for the execution of work.
8. The rates quoted by the bidder shall be inclusive of all taxes and duties but exclusive of GST.
9. In the event of any increase in Government Taxes increased amount would be borne by the contractor.
10. The contractor should abide the fair wages clause to his laborers.
11. **Arranging for inspection including charging is the responsibility of the contractor. If any remark is noted by the Electrical Inspector/ MRT/ EMR/concern DISCOM during their inspection, the same shall be rectified by the bidder at his own cost. Taking shut down of the live line from DISCOM if required during execution, is the responsibility of bidder. Inspection fees, if any, will be deposited by the CRUT. It is also the responsibility of the contractor to get GTP approval of all required materials from DISCOM. CRUT shall in no way be responsible for non-approval/ delay in approval of GTP from DISCOM as well as delay in getting shut-down form DISCOM during execution of work. Further the work shall be considered to be completed in all respect only after successful execution of the work and subsequent handing over the same to DISCOM/ CRUT whichever is applicable.**
12. During the execution of the work watch and ward responsibility lies with the contractor.
13. The materials used for construction should confirm to ISI specification and their Makes and Models must be approved by the Engineer-in-Charge of CRUT before use. The Agency has to use the Model which is selected by the Engineer-in-charge. Any substandard material found will be replaced by the contractor at his own risk and cost. Copies of challan of the materials procured by the agency must have to be produced by the agency for necessary verification by the Asst. Executive Engineer (Elect.), CRUT. The cost of testing of any material if required will be borne by the contractor.
14. Terms and conditions envisaged in the detailed Tender Call Notice also form a part of the General condition of the contract.
15. If required all the works pointed out by the Electrical Inspector/ DISCOM during the inspection & in

- Inspection Report must be completed by the contractor by their own cost.
16. Every increase/decrease in the quantity of items shall be admissible up to 10% subject to 5% of the estimated cost. Any deviation thereof shall have to get prior approval from the authority competent before execution of such items.
17. **Payment:**
- I. For supply of material 70% cost. (Incl GST.) of materials to be paid to agency after material reached and tested at site successfully and rest 30% after installation and successful commissioning of work.
 - II. For erection the total cost as per agreement will be paid to the agency after successful commissioning and charging of the project.
18. Risk and cost clause:
- If any defects or default in execution of work are not taken up by the agency within the time frame, the Engineer-In-Charge may proceed to do the work at the Contractor's risk and cost.
 - In case the contractor fails to supply the spares in accordance with the terms stipulated above, CRUT shall be entitled to purchase the same from alternate sources at the risk and the cost of the contractor and recover from the contractor, the excess amount paid by CRUT over the rated worked out on the above basis. In the event of such risk purchase by CRUT, the purchases will be as per the works and procurement policy of CRUT prevalent at the time of such purchases and CRUT at his option may include a representative of the contractor in finalizing the purchases.

Signature of Tenderers

COMPREHENSIVE REGION URBAN TRANSPORT, BHUBANESWAR.

ITEM RATE CONTRACT NO. (FORM OF AGREEMENT)

This indenture made theday of.....between
Shri agedyears, Son of
Shri.....at.....

P.S.....Dist.....hereinafter called the Contractor
which expression shall where the context so admits or implies, be deemed to include his heirs, executors and
administrators of the one part, AND **COMPREHENSIVE REGION URBAN TRANSPORT,**
BHUBANESWAR represented by its authorized Engineer in this behalf which expression shall where the
context to admits or implies, be deemed to include their successors in office and assignees of the other
parts WHEREAS CRUT, required the execution of certain work for
.....
.....
.....

hereinafter called the said works are more particularly described in the drawings and specifications hereto
annexed AND ALSO REQUIRED THE provisions of the necessary materials therefore and have caused the
necessary drawings and specification and schedule of rates to be prepared and the contractor has delivered to
the department tender for the execution of the said work and the provisions and conditions hereto attached.

NOW THIS INDENTURE AS FOLLOWS

In consideration of the convenient for the payment by and on behalf of CRUT hereinafter mentioned
the contractor hereby covenants with the Deptt. that he shall supply necessary materials and execute and
complete in a thoroughly sound and work on like manner and after words maintain for the requisite period
stated in the said condition all the works set out in the said specifications and schedule of rates hereto
attached singed by the contractor and as explained in the said drawings hereto attached and in accordance in
every respect with the requirements, stipulations, general rules and directions and special conditions hereto
attached.

In consideration of the convenient by the contractor hereinafter mentioned the CRUT hereby
convenient with the contractor to pay to him for the execution construction and maintenance of the work as
aforesaid according to the manner and subject to the addition and deductions set out and declared in the said
conditions hereto attached.

It is hereby agreed and declared that all the provisions of the said general rules and directions tender
for works with memorandum, conditions, special conditions, drawings and

schedule of rates hereto attached shall be binding upon the contractor and coupon CRUT as if the same had been repeated herein and shall be read as part of these presents.,

In Witness where of the parties hereto have affixed their signature and Date the
.....day.....of.....20.....

Contractor

Witness.....

Address.....

Occupation.....

Witness.....

Address.....

Occupation

Signature
Designation Authorized Engineer of CRUT

MEMORANDUM

Item Rate Agreement No.

P₁ of

(a) Name of the work: **Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)**

(b) Estimated cost (Tender value) : **Rs. 2,90,57,999.00**

(c) Earnest money : **Rs. 1% of the Estimated Cost.**

(d) Initial security deposit 2 % of
accepted tender amount. :

(e) Percentage to be deducted : **As per terms & conditions of Agmt. from bills.**

(f) Time allotted for completion of the : **60 (Sixty) days**
work from the date of written order to commence the work.

(g) Date of written order to commence :

(h) Total number of items of work tendered for (as per schedule
attached here to) : **29 (Twenty Nine) items only.**

TECHNICAL CONDITION

Name of work: Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)

- 4.1 The work envisages **“Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)”**. All the materials including cement, steel etc. for construction for use in the project conforming to be specifications are to be supplied by firm as per specifications duly approved by CRUT. The make/brand of the materials/products for the work will be as per the Specification /Brand mentioned in the DTCN / BOQ. The agency must have got approval of the brand to be used in the work prior to execution of the item from the authority competent of CRUT.
- 4.2 Supply of all materials required for the work is the responsibility of the contractor however the authority has the right to supply any items/materials to be used in the interest of the work. The contractor shall use such materials without any controversy or dispute on that account. Such materials shall be treated as stores. The rate of such materials shall be at stock issue rate to be fixed by the Authority or prevailing market rate whichever is higher.
- 4.3 The entire work project has to be completed and delivered within **60 (Sixty)** days from the date of issue of work order.
- 4.4 Test of all the construction materials used in the work will be done by CRUT/ DISCOM at the cost of the contractor/ firms in any standard laboratory as approved by CRUT/ DISCOM.
- 4.5 Water, Electric Power Supply and Watch & Ward during construction is to be arranged by the contractor/firms at their own cost for the entire period of construction till the handing over of the project to CRUT/ DISCOM.
- 4.6 Bidder/firm must execute the works properly up to the specification so as to satisfy the Officers of CRUT on the quantity and quality of each ITEM of the work.

TENDER FOR WORKS

I / we hereby tender for the execution for the CRUT of the work specified in the underwritten memorandum at the rates specified therein within a period of yearsmonths from the date of the written order to commence and in accordance in all respects with the specifications, designs, drawings and other documents referred to in rule, I hereof and subject to the annexed conditions of contract and with such materials as are provided for by and in all other respects in accordance with such conditions so far as applicable.

MEMORANDUM

- a) **Name of the work:** Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Seva)
- b) Estimated Cost: **Rs. 2,90,57,999.00**
- c) Agreement Value:
- d) Earnest Money: **Rs. 1% of the Estimated Cost.**
- e) Initial security deposit @ 2% of the agreement value along with EMD to be deposited before the commencement of the work.
- f) **Percentage to be deducted from bill.**
 - i. 5% (Five percentage) Percentage to be deducted from bill towards security deposit.
 - ii. Statutory deduction: ***IT, GST as applicable from time to time, EPF-13.61%, ESI-4.75% of labour component.***
Royalty- As per Govt. norm. CESS-1% of the Gross Bill.
- g) Time required for the work from date of written order to commence.....
Months.
- h) Date of written order to commence.

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* **related / not related** (*) to any officer of CRUT of the rank of Assistant Engineer & above and any officer of the rank of Assistant and above of CRUT. I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and I/We* shall be liable to make good the loss or damage resulting from such cancellation.

I//We also note that, non-submission of this certificate will render my / our tender liable for rejection.

(*) - Strike out which is not applicable

Signature of the bidder Date:-

COMPREHENSIVE REGION URBAN TRANSPORT
(Form-P-1)

PERCENTAGE RATE TENDER AND CONTRACT FOR WORKS
General Rules and Directions for the guidance of Contractors

1. All works proposed for execution by contract will be notified in a form of invitation to tender pasted on a board hung up in the office and signed by the Sub-Divisional Officer / Executive Engineer. This notice will state the work to be carried out, the items and approximate quantities thereof as well as the date of submitting and opening of tenders also the amount of earnest money to be deposited and the amount of the initial security deposit to be deposited by the successful tenderer and the percentage if any, to be deducted from bills. Copies of the specifications, designs & drawings and any other documents required in connection with the submission of tender signed for the purpose of identification by the Sub-Divisional Officer / Executive Engineer shall also be open for inspection by the contractor at the office of the Sub-Divisional Officer / Executive Engineer during office hours.
2. In the event of the tender being submitted by a firm it must be signed separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorized him to do so.
3. Receipts for payments made on account of work, when executed by a firm must also be signed by the several partners, except where the contractors are described in their tender as a firm in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having authority to give effectual receipts for the firm.
4. The memorandum of work tendered for and the memorandum of materials to be supplied by the CRUT and their issue rates shall be filled in and completed in the office of the Sub- Divisional Officer / Executive Engineer before the tender form is issued. If a form is issued to an intending bidder without having been so filled in and completed, he shall request the office to have this done before he completes and delivers his tender.
5. Any person who submits a tender shall fill-up the usual printed form stating at what rate he is willing to undertake each item of the work. Incomplete tender and tenders which propose any alteration in the work specified in the said form of invitation to tender or which contain any other conditions of any sort, or omit to note the time within which the work can be finished, or which are not accompanied by a treasury challan for the required earnest money will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit a separate tender for each. Tender shall bear the name of the work to which they refer written outside the envelop.

6. The Engineer or his duty authorized assistant will open the tenders in the presence of any intending contractors who may be present at the time and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being rejected the challan for the earnest money forwarded therewith shall be returned to the bidder with a pay order for the amount of the earnest money.
 7. The Engineer shall have the right to rejecting all or any of the tenders.
 8. In the event of a tender being selected to acceptance, the Engineer who opened the tenders will, if he is competent to accept the tender, inform the bidder of the selected tender who shall thereupon sign copies of the specification and other documents mentioned in rules 1 and 4 for the purpose of identification and for his acceptance with the tender. The bidder of the selected tender shall also deposit the required amount of the security money within the prescribed time. If the bidder fails to deposit the required amount of the security money within the prescribed time, the Engineer may reject the tender.
If the Engineer is not competent to accept the tender himself, he will inform the bidder of the tender which he decides to recommended for acceptance. Such bidder shall thereupon sign forthwith copies of the specifications and other documents mentioned in rule 1 and 4 and shall deposit the required amount of the security money within the prescribed time. The tender with the specifications and other documents signed by the bidder will then be forwarded for acceptance to the Engineer who is competent to accept the same. If the said Engineer rejects the tender the security money deposited shall be refunded to the bidder.
 10. When a tender is selected for acceptance, the bidder shall deposit the required amount of the Security Deposit in shape of **NSC / POSBA / POTD / KVP/ Bank Guarantee from any Nationalized/ Schedule Bank of India counter guaranteed by its local branch in Bhubaneswar** duly pledged in favour of the **COMPREHENSIVE REGION URBAN TRANSPORT Bhubaneswar** in lieu of a cash deposit of the required amount of the security money. No tender shall be finally accepted until the required amount of the security money has been deposited.
 11. **Additional Performance Security:**
After careful observation, Government has been pleased to abolish the extant provisions of threshold negative bid caps (14.99%) introduced in Appendix-IX, Clause 36 of OPWD Code Volume-II in the procurement of works undertaken by the Govt. of Odisha and its agencies to ensure the procurement process results in a viable and successful manner with adoption of following incremental Additional Performance Security (APS) system:
 1. **Additional performance security shall be taken on an incremental basis from the selected bidder for low bid prices in the project works as under:**
- III. Where the bid price is below 0% but not below 10% of the project cost put to bid, no additional performance guarantee/security percentage is required.
- IV. Where the bid price is below 10% but not below 20% of the project cost put to bid, the additional performance guarantee/security percentage shall be incremented by 0.1% for every percentage of bid price below 10% of the project cost put to bid starting at 11% with the additional bid performance guarantee being 0.1% and this additional

Performance guarantee percentage shall be applied on the bid price;

V. where the bid price is 20% or more below of the project cost put to bid, the additional performance guarantee percentage shall be incremented by 0.2% for every percentage of bid price below 20% of the project cost put to bid in addition to 1% of the bid price and this additional performance guarantee percentage shall be applied on the bid price;

VI. The additional performance guarantee percentage shall be rounded off to the next lower percentage based on whether the decimal point of the percentage of bid price is below 0.5% or next higher percentage based on whether the decimal point of the percentage of bid price is 0.5% or more.

VII. The additional performance security shall be treated as part of the performance security.

VIII. Justification for abnormally low bids shall be scrutinized by the Departmental Technical Committee and recommended to the competent Authority of the Department for the approval of the Additional Performance Security (APS). An abnormally low bid is one in which the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns as to the capability of the Bidder to perform the contract at the offered price. Procuring Entity may, in such cases, seek written clarifications from the Bidder, including detailed price analyses of its Bid price in relation to scope, schedule, resource mobilization, allocation of risks and responsibilities, and any other requirements of the bid document. If, after evaluating the price analyses, the procuring entity determines that the Bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Procuring Entity may reject the Bid/Proposal. However, it would not be advisable to fix a normative percentage below the estimated cost, which would automatically be considered as an abnormally low bid.

4. These amendments shall take effect from the date of issue of the O.M.

5. Accordingly, the relevant existing Codal/contractual provision stands modified with effect from the date of issue of this O.M.

6. This has been concurred in by the Finance Department vide FileNo.FIN-WF1-MISC- 0102-2025

Sub- Clarification on Works Department Office Memorandum No.173 dt 03.01.2026 regarding Amendment of Codal and Contractual Provisions.

The following clarifications are issued on Works Department Office Memorandum No. 173 dated. 03.01.2026.

5. The phrase ".... to abolish the extant provisions of threshold negative bid caps (14.99%) introduced....." in the first para of the Works Department OM No. 173 dated. 03.01.2026 may be read as....."to abolish the extant provisions of threshold negative bid caps of 15% introduced vide Works Department OM No. 12366/W dt. 08.11.2013 and amended vide Works Department OM No. 1437 dt, 31.01.2023....."

6. If more than one bid is quoted (decimal up to two numbers will be taken for all practical purposes), either at the estimated cost put to tender or less than the estimated cost put to tender, the tender accepting Authority will finalize the tender through a transparent lottery system, where all the concerned bidders/their authorized representatives, the concerned SE/EE of the concerned Division and Divisional Accounts Officer (DAO) will remain present.

7. If the rate quoted by the SC and ST Category Contractors comes to the rate quoted by the L1 bidder (decimal up to two numbers will be taken for all practical purposes) after availing 10% price preference as per Para 2 of Works Department Resolution No. 27748 dated. 11.10.1977, the tender shall be finalized by the tender accepting authority through a transparent lottery system along with other categories of contractors.

8. As regards the bidding process in which the tender has been floated before the issue of Works Department Office Memorandum No.173 dt 03.01.2026, the bid shall be finalized as per the earlier provisions in Appendix-IX, Clause 36 of OPWD Code Volume-II.

5. This has been concurred in by the Finance Department in File No FIN-WF1-MISC-0102-2025.

12. 1% of Labour CESS will be deducted from gross amount of each R/A & Final bill of the agency.
13. When tender has been selected for acceptance and the required amount of the security money has been deposited, the Engineer shall scrutinize all pages of the form of Item, Rate, Tender and Contract for works to see that the form has been properly filled-up and signed by the contractor and the signature witnessed. He shall then, if he is competent to accept the tender, sign the acceptance of the tender or if he is not so competent, shall send the form for signature of the acceptance to the officer competent to accept it.

CONDITIONS OF CONTRACT

Compensation for delay

Clause-1 All compensation or other sum of money payable by the contractor to CRUT under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due or may become due to the contractor by CRUT on any account whatsoever and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid the contractor shall within 10 days thereafter make good in cash or CRUT securities endorsed as aforesaid any sum or sums which may have been deducted from, or raised by, sale of the security deposit or any part thereof.

The work should not be considered finish until such date as the Executive Engineer shall certify as the date on which the work is finished after necessary rectification of defect as pointed out by the Executive Engineer or his authorized agent are fully complied with by the contractor to the Executive Engineer satisfaction.

Clause-2 (a) The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which the written order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract, be carried on with all due diligence (time being deemed to be of essence of the contract on the part of the contractor) and the contractor shall pay, as compensation an amount equal to $\frac{1}{2}$ percent on the amount of the estimated cost, if the whole work as shown by the tender for every day that the work remains un-commenced, or un-finished after the proper dates (The work should not be considered finished until such date as the Executive Engineer shall certify as the date on which the work is finished after necessary rectification of defects as pointed out by the Executive Engineer or his authorized agents, are fully complied with by the contractor to the Executive Engineers satisfaction). And further, to ensure good progress during the execution of the work the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month to complete one-fourth of the whole of the work before one fourth of the whole time allowed under the contract has elapsed, one half of the work, before one half of such time has elapsed, and three fourth of work before three fourths of such time has elapsed, in the events of the contractor failing to comply with the condition, he shall be liable to pay as compensation an amount equal to one third percent on the said estimated cost of the whole work for everyday that the due quantity of work remains incomplete. Provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed 10 percent on the estimated cost of the work as shown in the tender.

Action when whole security deposit is forfeited.

Clause-2 (b) If there are possibilities of exceeding this compensation amount as mentioned in clause (a) 10% of the estimated cost, or in any case in which under any clause or clauses of this contract, the contractor shall have rendered himself liable to pay compensation amount to the whole of his security deposit in the hands of **COMPREHENSIVE REGION URBAN TRANSPORT** (Wherever paid in the sum or deducted by installments) the Executive Engineer on behalf of the **COMPREHENSIVE REGION URBAN TRANSPORT** shall have power to adopt the following course, as he may deem best suited to the interest of the **COMPREHENSIVE Region Urban Transport**.

- i) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Executive Engineer shall be conclusive evidence), 20% of the value of left-over work will be realized from the contractors penalty.

- ii) To employ labour paid by the Govt. of Orissa and to supply materials to carry out the work, or any part of the work, debiting the contractor with the cost of the labour and the price of the materials (of the amount of which the cost and price certificate of the Executive Engineer shall be final and conclusive against the contractor) and crediting him with the value of the work done, in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract, the certificate of the Executive Engineer as to the value of the work done shall be final and conclusive against the contractor.
- iii) To measure up the work of the contractor and to take such part of the work of the contract as shall be unexecuted out of his hands and to give it to another contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the Executive Engineer shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by Authority under the contract otherwise, or from his security deposit or the proceeds of sale thereof or a sufficient part thereof.

In the event of any of the above courses being adopted by the Executive Engineer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials, or entered into any engagements, or his having purchased or procured any materials, or entered into any engagements, or made any advances on account of or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under this contract, unless and until the Executive Engineer shall have certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified. Amendment to clause 2 (b) of item rate F₂ Agreement vide Works Department Order No.10639 Dt.27.05.2005.

- iv) Security deposit of the contractor shall be refunded only one year after the date of the completion of the work provided the final bill has been paid and defects, if any rectified.

Contractor remains liable to pay compensation if action not taken under Clause-6.

Clause-3 In any case in which any of the powers, conferred upon the Executive Engineer by clause-3 hereof shall have become exercisable and the same shall not be exercised. The non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable. In the event of any future case of default by the contractor of which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit, and the liability of the contractor for the past and future compensation shall remain unaffected. In the event of the Executive Engineer putting in force the powers vested him under the proceeding clauses he may, if he so desires, take possession of all or any tools, plants, materials and stores, in or upon the works, or the site thereof or belonging to the contractor or procure by him and intended to be used for the execution of the work or

Power to take possession of or require removal of or sell contractor Plants.

any part thereof, paying or allowing for the same in the account at the contract rates, or in case of these not being applicable, at current market rates to be certified by the Executive Engineer whose certificate thereof, shall be final otherwise the Executive Engineer may by notice in writing to the contractor or his clerk of the works, foreman or other authorized agent required him to remove such tools, plants, materials or store from the premises (within a time to specified in such notice) and the event of the contractor failing to comply with any such requisition the Executive Engineer may remove them at the contractors expenses or sell them by auction or private sell on account of the contractor and at his risk in all respects, and the certificate of the Executive Engineer as to the expense of any such removal and the amount of the proceeds and expense of any such sale shall be final and conclusive against the contractor.

Extension of time.

Clause-4 If the contractors shall desire an extension of the time for completion of the work, on the ground of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the Executive Engineer within 30 days of the date of the hindrance on account of which the desires such extension as aforesaid and the Executive Engineer shall, if in his opinion (which shall be final) reasonable grounds be shown thereof, authorize such extension of time, if any, as may in his opinion, be necessary or proper. The Executive Engineer shall at the same time inform the contractor whether he claim compensation for delay.

Clause-5 On completion of the work, the contractor shall be furnished with a certificate by the Executive Engineer (herein after call the Engineer-in-charge) of such completed, but no such certificate be given nor shall the work be considered to be completed until the contractor shall have removed from the area of the premises to be distinctly marked by the Executive Engineer in the site plan on which the work shall be executed, all scaffolding, surplus materials and rubbish and cleaned off the dirt from all wood work, doors, windows, floors or other part of any building in upon or about which the work is to be executed, or of which he may have possession for the purpose of the execution thereof nor until the work shall have been measured by the office of the **COMPREHENSIVE REGION URBAN TRANSPORT** in accordance with the rules of the Authority whose measurements shall be binding and conclusive against the contractor. If the contractors shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials, rubbish and cleaning off dirt on or before the date of fixed for the completion of the works, the Engineer-in-charge may at the expenses of the contractor remove such scaffolding, surplus materials, rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall forthwith pay the amount of all expenses incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid, except for any sum actually realized by the sale thereof.

Sub-Clause-5 If in the opinion of the Engineer-in-charge, which shall be final and binding on the contractor, occupation or utilization of a portion of the work completed in no way interferes with progress of the work the same may be occupied or utilized by on behalf of the Authority under the written order of the Engineer-in-charge and to get the defects, if any rectified by the contractor at his (Contractors) own cost within six months from the date of completion of the whole work provided that the contractor

will not be allowed any concession either in the shape of extension of stipulated period or any other monetary compensation on account of such occupation or use.

Payment on intermediate certificate to be regarded as advances and bill to be submitted monthly.

Clause-6 A bill shall be submitted by the contractor each month on or before the date fixed by the Engineer-in-charge for all works executed in the previous month, and the Engineer-in-charge or his subordinate shall take the requisite measurement for the purpose of having the same verified and the claim, as far as admissible, adjusted, if possible before the expiry of ten day from the presentation of the bill. If the contractor does not submit the bill within the time fixed as aforesaid the Engineer-in-charge or his subordinate shall measure up the said work in the presence of the contractor whose counter signature of the measurement list will be sufficient warrant, and the Engineer-in-charge or his subordinate shall prepare a bill from such list which shall be binding on the contractor in all respects.

Provided that, if any balance of the 10% security is outstanding from each such payment shall be deducted so much, not exceeding 5% as may be necessary to make up the balance of the security. All such intermediate payments to the contractor shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskillful work to be removed and taken away and reconstructed or re-erected, or be considered as an admission of the due performance of the contract, or any part thereof in any respects, or the actual of any claim nor shall it conclude, determine, of effect in any way the powers of the Engineer-in-charge under these conditions or any of them as to the final settlement or adjustment of the accounts or otherwise or in any other way vary or effect the contract.

Clause-7 The final bill shall be prepared by the offices of the Public Works Department in accordance with the rules of the department in the presence of the contractor within one month of the date fixed for completion of the work.

Store supplied by Government.

Clause-8 If the specification or estimate of the work provides for the use of any special description of material to be supplied from the Engineer-in-charge's store, or it is required that the contractor shall use certain store to be provided by the Engineer-in-charge under the conditions of this contract (such materials and stores, and the prices to be charged there for as hereinafter mentioned being so far as practicable for the convenience of the contractor, but not so as in any way to control the meaning of effect of this contract are specified in the schedule or memorandum hereto annexed), the contractor shall be supplied with such materials and stores noted in the annexed schedule as are required from time to time to be used by him for purpose of the contract only and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule may set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise or against or from the security deposit, or the proceeds of sale thereof, if the same is held in Government securities, the same or a sufficient portion thereof being in this case sold for the purpose. All materials supplied to the contractor shall remain the absolute property of **COMPREHENSIVE REGION URBAN TRANSPORT** and shall not on any account be removed from the site of the work, and shall at

all times be open to inspection by the Engineer-in-charge. Any such materials used and in perfectly good condition at the time of the completion or determination of the contract shall be returned to the Engineer-in-charge's store, at the prevailing market rate or at the issue rate whichever is less if by a notice in writing under his hand he shall so require, but the contractor shall not be entitled to return any such materials unless with such consent, and shall have no claim for compensation on account of any such materials so supplied to him as aforesaid being unused by him or for any wastage in or damage to any such materials.

Clause-8(a) If a contractor removes any materials or stock so supplied to him from the site of the work in contravention of the provisions of this clause with a view to dispose of the same dishonestly, he shall, in addition to any other liability, civil or criminal, arising out of this contract be liable to pay a penalty equivalent to five times the price of the said materials or stock, according to the stipulated rate. The penalty so imposed shall be recoverable from any sum that may be then, or at any time thereafter may become due to the contractor, or from his security deposit, or the proceeds of sale thereof.

Clause-8(b) Owing to difficulty in obtaining certain materials in the open market the **COMPREHENSIVE REGION URBAN TRANSPORT** have undertaken to supply materials specified in the schedule hereto annexed. There may be delay in obtaining materials by the Authority and the contractor is thereof, required to keep himself in touch with the day to day position regarding the supply of materials from the Engineer-in-charge and to so adjust the progress of the work that their labour may not remain idle nor may there be any other claim due to or arising from delay in obtaining the materials. It should be clearly understood that no monetary claim whatsoever shall be entertained by the Authority on account of delay in supplying materials. However, extension of time for completion of work can be granted on timely application by the contractor vide also Clause-5.

Works to be executed in accordance with specification, drawing and orders etc.

Clause-9 The contractor shall execute the whole and every part of the work in the most substantial and workmen like manner and both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office, and to which the contractors shall be entitled to have access at such office, for the purpose of inspection during office hour and the contractor shall, if he so requires be entitled at his own expenses to make or cause to be made copies of the specifications, and of all such designs, drawings and instructions as aforesaid.

Do not invalidate contract.

Clause-10 The Engineer-in-charge shall have power to make any alteration in or additions to the original specifications, drawings, designs and instructions that may appear to him necessary and advisable during the progress of work and the contractor shall be bound to carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-charge and such alteration shall not invalidate the contract, and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work, and at the same rates as are specified in the tender for the main work. The time for the completion of the work shall be extended in the proportion that the additional work bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportion. And if the additional work includes any class of work for which no rates is specified in this contract, then such class of work shall be carried out at the rates entered in the sanctioned schedule of rates of the locality during the period when the work is being carried on and if such last mentioned class of work is not entered in the schedule of rates of the district then the contractor shall within seven days of the date of his receipt of the order to carry out the work inform the Engineer-in-charge of the rate

Extension of time in consequence of alteration.

Rates of work not in estimate or schedule of

rates of the district.

which it is his intention to charge for such class of work and if the Engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider advisable.

No deviations from the specification stipulated in the contract nor additional items of work shall ordinarily be carried out by the contractor, nor shall any altered, additional or substituted work be carried out by him, unless the rates of the substituted, altered or additional items have been approved and fixed in writing by the Engineer-in-charge. The contractor shall be bound to submit his claim for any additional work done during any month on or before the 15th day of the following month accompanied by a copy of the order in writing of the Engineer-in-charge for the additional work and that the contractor shall not be entitled to any payment in respect of such additional work if he fails to submit his claim within the aforesaid period.

Provided always that if the contractor shall commence work or incur any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rates as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of a dispute, the decision of the G.M (Engg.), **COMPREHENSIVE REGION URBAN TRANSPORT**, Bhubaneswar will be final.

No compensation or alteration in or restriction of work to be carried out.

Clause-11 It at any time after the commencement of the work the **COMPREHENSIVE REGION URBAN TRANSPORT** shall for any reason whatsoever not require the whole thereof as specified in the tender to be carried out the Engineer-in-charge shall give notice in writing of the fact to the contractor who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage, which he might have derived from the execution of the work in full but which he did not derive in consequence of the full amount of the work not having been carried out neither shall he have any claim for compensation by reason of any alterations having been made in the original specification, drawings, designs and instruction which shall involve any curtailment of the work as originally contemplated.

Action and compensation payable in case of bad work.

Clause-12 If it shall appear to the Engineer-in-charge or his subordinate in-charge of the work, that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution for the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall on demand in writing from the Engineer-in-charge specifying the work materials or articles complained of notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work so specified in whole or in part, as the case may require, or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day not exceeding ten days, while his failure to do so shall continue

and in the case of any such failure the Engineer-in-charge may rectify or remove, and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be at the risk and expenses in all respect of the contractor.

Works to be open to inspection.

Clause-13 All work under or in course of execution or executed in pursuance of the contract shall at times be open to the inspection or supervision of the Engineer-in-charge and his subordinate and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate to visit the works shall have been given to the contractor either himself be present to receive orders and instruction or have a responsible agent duly accredited in writing present for that purpose orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

Contractor or responsible agents to be present.

Notice to be given before work is covered up.

Clause-14 The contractor shall give not less than five days notice in writing to the Engineer-in-charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement, any work without the consent in writing of the Engineer-in-charge or his subordinate-in-charge of the work and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at contractor's expenses, or in default thereof on payment or allowance shall be made for such work or the materials with which the same was executed.

Contractor liable for damage done and for imperfection for 6 months after certificate.

Clause-15 If the contractor or his work people, or servants shall break, deface, injure or destroy any part of a building in which they may be working or any building, road, fence, enclosure, or grass land or cultivated ground continuous to the premises on which the work or any part of it is being executed or if any damage shall happen to the work, while in progress from any cause whatever or any imperfection become apparent in it within 3 months from the date of final certificate of its completion shall have been given by the Engineer-in-charge, as aforesaid, the contractor shall make the same good at his own expenses, or in default, the Engineer-in-charge may cause the same to be made good by other workmen, and deduct the expenses (of which the certificate of Engineer-in-charge shall be final) from any sums that may be then, or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof and the contractor shall be liable to pay any part of the expenses not so recovered by the Engineer-in-charge.

Contractor to supply plants, ladders scaffolding etc.

Clause-16 The contractor shall supply at his own cost all materials (except such special materials, if any, as may in accordance with the contract, be supplied from the Engineer-in-charge's stores) plants, tools, appliances, implements, ladders cordage, tackle scaffolding and temporary works requisite or proper for the proper execution of the work, whether original, altered or substituted, and whether included in the specification or other documents forming part of the contract or referred to in these conditions or not or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-charge as to any matter as to which under these conditions he is entitled to be satisfied, which he is

And is liable for damages arising from non-provision of lights, fencing etc.

entitled, to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for of the purpose of setting out works and counting, weighting and assisting in the measurement or examination at any time and from time to time of the work of materials. Failing his so doing the same may be provided by the Engineer-in-charge at the expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof. The contractor shall also provide all necessary fencing and lights required to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions, and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such persons or which may with the consent of the contractor be paid to compromise any claim by any such person.

Clause-17 No female labour shall be employed within the limits of a cantonment.

The contractor shall not employ for the purpose of his contract any person who is below the age of twelve years, and shall pay to each labourer for the work done by such labourer, wages not less than the wages paid similar work in the neighborhood.

The Executive Engineer shall have the right to enquire in to and decided any complaint alleging that the wages paid by the contractor to any labourer for the work done by such labourer is less than the wages paid for similar work in the neighborhood.

The Officer-in-charge of the work shall have the right to decide whether any labourer employed by the contractor is below the age of twelve years and to refuse to allow any labourer whom he decides to be below the age of the age of twelve years, to be employed by the contractor.

(b) The contractor shall employ one or more Engineering Graduate or Diploma holders as apprentices at his own cost if the work as shown in the tender exceeds Rs.2,50,000/-. The apprentices will be selected by the G.M (Engg.). The period of employment will commence within one month after the date of work order and would last till the date when 90% of the work is completed. The fair wages to be paid to the apprentices should be not less than Rs..... the emolument of personnel of equivalent qualification employed under Government. The number of apprentices to be employed should be fixed by the G.M (Engg.) in a manner so that the total expenditure does not exceed one percent of the tendered cost of the work.

(c) Super class contractor shall employ under him two Graduate Engineers and two Diploma holders belonging to the State of Odisha and Special class contractor shall employ under him one Graduate Engineer and two Diploma holders belonging to the State of Odisha, like-wise 'A' Class contractor shall employ under him Graduate Engineer or two Diploma holders belonging to the State of Odisha. The employment of such Graduate Engineers and Diploma holders under the contractor shall be full time and continuous and they shall not be superannuated, retired, dismissed or removed personnel from any State Government or Central Government Service, Public Sector, Undertakings, Private Companies and Firms or be ineligible for appointment of Govt. The contractor shall pay them monthly emoluments which shall not be less than the emoluments of the personnel

of equivalent qualification employed under the State Govt. of Odisha. The Chief Engineer, Roads, Odisha, may however, assist the contractor with names of such unemployed Graduate Engineers and Diploma holders if such help is sought for by the contractor.

The name of such Engineering personnel appointed by the contractor should be intimated to the tender received authority along with each tender as to who would be supervising the work.

Each bill of the Super Class, Special Class or 'A' Class contractor shall be accompanied by an employment rule of the Engineering personnel together with a certificate of the Graduate Engineer or Diploma holder so employed by the contractor to the effect that the work executed as per the bill has been supervised by him.

Works not be sublet.

Clause-18 The contract shall not be assigned or sublet without the written approval of the Executive Engineer. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditor, or attempt to do so, or if any bribe, gratuity gift, loan, perquisite reward or advantage, pecuniary or otherwise, shall either directly be given, promised or offered by the contractor, or any of his servants or agents to any public officer or person in the employ of Government in any way relating to his officer employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Executive Engineer may there upon by notice in writing rescind the contract and the security deposit of the contractor shall there upon stand forfeited and be absolutely at the disposal of **COMPREHENSIVE REGION URBAN TRANSPORT** rescinded under Clause-3 hereof, and in addition the contractor shall not be entitled to recover or to be paid for any work thereof actually performed under the contract.

Contract may be rescinded and security deposit forfeited for subletting, bribing or if contractor insolvent.

Clause-19 All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of Authority without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

Sum payable by way of compensation to be considered as a reasonable compensation without reference to actual loss.

Clause-20 In the case of tender by partners, any changes in the constitution of the firm shall be forthwith notified by the contractor to the Engineer-in-charge for his information.

Changes in constitution of firm

In case of failure to notify the change in the constitution within fifteen days, the Engineer-in-charge may by notice in writing rescind the contracts and the security deposit of the contractor shall there upon stand forfeited and be absolutely at the disposal of **COMPREHENSIVE REGION URBAN TRANSPORT** and the same consequences shall ensue as if the contract had been rescinded under Clause-3 hereof, and in addition the contractor shall not be entitled to recover or to be paid for any works there for actually performed under the contract.

Clause-21 All works to be executed under the contract shall be executed under the direction and subject to the approval in all respect of the G.M (Engg.), CRUT for the time being who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

Lump sums in estimates.

Clause-22 When the estimate on which a tender is made include lump sums in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in

question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-charge capable of measurement, the Engineer-in-charge may by his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of this clause.

Clause-23 In the case of any class of work for which there is no such specification as is mentioned in rule-1, such work shall be carried out in accordance with the circle specification and in the event of there being no circle specification, then in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-charge.

Action where no
specification.

Clause-24 The expression “work” or “work” where used in these conditions shall, unless there be something either in the subject or context repugnant to such construction, be constructed and taken to mean the works by or by virtue of the contract contracted to be executed, whether temporary or permanent, and whether original, altered, substituted or additional.

Definition of works.

Clause-25 COMPREHENSIVE REGION URBAN TRANSPORT shall be entitled to recover in full from the contractor any amount that the **COMPREHENSIVE REGION URBAN TRANSPORT** may be liable to pay under Workmen’s Compensation Act VIII of 1923, to any workmen employed in course of execution of any part of the work covered by these contracts.

Clause-26 That for the purpose of jurisdiction in the event of dispute if any, the contract should be deemed to have been entered into within the State of Odisha and it is agreed that neither party to the contract or agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Odisha.

Clause-27 The **COMPREHENSIVE REGION URBAN TRANSPORT** will have the right to inspect the scaffolding and centering made for the work and reject party or fully such structure if found defective in their opinion.

Clause-28 The contractor shall bear all taxes including VAT, Income Tax, Royalty, Fair-weather charges and Tollage and any other taxes as applicable and where necessary.

As per Works Deptt. letter No.5608 Dt.03.04.2007.

FAIR WAGES CLAUSE

Clause-29 (a) The contractor shall not employ for the purpose of this contract any person who is below the age of fourteen (14) years and shall pay to each labourer for work done by such labourer fair wages. PWL No.22059 Dtd.16.08.77.

Explanation – “Fair Wages” means wages, whether for time or piece work prescribed by the State Public Works Department provided that where higher rates have been prescribed under the minimum wages Act.1948 wages at such higher rates should constitute fair wages.

(b) The contractor shall notwithstanding the provisions of any contract to contrary, Clause to be paid a fair wages to labourer by his Sub-Contractors in connection with the said work, as if the labourer had been immediately

employed by him.

(c) In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this agreement the contractor shall comply with or cause to be complied with all regulations made by Government in regard to payment of wages period deductions from wages, recovery of wages not paid and deductions unauthorisedly made, maintenance of wages register, wage cards, publications of scale of wages and other terms of employment, inspection and submission of periodical return and all other matters of a like nature.

(d) The Executive Engineer or Sub-Divisional Officer concerned shall have the right to deduct, from the money due to the contractor, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages, which are not justified by their terms of the contract or non-observation of the regulations. Money so deducted be transferred to the workers concerned.

(e) Vis-à-vis, the Government of Orissa, the contractor shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his Sub-Contractor.

(f) The regulations aforesaid shall be deemed to be a part of this contract and any breach thereof shall be breach of this contract.

(g) Under the provisions of the minimum wages Act,1948 and the minimum wages (Central Rules 1950) the contractor is bound to allow or cause to be allowed to the labourer directly or indirectly employed in the work one day rest of six days continuous work and pay wages at the same rate as for duty. In the event of default the Executive Engineer or Sub-Divisional Officer concerned shall have the right to deduct the sum not paid on account of wages for weekly holiday to any labourer and pay the same to the person entitled there to from any money due to the contractor.

(h) The contractor shall not his own expense provide or arrange for the provision of foot wear for any labour doing cement mixing work and black topping of roads (The contractor has undertaken to execute under this contract) to the satisfaction of the Engineer-in-charge and on his failure to do so, Government shall be entitled to provide the same and recover the cost from the contractor.

(i) The contractor shall submit by the 4th & 10th of every month to the Engineer-in-charge a true statement showing in respect of the Second half of the preceding month and the first half of the current month respectively (1) the numbers of labours employed by him on the work (2) their working hours (3) the wages paid to them (4) the accident that occurred during the said fortnight showing the circumstances under which they happened and the content of damage injury caused by them and (5) the number of the female workers who have been allowed maternity benefit according to clause-K and the amount paid to them failing which the contractor shall be liable to pay to Government a sum not exceeding Rs.50/- for each default to maternity incorrect statement. The decision of the Executive Engineer shall be final in deducting from any bill due to contractor amount levied as fine.

(j) In respect of all labour directly or indirectly employed in the works for

the performance of the contractor's part of this agreement, the contractor shall comply with or cause to be complied with all the rule, framed by Government employed by the Odisha Public Works Department and its contractors. This will apply to work places having 50 or more workers.

Clause-30 The terms and conditions of the agreement have been read / explained to me and certify that clearly understand them.

Orissa P.W.D / Electricity Department Contractor's Labour Regulation

1. Short Title – These regulations may be called “The Orissa Public Works Department / Electricity Department Contractor's regulations”.

2. Definitions – In these regulations, unless otherwise expressed or indicated the following words and expressions shall have the meaning hereby assigned to them respectively that is to say -

(i) “Labour means works employed by a contractor of the Orissa Public Works Department / Electricity Department directly or indirectly through a Sub-Contractor or other person, by an agent on his behalf.

(ii) “Fair wages” means wages whether for the time of piece work described by the State Public Works Department / Electricity Department for the area in which the work is done.

(iii) “Contractor” shall include every person whether a Sub-Contractor or headman or agent employing labour on the work taken on contract.

(iv) “Wages” shall have the same meaning as defined in the payment of wages Act and include time and piece rate wages, if any -

3. Display of notices regarding wages, etc.

The Contractor shall –

(a) Before the commences his work on contract display and correctly maintain and continue to display, in a clean and legible condition, in conspicuous places on the work, notices in English and in the local Indian language spoken by the majority of the workers, giving the rate of wage prescribed by the State Public Works Department / Electricity Department for the district where the work is done.

(b) Send a copy of such notices to the Engineer-in-charge of the work.

4. Payment of wages.

(i) Wages due to every worker shall be paid to him direct.

(ii) All wages shall be paid in current coin or currency or in both.

5. Fixation of wages period.

(i) The contractor shall fix the wages period in respect of which the wages be payable.

(ii) No wages period shall exceed one month.

(iii) Wages of every workman employed on the contract shall be paid

before the expiry of the days, after the last day of the wage period in respect of which the wages are payable.

- (iv) When the employment of any worker is terminated by or on behalf of the contractor, the wages earned by him shall be paid before the expiry of the day succeeding the one on which his employment is terminated.
- (v) All payment of wages shall be made on a working day.

6. *Wages book and wage cards etc.*

- (i) The contractor shall maintain a wages book of each worker in such form as may be convenient, but the same shall include the following particulars:
 - (a) Rate of daily or monthly wages.
 - (b) Nature of work on which employed.
 - (c) Total number of days work during each wage period.
 - (d) Total amount payable for the work during each wage period.
 - (e) All deductions made from the wages with an indication in each case of the ground for which the deduction is made.
 - (f) Wages actually paid for each wage period.
- (ii) The contractor shall also maintain a wage card for each worker employed on the work.
- (iii) The Executive Engineer may grant an exemption from the maintenance of wage bond, wage cards to a contractor who, in his opinion may not directly or indirectly employ more than 10 persons on the work.

7. *Fines deduction which may be made from wages.*

- (i) The wages of a worker shall be paid to him without any deduction of any kind except the following.
 - (a) Fines.
 - (b) Deductions for absence from duty, i.e. from the place or places where by the terms of his employment he is required to work. The amount of deductions shall be in proportion to the period for which he was absent.
 - (c) Deductions for damage to or loss of good expressly entrusted to the employed person for custody or for loss of money for which he is required to account where such damage or loss is directly attributable to his neglect or default.
 - (d) Any other deductions which the Odisha Government may from time to time allow.
- (ii) No fines shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity or showing cause against such fines or deductions.
- (iii) The total amount of fines which may be imposed in any one wage period on a work shall not exceed an amount equal to five paise in rupee of the wages payable to him in respect of that wage period.
- (iv) No fine imposed on any worker shall be recovered from him by installments, or after the expiry of 60 days from the date on which it was imposed.

8. *Register of fines, etc.*

- (i) The contractor shall maintain a register of fines and of all deductions for damage or loss. Such register shall mention the reason for which fine

was imposed or deduction for damage or loss was made.

- (ii) The contractor shall maintain a list in English and in the local Indian language, clearly defining acts and omissions for which penalty or fine can be imposed. It shall display such list and maintain it in a clean and legible condition in conspicuous places in the work.

9. *Preservation of Register.*

The wages register, the wage cards and the register of fines, deduction required to be maintained under these regulations shall be preserved for 10 months after date of the last entry made in them.

10. *Power of Labour Welfare Officer to make investigation or enquiry.*

The Labour Welfare Officer or any other person authorized by the Government of Odisha on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of the fair wage clauses and the provision of these regulations, he shall investigate into any complaint regarding default made by the contractor, Sub-Contractor in regard to such provisions.

11. *Report of Labour Welfare Officer.*

The Labour Welfare Officer or others authorized as aforesaid shall submit a report of the results of his investigation or enquiry to the Executive Engineer concerned, indicating the extent if any, to which the default has been committed with a note that necessary deduction from the contractor's bill be made and the wages and other dues be paid to the labourer concerned.

12. *Appeal against the decision of Labour Welfare Officer.*

Any persons aggrieved by the decision and recommendation of the Labour Welfare Officer or other person so authorized may appeal against such decision to the Labour Commissioner within 30 days from the date of decision forwarding simultaneously a copy of his appeal to the Executive Engineer concerned but subject to such appeal, the decision of the officer shall be final and binding upon the contractor.

13. *Inspection of registers.*

The contractor shall allow inspection of the wage book and wage cards to any of his workers or his agent at a convenient time and place after due notice is received, or to the Labour Commissioner or any other person authorized by the Government of Odisha on his behalf.

14. *Submission of return.*

The contractor shall submit periodical returns as may be specified from time to time.

15. *Amendments.*

The Government of Odisha may from time to time, add to or amend these regulations and on any question as to the application, interpretation of effect of the regulations, the decision of the Labour Commissioner or any other person authorized by the Government of Odisha in that behalf shall be final.

Clause-31 The terms and conditions of the agreement have been read / explained to me and certify that clearly understand them.

The Department shall not supply any materials whatsoever for the work. The contractor should be financially stable for advanced procurement of all materials to be required for the works vide Govt. of Orissa Finance Department Memo No.48443/F –Code-46/95 dated 11.12.85.

Or

Schedule showing (Approximately) materials to be supplied, if available, the rates which they are to be charged for and the places at which are to be supplied.

Particulars	Rate at which the materials will be charged to the contractor.			Place of Delivery
	Unit	Rs.	P.	

- Note:** 1) The persons or firm submitting the tender should see that the rates in the above schedule are filled up by the Engineer-in-charge on the issue of the form prior to the submission of the tender.
- 2) Before issue of the above materials to him, the contractor shall furnish Bank Guarantee of any of the Nationalized Banks located at for a sum equal to the cost of materials. The Bank Guarantee should be valid for the entire period of agreement. The same may be refunded to the contractor only after the materials supplied to him are fully utilized in the works and cost thereof recovered from his bill(s) in full or if the materials are partly utilized materials are returned by him to the Department in full and in good condition and receipt thereof duly acknowledged by the concerned Departmental Officer.

INFORMATION SHEET FOR OFFICE USE ONLY

MEMORANDUM OF PAYMENT

Sl No. of Bills	M.B No.	Voucher No.	Date	Gross amount of the Bill	Net amount of the Bill	Cumulative Gross Amount	Signature of D.A.O

**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING OF TENDERER OR
ABANDONMENT OF WORK BY THE TENDERER**

01) a) Is the bidder currently involved in any litigation relating to the works? Yes / No.

b) If yes: - give details.

02) Has the bidder or any of its constituent partners been debarred / expelled by any agency in India during the last 5 years. Yes / No.

03) a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years? Yes / No.

b) If yes: - give details.

Note:

If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of bidder

“Annexure-B”

Manufacturer's Authorization Form (MAF)
(To be submitted on Manufacturer's Letter head for Transformer/ RMU /UG cable/ HT and LT Switchgear)

Ref. No. _____ dated _____

To

General Manager (Engg), CRUT, Bhubaneswar.

Dear Sir,

Tender Reference No./ NIT : _____

Name of the tender:

We _____ who are established and reputable manufacturers of
_____ having factories for _____ at
_____ do hereby authorize M/s. _____
_____ (Name and address of agency) to participate in the above
tender.

We hereby extend our technical assistance to the bidder during design engineering and inspection of the product.

We have studied the requirements of the product and confirm that we will adhere to the specifications of the tender and quality plan and extend all support during the inspection and provide documentary evidence at the time of inspection for the verification by TPI /Client.

Yours faithfully (Name)
For and on behalf of M/s. _____
(Name of manufacturers)

AFFIDAVIT

1. The undersigned do hereby certify that all the statements/ copies of documents furnished in the required attachments are true and correct. This affidavit is furnished in connection with the work **Construction of 33KV line & Installation of 3 X 2000 KVA 33/0.4KV transformer to effect power supply 4320 KW/6000KVA load at 33KV supply with HT single point metering to CRUT Bus Depot at Naraj, Cuttack. (Under P.M e-Bus Sewa) bid identification No.1791/G.M (Engg.)/CRUT of 2026-27 dt.01.07.2026.**
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation/ Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorize(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.
5. The undersigned undertake that in case of any information furnished by me found to be incorrect, the CRUT has right to reject the Bid.

(Signature of bidder)

Title of Officer: Name of Firm: Date:

1. Scope of Specification Transformer BIS Level-II with Amendment-IV-1180

1.1 This specification is intended to cover design manufacture assembly, testing at manufacturer's works, supply, and delivery of three phases, 50 HZ, 33/0.433 KV Delta/Star, Vector Group DY II two windings copper wound outdoor type oil immersed naturally air cooled Transformer is per detail furnished here after.

1.2 The transformer offered shall be complete with all parts and accessories which are necessary or usual for their efficient and satisfactory operation. Such parts and accessories shall be deemed to be within the scope of this specification whether specifically mentioned or not. Main tank body may be delivered in unpacked condition, but delicate parts like indicating meter, radiator, and conservator. Pressure Relief Valve, equalizer pipe, Buchholz relay etc. shall be packed to avoid damage due to transshipment.

2. Location

The transformer shall be installed outdoor anywhere in Odisha. The elevation of sites above mean sea level is not likely to exceed 1000 meter.

3. System Details

33 KV system is non- effectively earthed, whereas 433 V systems is to be effectively earthed at neutral point of the star connected windings of the Transformer.

4. Weather Condition

To designing, the following conditions shall be considered. However please note that the installation is proposed at Odisha and weather conditions of the needs to be considered.

A. Elevation above Mean Sea level	: 870 M
B. Maximum Ambient Air Temperature	: 37 Deg C
C. Maximum daily Average Ambient Air Temperature	: 23 Deg C
D. Minimum Ambient Air Temperature	: 11 Deg C.
E. Maximum Humidity	: 87 %
F. Average number of thunderstorm day per annum	: 100
G. Number of months of tropical monsoon	: 4-5
H. Average Annual rainfall	: 1567 mm
I. Maximum wind pressure	: 100 Kg. per sq. Mtr

5. Applicable Standards

Unless otherwise stated, transformer shall be designed, constructed, and tested in accordance with provisions contained in latest revisions of following Indian standards and Rule.

1. IS 2026
2. Indian Electricity Rules, 1953 (Amended up to date)
3. other applicable Indian Standards.
4. ECBC Guidelines
5. GRIHA

6. Rating & General Particulars

Type:

Core type, three phase. Oil immersed step-down two winding copper wound transformer for outdoor installation.

7. Standard Rating:

Continuous with on load tap as mentioned in the schedule of quantities.

8. Continuous maximum rating & Temperature Rise:

As regards maximum rating and temperature rise, all transformers shall comply with the appropriate requirement of Indian Standards

To consideration of maximum temperature rise of oil and winding the following ambient temperature are assumed.

- | | |
|--|-------------|
| i. Cooling medium | : Air |
| ii. Maximum Ambient Air temperature | : 50 Deg C. |
| iii. Maximum daily average ambient Air temperature | : 40 Deg C |
| iv. Maximum yearly weighted average temperature | : 32 Deg C. |

With the above ambient temperature condition allowable maximum temperature rise shall be as mentioned below

<u>Type of cooling</u>	<u>Oil in deg C</u>	<u>Winding in deg C</u>
ONAN	50	55

9. No Load Voltage Ratio:

The no load voltage Ratio corresponding to principal (normal) tapping shall be 33,000/433 volts.

10. Winding Connection & Vector Group:

1	Number of Phases	Three
2	Frequency	50 Hz
3	Type of cooling	ONAN
4	Winding Connection	The primary winding (HV) shall be connected in delta and secondary winding (LV) shall be connected in star.
5	Vector Group	Windings shall be connected as per Vector symbol DY II of Indian.
6	Neutral earthing	The neutral point of the secondary (LV) winding shall be brought out to a separate insulated terminal and shall be solidly earthed.

Taps:

Transformer shall be provided with on load taps ranging from +5% to -15% in steps of 2.5% each on H.V winding for H.V. variation. The tap changing switch shall be located in a convenient position so that it can be operated from ground level. The Control Box shall be provided with Tap position indication & locking arrangement.

Technical Specification of on Load Tap Changer to be supplied with 2000, 1600 KVA 33KV/433 V Transformer.

1. The on load tap changer shall be designed suitable for local manual as well as local electrical operation
2. The on load tap changer shall include the following,
 - a) An oil immersed tap selector and arcing switch or arc suppressing tap selector, provided with reactor or resistor for reduction of make and break arcing voltages and short circuits
 - b) Motor driven mechanism.
 - c) Control and protection devices.
 - d) Local/ remote tap changer position indicator.
 - e) Manual/Electrical operating device.
3. The on-load tap changer shall be designed so that the contacts do not interrupt arc within the main tank of the Transformer. The tap selector and arcing switch or arc suppressing tap selector switch shall be located in one or more oil filled compartments. The compartment shall be provided with oil surge Relay. Those compartments shall be designed to prevent the oil in tap selector compartments from mixing with the oil in the transformer tank. A suitable pressure relieving arrangement should be provided to take care to sudden pressure rise in compartment. But this should in no way affect the performance of the oil surge relay provided for the compartment. Oil surge relay to be provided for the OLTC compartments shall have trip contacts.
4. The manual operating device shall be so located on transformer that it can be operated by a man standing at the level of transformer track. It shall be strong and robust in construction.
5. The contacts and associated gear for the tap change driving motors shall be in separate room. The motors shall be suitable for operation with 3-Phase, 400/415 Volts, 50 Cycle Power supply.

Impedance Value:

The percentage impedance at 75 Deg C refer to the (normal) principal tapping shall be as follows

Sr.No	Rating	Voltage Ratio	% Impedance
1	2.0 MVA, 1.6 MVA	33KV / 433V	6

The impedance value refers to the (normal) principal tapping are subject to a tolerance of $\pm 10\%$.

Terminal:

Transformer shall be provided with bushing insulators on both HV and LV sides. HV and LV bushings shall be located on opposite side.

The electrical characteristics of bushing insulator shall be in accordance with IS: 2099 dimensions and type of bushing shall conform to IS 3347 and shall be as follows:

HV Bushing (33KV side)	36KV Class	Porcelain bushing with plain sheds for heavily polluted atmosphere.
Neutral at LV side		Neutral of L.V. winding shall be brought out through porcelain bushing similar to L.V hushing for connection with earth terminal.

Provision of current transformer in LV side of power transformer:

To achieve Restricted Earth fault in Star Connected LV. Side of Power Transformer, a Current Transformer having following particulars shall have to be provided between neutral terminal & neutral bushing of LV. Side of Power Transformer. This CT. is to be mounted at the bottom of LV. Side neutral bushing.

1	Type	Suitable for installation in LV Side of power transformer for reflection of neutral current
2	Ratio	---- /IA
3	Accuracy class	PS
4	Knee point voltage V_k	$V_k > 250V$ at higher ratio
5	RCT at 75 deg C lower & higher tapes	RCT < 4 ohm at higher ratio at 75 deg C & < 2 ohm at lower ratio at 75 deg C
6	Magnetising current at knee point voltage	< 30 mA at V_k

11. Insulation Level

The transformer shall be capable to withstand test voltage as specified below.

Nominal Voltage (In KV rms)	Highest voltage for equipment (in KV rms)	Rated lightning impulse withstand voltage in KV peak	Rated short duration power frequency withstand voltage (in KV rms)
33	70	170	70

12. Cores

The Cores shall be constructed from high grade cold rolled non-aging grain oriented silicon steel laminations having magnite coating as insulation.

Successful bidder will offer the Core for inspection and/or approval by the purchaser during the manufacturing stage. Manufacturer's Call notice for the purpose should be accompanied with the following as applicable as a proof towards use of Prime Core materials:

1. Invoice of Supplier
2. Mills test Certificate
3. Packaging lists
4. Bill of lading
5. Bill of entry certificate to customers

Core materials shall be procured either from the core manufacturer or through their accredited marketing organization of repute.

Manufacturer should preferably have in-house Core cutting facility for proper monitoring and Control on quality.

The materials used for insulation shall have high inter lamination resistance and rust inhibiting property. It shall not deteriorate by aging from hottest operating temperature and clamping pressure of the core or disintegrate due to core vibration. It shall not have any tendency to absorb moisture or to react with insulating oil.

The assembled core shall be securely clamped on the limbs and yoke with uniform pressure so as to minimize noise emission from it.

The top main core clamping structure shall be connected to the tank body by a copper strip. The bottom clamping structure shall be earthed by one or more of the following methods (i) by connecting through vertical tie rods to the top structure (ii) by direct metal to metal contact with the tank base by the weight of the core and winding (iii) by a connection to the top structure on the same side of core as the main earth connection to the tank.

All parts of the cores shall be robust design capable of withstanding any shock, to which they may be subjected during lifting, transport, installation, and service.

Adequate lifting lugs shall be provided to enable the core and winding to be lifted.

Adequate provision shall be made to prevent movement of the core and winding relative to the tank during transport and installation or while in service.

The supporting framework of the cores shall be so designed as to avoid the presence of pockets which would prevent complete emptying of the tank through the drain valve or cause trapping of air during filling.

The insulation structure for the core to bolts and core to clamp plates shall be such as to withstand a voltage of 2000 V AC at 50HZ for one minute.

13. Flux Density of Core

The maximum flux density in any part of the core and yokes at principal (normal) tapping and at rated frequency shall not exceed 1.6 Tesla (1600 lines per sq.cm) at normal voltage and 1.9 Tesla (19000 lines per sq.cm) under over voltage condition.

Prior to inspection and testing of the Transformer the supplier shall submit on request following curves of the core manufacturer.

1. Flux density vs Core loss.
2. Flux density vs Excitation

14. Winding

All windings shall be fully insulated. Transformer shall be designed to withstand the impulse and power frequency test voltages specified in clause no.9.1.

The windings shall be designed to reduce to a minimum the out of balance forces in the transformer at all voltage ratios.

The insulation of transformer winding and connections shall be free from insulating material liable to soften, ooze out, shrink or collapse and shall be non- catalytic and chemically inactive to transformer oil during service.

The stacks of windings shall receive adequate shrinkage treatment before final assembly. Adjustable device shall be provided for taking up any possible shrinkage of coils in service. All the insulating material to be used in the transformer shall preferably be of class
- A insulation as specified in Indian Standards, the test certificate of the materials shall be made available by the transformer manufacturer on request during inspection and testing.

The coil clamping arrangement and the finished dimensions of any oil ducts shall be such that it will not impede the free circulation of oil through the ducts.

The windings and connections of transformer shall be braced to withstand shocks which may occur during transport or due to switching short circuit and other transient conditions during service.

Coil clamping rings, if provided, shall be of steel or suitable insulating material. Axially laminated material other than bakelised paper shall not be used.

15. Inter earthing arrangements

General: All metal parts of the transformer with the exception of the individual core laminations, core bolts and associated individual clamping plates shall be maintained at fixed potential.

Earthing of core clamping structure: Core clamping structure shall be earthed in terms of clause no. 10.7 of this Specification.

Earthing of coil clamping rings: Where coil clamping rings are of metal at earth potential each ring shall be connected to the adjacent core clamping structure on the same side of transformer as the main earth connection.

16. Tanks

Construction: Conventional type tank shall be constructed.

The Transformer tank and cover shall be fabricated from good commercial grade low carbon steel suitable for welding and of adequate thickness. The tanks of all transformers shall be complete with all accessories and shall be designed so as to allow the complete transformer in the tank and filled with oil, to be lifted by crane or jacks, transported by- rail, road without overstraining any joint and without causing subsequent leakage of oil.

The main tank body shall be capable of withstanding vacuum gauge pressure 68 KN per Sq meters (500 mm. of Hg). The under carriage of the tank shall be made of channel of suitable size and design.

The base of each tank shall be so designed that it shall be possible to move the complete transformer unit by skidding in any direction without injury when using plate or rails.

Where the base is at a channel construction. It shall be designed to prevent retention of water.

Tank stiffeners shall be deigned to prevent retention of water. Wherever possible the transformer tank and its accessories shall be designed without pockets wherein gas may accumulate. Where pockets cannot be avoided, pipes shall be provided to vent the gas into the main expansion pipe.

All joints other than those which may have to be broken shall be welded when required they shall be double welded. All bolted joints to the tank shall be fitted with suitable oil tight gaskets which shall give satisfactory service under the operating conditions and guaranteed temperature rise conditions. Special attention shall be given to the methods of making hot oil tight joints between the tank and the cover as also between the cover and busing and all other outlets to ensure that the joints can be remade at site satisfactorily.

Tank cover: Each tank cover shall be of adequate strength and shall not distort when lifted. Inspection openings shall be provided as necessary to give easy access to bushings or changing ratio or testing the earth connection. Each inspection opening shall be of ample size for the purpose for which it is provided.

The tank cover and inspection cover shall be provided with suitable lifting arrangement.

The tank cover shall be fitted with pockets for thermometer and for the bulbs of oil and winding temperature indicators. The thermometer pocket shall be fitted with a captive screwed top to prevent the ingress of water. Protection shall be provided, where necessary for each capillary tube. The pocket shall be located in the position of maximum oil temperature, and it shall be possible to remove the instrument bulbs without lowering the oil in the tank. Turrets should provide on tank cover to house the bushing. The tuners of both HV & LV bushings should be connected through pipes with main tank Buchholtz Relay pipe to drive out trapped air or should have air release plug to drive out trapped air as the case may be.

17. Conservator vessels

Conservator vessels: The conservator should be air cell / atmoseal type to prevent direct contact of Transformer oil with atmospheric air for retarding oxidation and contamination of oil. The air cell shall be made from suitable material with inner coating resistant to transformer oil & outer coating resistant to ozone & weathering.

The conservator shall be provided with necessary valves to drive out the air in the space between conservator wall & air cell during filling of oil drain valves for complete draining of oil and cut off valves etc.

The conservator complete with necessary valves shall be provided in such a position as not to obstruct the electrical connections to the transformer from H.V& LV. SIDE.

The conservator shall have a capacity to meet the requirement of expansion of the total cold oil volume in the Transformer & cooling equipment.

The conservator shall be designed so that it can drain oil completely by means of the drain valve provided when mounted. One end of the conservator shall be bolted into position so that it can be removed for cleaning purpose.

Oil Gauges: Normally one Magnetic type oil guage shall be provided. The oil level at 30 Deg C shall be marked on the gauge.

Connection: The oil connection from the transformer tank to the conservator vessel shall be arranged at a raising angel of 3 to 9 degrees to the horizontal up to the Buchholtz relay and shall consist of pipe with inside diameter 50 min/80 mm as per capacity of the transformer and as per IS : 3639. Two valves shall be provided between the conservator and transformer main tank to cut off the oil supply to the transformer after providing a straight run of pipe for at least a length of five times the internal diameter of the pipe on the tank side of the gas and oil actuated relay and at least three times the internal diameter of the pipe on the conservator side of the gas and oil actuated relay. The valves should be fitted on both sides of the Gas and Oil actuated Relay.

Breather: Each conservator vessel shall be fitted with a glass container type breather in which silica gel is dehydrating agent and so designed that:

1. The passage of air through the silica gel.
2. The external atmosphere is not continuously in contact with the silica gel.
3. The moisture absorption indicated by a change in colour of the tinted crystals can be easily observed from the distance.
4. All breathers shall be mounted at approximately 1400 mm above ground level and shall be connected to the air cell of the conservator through pipe for the purpose of breathing during contraction or expansion of the air cell.

18. Bushing

Pollution free type insulator should be used for the bushings as specified. in clause 7. 9. The bushing should be located on suitable turrets (with air release plugs). Adjustable Arcing horns should be provided on the Bushings; Bushings of identical voltage rating shall be interchangeable. All bushings shall be Equipped with suitable terminals of approved type size and shall be suitable for bimetallic connections.

The bushings shall have high factor of safety against leakage to ground and so located as to provide adequate electrical clearance between bushing and grounded parts.

Both HV & LV Bushing should be suitable for use in heavily polluted atmosphere as per IS 8603 (Part I & III). 3 Nos. H.V Bushings & 4 Nos. L.V. Bushing should be supplied extra with the transformer as spare.

19. Filter & drain valves. Sampling device & Air release plugs

Each transformer shall be fitted with the following,

1. The filler and drain valves as specified.
2. A drain valves as specified below shall be fitted to each conservator for diameter upto 650 mm: Size of the valve 15 mm: for diameter above 650 mm: Size of the valve 25 mm.
3. Suitable oil sampling device shall be provided at the top and bottom of the main tank. The sampling device shall not be fitted on the filter valves specified under (ii) above
4. One 15 mm air release plug on the main tank of the transformer
5. All other valves opening to atmosphere shall be fitted with blank flanges.

20. Cooling Plant

General: Radiators shall be so designed as to avoid pockets in which moisture may collect and shall withstand the pressure tests.

The radiator tubes / fins shall be seamless, made of mild steel having minimum wall thickness of approx. 1.2 mm and a clean bright internal surface free from dust and scale They shall be suitably braced to protect them from mechanical shocks, normally met in transportation and to damp the modes of vibration transmitted by the active part of the transformer in service. Each cooler unit shall have a lifting eye.

Radiator valves: The butterfly or similar metal valves shall be provided for isolating detachable radiator assembly.

One cock each at the bottom of radiator stack shall be provided for draining oil from radiator stacks.

Air release plug each at the top of radiator stack shall be provided for release of locked air from radiator stack. Removable blanking plates shall be provided to permit the blanking off main oil connection of each cooler.

Radiator fixing bands in top & bottom of radiators to be provided to minimize the vibration of the same.

21. Lifting & Haulage Facility

Each tank shall be provided with (i) Lifting lags suitable for lifting of transformer complete with oil. (ii) A minimum of four jacking lags, in accessible positions to enable the transformer complete with oil to be raised or lowered using hydraulic or screw jacks. The minimum height of the lugs above the base shall,

1. Transformer upto and including 10 tonnes weight -300 mm.
2. Transformer above 10 tonnes weight – 500 mm.

iii) Suitable haulage holes shall be provided.

22. Insulating Oil

The transformer and all associated oil filled equipment shall be supplied complete with insulating new oil required for first filling including 5% extra oil for future use during commissioning. The transformer tank shall be dispatched completely filled oil and the balance oil shall be supplied in non-returnable sealed drums along with the Transformers. The insulating oil shall conform to the requirement of IS:335.

23. Pressure relief device

Pressure relief device shall be provided of sufficient sizes for rapid release of any pressure that may be generated within the tank, and which might result in damage to the equipment. The device shall operate at a static pressure of less than the hydraulic test pressure for transformer tank. Means shall be provided to prevent ingress of rain. It shall be mounted on the cover of the main tank and shall be designed to prevent gas accumulation. Spring loaded setting type Pressure Relief Valve having suitable opening Port hole according to the capacity of the Transformers should be provided. The Pressure Relief Valve should have provision of visual indication for opening of the valve and also Contact/Micro Switch arrangement for alarm/ Tripping function.

24. Axis & wheels

The Transformer shall be provided with flanged bidirectional wheels as mentioned below

Transformer rating in MVA-2.0, 1.6	Type - Flanged wheel.
------------------------------------	-----------------------

The wheels shall be suitable for being turned through an angle of 90 Deg and locked in that position when the tank is jacked up.

All wheels shall be detachable and shall be made of Cast iron or Steel.

Suitable locking arrangement shall be provided to prevent the accidental movement of the transformer.

25. Paintings

Before painting or filling with oil all metallic parts shall be completely cleaned and free from rust, scale and grease and all external surface cavities on castings shall be filed by metal deposition.

The interior of all transformer tank and other oil filled chambers and internal structure steel work shall be thoroughly cleaned of all scale and rust by sand blasting or other approved method. These surface shall be painted with hot Oil resisting varnish or paint. Unexposed weld need not be painted.

Except for nuts, bolts and washers, which may have to be removed for maintenance purposes all external surface shall receive a minimum of three coats of paint.

The primary coat shall be applied immediately after cleaning. The second coat shall be of oil paint of weather resisting nature and preferably of a shade or colour easily distinguishable from the primary and final coats shall be applied after the primary coats have been touched up where necessary. The final coat shall be of a glossy oil and weather resisting non-fading paint of Dark Admiralty Grey shade no. 632 of IS:5. Primer paint shall be ready-made zinc chrome as per IS: 104 : intermediate and final coats of paint shall be as per IS:2932.

All interior surfaces of mechanism chambers and kiosks except those which have received anti-corrosion treatment shall receive three coats of paint applied to the thoroughly cleaned metal surface as per procedure mentioned above. The final coat shall be of a light coloured anti-condensation mixture.

Any damage to paint work incurred during delivery shall be made good by the manufacturer by thoroughly cleaning the damage portion and applying the full number of coats of paint that had been applied before the damage caused.

26. Earthing Terminal

Two earthing terminal capable of carrying the full amount of lower voltage short circuit current of transformer continuously for a period of 5 second provisions shall be made at positions close to each of the bottom two corners of the tank for bolting the earthing terminals to the tank structure to suit local conditions.

27. Temperature indicating devices

Oil temperature indicator with one electrical contact shall be provided with antivibration mounting. The oil temperature indicator shall be housed in the marshalling box.

The winding temperature indicator with two electrical contacts for alarm and trip purposes shall be provided with antivibration mounting. The winding temperature indicator shall be housed in the marshalling box.

The oil and winding temperature indicator should be of renowned make preferably of "Perfect Control" or "Pecimeasure". The scale on the dial of the thermometer should be 0 Deg C to 150 Deg C. The angular displacement of thermometer should be 270 Deg.

The tripping contracts of indicator shall be adjustable to close the winding temperature indicator between 60 Deg C and 120 Deg C. The alarm contacts of indicator shall be adjustable to close between 30 deg C & 50 Deg C.

All contacts shall be adjustable on a scale and shall be accessible on removal of the cover. The Temperature indicators shall be so designed that it shall be possible to check the operation of contacts and associated Equipments.

For measuring winding temperature a heater coil fed from a C.T has to be provided on the pocket for winding temperature indicator bulb. The connection from CT to heater should be through a link arrangement on tank cover suitably housed in a weather proof box so that C.T. current and heater coil resistance can be checked. WTI C.T. secondary should be of 5 amps rating.

28. Marshalling Box

A sheet steel vermin proof well ventilated and weather proof marshalling box of a suitable construction shall be provided for the transformer ancillary apparatus. The box shall have domed or sloping roofs and the interior & exterior painting shall be in accordance with clause no. 23.

The marshalling box shall accommodate.

1. Winding and oil temperature indicator.
2. Terminal boards and gland plates for incoming and outgoing Cables.
3. One space heater operated by 220 VAC. Aux. Supply, Cubicle illuminating lamp with door switch.

All the above equipment shall be mounted on panels and back of panel wiring shall be used for interconnection, the temperature indicators shall be so mounted that the dials are visible by standing at ground level.

Door of the compartment shall be provided with glazed window of adequate size. Ventilation louvers shall be provided.

Suitable removable cable glands plate shall be provided at the bottom of kiosk for passage of incoming and outgoing cables.

29. Gas & Oil Actuated Relays

Each transformer shall be provided with gas and oil actuated relay (Buchholtz relay) equipment conforming to IS : 3637 double float type with one set of alarm contacts, one set of trip contacts and a testing pet cock. The contacts shall be wired with a PVC armoured cable.

A machined surface shall be provided on the top of Relay to facilitate the setting of Relay and to check the mounting angle in the pipe and cross level of the Relay.

The pipe work shall be so arranged that all gas arising from the transformer shall pass into the gas and oil actuated Relay. The oil circuit through the Relay shall not form a delivery path in parallel with any circulating oil pipe.

30. Rating Diagram & Property plans

The following plates shall be fixed to the transformer tank at a suitable height so that the particulars could be read by standing at ground level.

1. A rating plate bearing the data specified in the relevant clause of IS : 2026 including figures of temperature rise of oil and winding and high voltage test values.
2. A diagram plate showing the internal numbering of taps, tapping switch connection of windings and also the voltages vector relationship in accordance with IS:2026 and in addition a plan view of the transformer giving the correct physical relationship of the terminals. No load voltage shall be indicated for each tap.
3. A property plate showing that the equipment belongs to Odisha State Electricity Board.

31. The centre of Gravity

The centre of gravity of the assembled transformer shall be low and as near the vertical centre line as possible. The transformer shall be stable with or without oil. If the centre of gravity is eccentric relative to track either with or without oil, its location shall be shown on the outline drawing.

32. Operation

The transformer shall be suitable for operating in Board's Sub independently or in parallel with one or more transformers.

33. Duty under fault condition

It is to be assumed that normal voltage will be maintained on one side of the transformer when there is a short circuit between phases or to earth on the other side.

The transformer may be directly connected to an underground or overhead line and may be switched into and out of service together with or without its associated incoming / outgoing line.

The thermal ability to withstand short circuit shall be two seconds (2 sec) without injury for 3 phase dead short circuit at the terminal.

34. Rated voltage & Operating device

Rated voltage for indicating and operative device shall be 30 volts DC/110 volts DC / 240 volts DC /230 volts AC with variations as specified in the relevant IS.

35. Fittings

Fittings as listed in schedule 'A' shall be provided.

36. Foundation

The tenderer shall furnish foundation plan of the transformer showing the fixing arrangement of the transformer so that the purchase may be able to finalize the foundation drawing.

37. Test & Inspection

Routing Test: All transformer shall be subjected to the following routing tests at the manufacturers work. The test shall be carried out in accordance with the details specified in IS : 2026.

1. Measurement of winding resistance
2. Measurement of voltage ratio and check of polarity, voltage vector relationship
3. Measurement of impedance voltage / short circuit impedance

4. Measurement of load loss
5. Measurement of no load loss and no load current
6. Measurement of insulation resistance.
7. No Load and Load Losses
8. Impedance Voltage
9. Induced over voltage withstand test.
10. Separate source voltage withstand test.
11. Heat Run Test
12. Oil leakage, gas collection, oil surge and voltage tests on gas and oil actuated relay.
13. Measurement of unbalance current and magnetizing current test at 110% rated voltage and frequency
14. Testing of neutral CT in accordance with provisions in the relevant IS.

Type and special tests:

In addition to routing tests mentioned above the transformer shall be subjected to all kinds of type and acceptance tests in accordance with relevant ISS (IS: 2026)

If type tests have successfully been carried out earlier in compliance with the provisions made in the relevant ISS from a recognized institution then the copy of the same in triplicate shall be furnished along with the tender papers in respect of each of kind of transformer.

If type tests have not yet been carried out then the manufacturer shall have to do so at their own cost. Owner if feels, may depute their representative to witness the said Type Tests etc. The manufacturer shall arrange all facilities for such inspection and tests free of cost.

The offer of in manufacturer may not be acceptable, if the test reports are age old beyond 5 (five) years from the due date of submission of offer. Even if the Type Test have successfully been carried out earlier, the Owner shall reserve the right to ask for fresh Type tests specially in respect of Temp. Rise Tests. Short Circuit Test. Lightning impulse Voltage withstand Tests including special tests regarding Measurement of zero sequence impedance in presence of the representative to be deputed by Owner. The manufacturers shall be prepared to take full responsibility to arrange for the said tests at some recognized institution. If any cost for conducting the aforesaid type tests & special Tests are to be paid by Owner (apart from the price of the transformer) the same should be clearly indicated by the Manufacturer Test wise, i.e., financial involvement for each kind of tests by the manufacturer while submitting the quotation. If nothing is clearly mentioned about the involvement of extra cost to the aforesaid Tests then it will be presumed that Owner will not have to pay anything towards the aforesaid Type Tests (other than the quoted price). However, the temp. Rise test on one unit of each type of transformer is to be done free of cost.

Inspection & Testing

Inspection & Testing as already mentioned the equipment shall be subjected to routine and other acceptance tests as per provisions in the relevant IS.

The Owner reserves the right to send its Engineers if so desires to witness manufacturing process and to reject either raw materials or finished products found to be not complying with the requirement of the specification and also shall have the right to select any/all equipment from the lot offered for tests.

The manufacturer shall give at least (21) twenty one days' advance notice regarding readiness of such inspection and testing and shall submit six set of the works test certificates of the material / equipment offered for inspection and testing indicating probable date of inspection and testing.

The supplier shall arrange all possible facilities for such inspection and testing at any lane during the course of manufacture free of cost.

Test Certificates

Seven copies of the approved Test certificates as mentioned above are to be furnished to the Owner before dispatch of the equipment.

38. Drawing and Manuals

The following drawings and details shall be furnished in triplicate along with the tender:

1. General Arrangement outline drawing with plan, elevation and end views showing various dimensions of transformer and its vital component including height of the bottom most portion of bushing from the bottom of base channel and also indicating thereon physical centre line and position of centre of gravity.
2. Three copies of sketches for height of crane hook above ground for lifting and undertaking core, shipping dimensions, complete lists of fittings and devices, net weights of core, winding, tank, radiator, oil, conservator and total weight, fixing arrangement of transformer in foundation.
3. Marshalling Box drawing.
4. Installation, operation, and maintenance manual.

The following drawings and manuals in six sets shall be submitted for approval within 15 (fifteen) days from date of placement of LOI / ORDER.

1. As stated in clause no.34. 1.
2. Cross sectional details with plan, elevation and views showing all internal clearances.
3. Drawing of Name & rating plate
4. Drawing of diagram & property plate.
5. Installation, operation and maintenance manual of transformer, associated equipment like Buchholtz Relay, temperature indication, oil level indicator etc.

The manual shall clearly indicate the installation method, check-ups and tests to be carried out before and after commissioning of the transformer.

39. Guaranteed Technical Particulars

Tenderers shall furnish guaranteed technical particulars of equipment offered as per Schedule 'B' Performance Guarantee shall be based on guaranteed technical particulars.

40. Short Circuit Calculation

Manufacturer shall submit theoretical calculations in support of the ability to withstand short circuit on consideration of highest value that may attain in triplicate within 15 (fifteen) days from the date of placement of L.O.I./Order.

41. Performance Certificate

Copies of performance certificates of similar Equipment supplied to various organizations shall have to be furnished along with Tender.

42. Credentials

Tendered shall furnish documents in support, delivery, of similar equipment indicating thereon names of the organization quantity ordered, quality supplied along with tender.

43. Deviation

All deviations from the specifications shall be recorded in the "Deviation Sheet" with reference to respective clauses of the Specification by drawing Specification for the same. Unless deviations are recorded in the Deviation Sheet and submitted with the offer, it will be taken for granted that the offer is made in conformity with Specification.

44. Spare Parts

The tenderer shall submit a recommended list of spare parts for five years of operation along with item wise price for each item of spares.

45. Validity Period

Validity period of the offer shall be reckoned from the date of opening of tender provided it is technically and commercially complete one. Otherwise it will be counted from the date of receipt of complete information.

TRANSFORMER FITTING & ACCESSORIES

All screw threads and nuts shall be made as per ISS and all valves shall be of standard tested quality and leak— proof.

The following fittings and accessories shall be supplied with each transformer

1. Outdoor type bushing – HV-3 Nos. and LV-4 Nos.
2. Conservator with atmoseal and supporting bracket or structure as the case may be
3. Isolating valve for conservator in between conservator and Buchholtz relay
4. Conservator valves for driven out air between air cell & wall of conservator & connection to breather.
5. Conservator drain valve
6. Dial type oil level indicator complete with alarm contact.
7. Silicaged breather with oil seal and connecting pipe. The breather shall be accessible for inspection from ground.
8. Spring loaded setting type pressure relief valve having suitable opening port. Hole and provision of visual indication for opening of the valve & alarm / trip contact arrangement.
9. Access / inspection holes with bolted cover for access to inner ends of bushing
10. Cover lifting eyes
11. Lifting eyes for core frame with windings
12. On load tap changing arrangement with RTCC Panel
13. Air release plugs on top of cover and hushing turrets.
14. Upper filter valve and bottom filter valve.
15. Drain valve
16. Top and bottom oil sampling devices. Provision for oil sample collection during process of filtration should be made.
17. Lifting lugs
18. Jacking pads with handling holes at four corners.
19. Transport lugs.
20. Undercarriage base channel.
21. Tank earthing terminal - 2 Nos
22. Buchholtz relay double float type with one set of alarm contacts, one set of trip contacts and testing per cock. The contacts should be wired with a PVC armoured cable.
23. Dial thermometer for winding temperature with alarm contacts and trip contacts.
24. Dial thermometer for oil temperature with alarm contacts.
25. An additional pocket for inseting thermometer for oil temperature indication
26. Weather proof control cabinet for marshalling terminal connections from protective and indicative devices. The cabinet shall be provided with incandescent filament lighting, plugs etc.
27. Neutral C.T. in LV side of Power Transformer.
28. Rating plate as per ISS
29. Diagram Plate: (item 27 & 2 may be combined into one if desired by the manufacturer)
30. Property label.
31. LT bus duct flange box

Sl. No.	Description	Unit	Technical Particulars of 2.0, 1.6 MVA Transformer
1	Reference Standard Oil type		IS : 2026-1977 IS: 335:1993

2	Rating	KVA	2000, 1600
3	No. of Phases		3 Phase
4	Frequency	Hz	50
5	No load Voltage (LL to LL, HV side)	KV	33
	No load Voltage (LL to LL, LV side)	KV	0.433
6	Connection (HV)		Delta
	Connection (LV)		Star
7	Vector Group		Dyn11
8	Insulation Level (HV)	KV/KVp	
	Insulation Level (LV)	KV/KVp	
9	Tap Switch		OLTC
10	Tapping		HV, +5% to - 15% in steps of 2.5%
11	Rated Current (Line current HV side)	A	Vendor to be specify
	Rated Current (Line current LV side)	A	Vendor to be specify
12	Temperature Rise top oil	Deg C	50
	Temperature Rise winding	Deg C	55
13	Ambient Temperature	Deg C	37
14	Type of Cooling		ONAN
15	Losses (No Load)	W	As per ECBC
	Losses (Load)	W	As per ECBC
16	Impedance (HV-LV)	%	6
17	No load Current (% of Rated Current)	%	Less than 1.5%
18	Efficiency		
	Efficiency at 75 Deg C		
	100% full load	%	Vendor to be specify
	75% full load	%	Vendor to be specify
	50% full load	%	Vendor to be specify
	Max. Efficiency	%	Vendor to be specify
19	Load at which max. efficiency occurs KVA	KVA	Vendor to be specify
20	Terminal Arrangement		
	Location		Outdoor
	HV		Cable box with disconnecting chamber
	LV		Bus duct
21	Atmospheric Condition		Normal
22	Weight		
22.1	Core & winding with clamps (Untanking weight)	Kg.	Vendor to be specify
22.2	Tank & Fittings	Kg.	Vendor to be specify
22.3	Oil	Ltrs. /Kg.	Vendor to be specify
22.4	Total weight	Kg.	Vendor to be specify
23	Dimension of Transformer	Length	Vendor to be specify
		Breadth	Vendor to be specify
		Height	Vendor to be specify

24	HV-LV Orientation		180 Deg.
25	Bushing -IS : 2099 & IS : 3347		
	Porcelain Bushings HV		3
	Epoxy Bushing LV		4
26	Painting		
	Surface Preparation		By Grit Blasting
	Finish		Enamel Light grey shade no. 631 -IS:5
27	Fitting & Accessories (Standards)		1
27. 1	Rating & Terminal Marking Plate		2
27. 2	Earthing Terminals		4
27. 3	Lifting Lugs		1

27. 4	Drain Valve with blanking plate		1
27. 5	Filter Valve with blanking plate		1
27. 6	Conservator		2
27. 7	Conservator Oil filling hole with cap		1
27. 8	Oil Level indicator with min. marking		1
27. 9	Dehydrating Breather		2
27. 10	Conservator Drain Plug		1
27. 11	Air Release Device		1
27. 12	Thermometer Pocket		1
27. 13	Pressure relief valve		4
27. 14	Roller Bi directional		4
27. 15	Radiators (Detachable Type)		1
27. 16	Cable Box with disconnecting chamber HV		1
27. 17	Busduct Flange box LV		1
27. 18	Separate Neutral Terminal		1
27. 19	On Load Tap Changer		1
27. 20	O.T.I with Alarm & Trip Contacts		1
27. 21	Buchholz relay with Alarm & Trip Contacts		8
27. 22	Radiator Valves		1
27. 23	Marshalling Box		1
27. 24	Drain Valve with blanking plate (OLTC)		1
27. 25	Filter Valve with blanking plate (OLTC)		1
27. 26	Current Transformer		1
27.	OLTC surge relay		1

27			
27. 28	RTCC		1
27. 29	AVR		1
27. 30	W.T.I with Alarm & Trip Contacts		1
27. 31	W.T.I. Pocket		1
27. 32	Inspection Cover		1
27. 33	M.O.G. with LOLA Contacts		1
27. 34	Buchholz relay shut off valve		1
27. 35	Neutral CT		1
27. 36	Sampling Valves		2
27. 37	Jacking Pads		4
27. 38	10% extra quantity of oil		
a	Application		Distribution

Technical Specification for 33 KV RMU

Sr. No	Descriptions	As Specified By DISCOM
1	RMU Category-Motorized with Inbuilt Battery charger & Battery	3 Way (1 CB + 2 LBS) 4 Way (2 CB + 2 LBS)
2	RMU Application	Outdoor
3	Dielectric Medium	SF6
4	Interrupting Medium	SF6 / Vacuum
5	System Frequency	50 Hz
6	Rated voltage	36Kv
7	Service Voltage	33Kv
8	Rated Current-Line Switches	630A
9	Rated Current –CB	630A
10	Rated Short time Current Withstand	25KA for 1 Sec / 20KA for 3 Sec
11	Internal ARC (1 Sec)	25KA

12	Rated Short time Making Capacity	50kA
13	Rated Cable charging Interrupting current incomer load break switch	25A
14	Rated Load Interrupting Line Current	630A
15	Rated Magnetizing Interrupting Current of Line switch.	10A
16	No. Of Operations at rated Short Circuit Current on line Switches Earthing Switches and CB	5 close
17	i. Mechanical endurance for Isolator & earth switch	Min 1000 Operations
	ii. Mechanical endurance for circuit breaker	Min 2000 Operation
	<u>CTs for Protection:</u>	To be Finalized during Detailed Engineering if applicable
	Material : Epoxy resin cast/	
	Burden : 2.5VA	
	Ratio : 100-50/1 A	
	Accuracy Class : 5P20	
18	Electrical Operations of Isolator & E/Switch at rated current	To be Provided By Bidder
19	Temp Rise	Maximum permissible temperature for bus bar shall not be 105 deg C an ambient temperature not exceeding 50 deg C, as per IEC 60694 And IEC 62271. However, the temperature rise for accessible enclosures and covers shall not exceed 30K and in case, they are not required to be touched during normal operation, the limit shall be raised by 10K
20	Min Gas Pressure	0.05 Bar G
21	SF6 Gas Pressure Indicator	To be Provided by Bidder
22	SF6 Gas leakage Detector	1 per 20 RMUs Subject to Minimum One Number
23	Guaranteed SF6 Leakage per Annum	Less than 0.1%
24	Degree Of Protection	IP 67 for the tank and IP2X for the front cover/mimic board and IP55 for Outdoor RMUs .The RMU metal parts shall be 2.0 mm thickness high tensile steel which must be shot blasted, spray galvanized with minimum thickness of 30 micron and subsequently powder coated. The overall Paint thickness shall be 125 microns (No negative tolerance is allowed)

25	Internal arc test	25kA 1 Sec
26	Lightning Impulse withstand Phase to Earth	170kVp
27	Power frequency withstand for 1Minutes	70kVrms
28	SF6 tank design	Hermetically sealed unpainted stainless steel enclosure with SF6 Gas. Sealed pressure system by Laser welding so that no refilling of gas is required for 30 years. No gas work to prevent access to live parts. No gasket shall be used, No bolts Shall be provided
29	Earth Bus Bar Material & Size	To be provided by Bidder
30	Earthling of main CCT cables shall be earthed with earth switch with S/C making capacity as per IEC 129. closing shall be possible only when Isolator is open.	To be provided by Bidder
31	Incomer load break switch shall be SF6 type with least maintenance and shall have at least 3 positions, Open, Close & earth with Natural interlocks. Fitting of motor at site shall be possible & shall have mechanical interlock.	To be provided by Bidder
32	Circuit Breaker Preferably SF6 type with minimum maintenance and shall have at least 2 positions i.e. open & close, manual operation & fitting of motor at site shall be possible if required.	To be provided by bidder
33	Protection Relay –Without Auxiliary Power & shall include 3 toroid transformer in trans. Tee-off bushing, electronics relay, low energy release & fast on test receptacle for protection testing.	Self powered O/C+E/F IDMT characteristics with 0.05 Sec TMS.
34	Make of Relay	DISCOM/TPNODL/TPSODL/TPWODL Odisha –ABB ,Ashida, Schneider, Siemens

35	Flag indication for CB Trip on fault in relay-mechanical or Electrical	To be Provided By bidder
36	Testing of cable-without opening the doors.If doors are opened then earth switch shall be in closed position and cable test rod fixing provision in bolt head which can be fixed on terminations through boot cap/opening for testing purpose AND if doors are opened it shall not be possible to operate ,Isolator, E/switch or CB through interlocks	To be confirmed. If separate test bushing are provided, it Shall be covered with suitable antitheft covers with anti vandal screws.
37	Protection against Theft	Design Of RMU shall be tamper & arc proof. And vandal Screws shall be provided. Cable covers shall be pad lockable. All live parts / test Bushing etc. Shall be covered with antitheft covers.
38	Doors	Outer enclosure should be hinged main door with padlock provision. Cable chamber door should not be hinged type. It should be arc proof with bolted arrangement. Note: RMU shall be inside the enclosure.
39	Voltage indicator box shall be fixed type- This device shall be in compliance with IEC 61958 standard.	Capacitive dividers type which will supply low voltage to power the lamps and 3 inlets can be used to check phase sequence.
40	Phase comparator	1 per RMU
41	Cable Clamps	HDPE
41.1	Cable Termination	
41.2	Type	Heat/Cold shrinkable (Raychem/3M Make only)
41.3	Size (To be finalized in detailed Engineering Stage)	Suitable for 3C x 400 Sqmm/ 1CX400Sqmm / 1CX630Sqmm
42	Height	Minimum 1200mm above GL
43	Earth fault passage indicator	One Per RMU with as a part of RMU
44	Operating handle	To be provided by bidder as part of RMU
45	MIMIC Diagram in Front of panel	To be provided by bidder
45.1	Bus bar	
45.2	Material	Copper
46	Cross Section	To be specified by bidder
47	Opening & Closing times (Max)	Opening Time: 2.5 Cycle Closing Time: 3 Cycles

47.1	Current Transformer	Shall be epoxy resin and are mounted around the cable outside SF6 gas compartment. The CTs around the cables shall be supported on the sheet steel bracket base sized for CTs .CTs shall not be kept hanging or put on base frame directly
48	CT Dimension	Suitable for 3C x 400 Sqmm/ 1CX400Sqmm / 1CX630 Sqmm

49	SCADA Compatibility- Remote operation of RMU shall be possible by using motors fitted to operating mechanism of isolators & CB etc.	As per specification
50	Harting Plug arrangement for individual isolator as well as breaker motor connections, which will be fitted on RMU body itself	As per specification
51	Guarantee- From date of taking over by TPL	48 Months from the date of commissioning or 60 months from the date of supplies made under the contract whichever is later
52	Dimension (LxWxH) (mm x mm x mm)	To be provided by bidder
53	Total weight	To be provided by bidder
54	Paint	TPL Blue PANTON E 2727C
55	Power Supply	24VDC for Control Circuit from Battery & Battery Charger 15AH Input Supply to Battery Charger : 220VAC Aux PT 3300/V3 / 220 VAC, 500VA (Optional and to be quoted Separately)
56	Motor	Coupled type DC operated motors shall be suitable for the installation on the indoor type RMU's on the isolator function and to be flitted in/from the LV compartment side. There shall be provision to fit the motor on Circuit breaker also Motor Voltage: 24 VDC Operating Time:4-8 Sec Rating: To be submitted by Bidder

57	Auxiliary contacts (spare numbers to be provided)	LBS (4NO+4NC) Earth Switch (2NO+2NC) CB (4NO+4NC) CB Disconnecter (2NO+2NC) CB earth switch (2NO+2NC)
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Technical Specification for LT Outdoor type Panel IP 65

Supply of Out-door type double door Panel with canopy for MDB and made from 16-gauge CRCA Sheet (Non-load Bearing) / 14-gauge CRCA Sheet (for load Bearing) with powder coated paints having the following arrangements: -

Main Distribution Board PANEL (Outdoor Type) 2.0 MVA

- INCOMING: - 3200A FP EDO Air Circuit Breaker with microprocessor based inbuilt LSIG protection, $I_{cu}=I_{cs}=I_{cw}=60\text{kA}$ for 1 sec with 4NO+4NC auxiliary contact - **1No** and having i) LCD/LED Display, ii) last 20 trip history & 100 event records with real time stamping, current metering, contact wear indication, safety shutter.
- OUTGOING: - 630A FP MCCB with Microprocessor based inbuilt LSIG Protection having breaking capacity of 36kA with LCD/LED display for last 20 trip history with real time stamping, Extended rotary handle & Spreader – **8 Nos**
i) Overload setting range: 40% - 100% with respective load curve setting,
ii) Short circuit setting range: 1 to $10 \times I_n$ with delay range: 50ms-400ms,
iii) Instantaneous fault setting range up to $15 \times I_n$ iv) Earth fault setting range: 10% - 100% having delay setting 100ms-500ms
- BUSBAR: - 3200A Al busbar with DMC insulator as busbar support
- INSTRUMENTS: - Indicator (R+Y+B) with Control MCB 6A - **1 Set**, Digital Multifunction meter (MFM) with providing the measurement of: Voltage, Current, Frequency along with Active Power, Active Energy, Power Factor, On Hours, Load Hours - **1No**, 1600/5A CT – **4Nos**, Indicator (ON, OFF, TRIP)- **3 Nos**, PUSH Button (START, STOP) – **2 Nos**, TP+N Surge Protection Device 80kA (10/350 μ sec.) with 63A FP MCB - **1No.**, Fixed capacitor 10kVAr - **2 Nos**.

Main Distribution Board PANEL (Outdoor Type) 1.6 MVA

- INCOMING: - 2500A FP EDO Air Circuit Breaker with microprocessor based inbuilt LSIG protection, $I_{cu}=I_{cs}=I_{cw}=60\text{kA}$ for 1 sec with 4NO+4NC auxiliary contact - **1No** and having i) LCD/LED Display, ii) last 20 trip history & 100 event records with real time stamping, current metering, contact wear indication, safety shutter.
- OUTGOING: - 630A FP MCCB with Microprocessor based inbuilt LSIG Protection having breaking capacity of 36kA with LCD/LED display for last 20 trip history with real time stamping, Extended rotary handle & Spreader – **6 Nos**
i) Overload setting range: 40% - 100% with respective load curve setting,
ii) Short circuit setting range: 1 to $10 \times I_n$ with delay range: 50ms-400ms,
iii) Instantaneous fault setting range up to $15 \times I_n$ iv) Earth fault setting range: 10% - 100% having delay setting 100ms-500ms

BUSBAR: - 2500A Al busbar with DMC insulator as busbar support

INSTRUMENTS: - Indicator (R+Y+B) with Control MCB 6A - **1 Set**, Digital Multifunction meter (MFM) with providing the measurement of: Voltage, Current, Frequency along with Active Power, Active Energy, Power Factor, On Hours, Load Hours - **1No**, 1600/5A CT – **4Nos**, Indicator (ON, OFF, TRIP)- **3 Nos**, PUSH Button (START, STOP) – **2 Nos**, TP+N Surge Protection Device 80kA (10/350 μ sec.) with 63A FP MCB - **1No.**, Fixed capacitor 10kVAr - **2 Nos.**

TECHNICAL SPECIFICATION

- 1. Transformer:** OTPL/ALFA/Crompton/ OIEPL/ABB/BHEL/Schneider.
- 2. Ring Main Unit:** ABB/ Schneider/ Lucy/C-sec.
- 3. HT Switch Gear:** ABB/ Schneider/ Siemens/L&T/C-sec.
- 4. LT Switch Gear:** ABB/ Schneider/ Siemens/ Legrand/C-sec.
- 5. Panel Builder:** Power Tech/ Technocrat/ V-deal/ Vijay Electricals & Industries.
- 6. Cable:** Havells/ KEI/ Polycab.

**Sd/-
GENERAL MANAGER (ENGG.)
CRUT, BHUBANESWAR**