

Project :- 1X800MW WANAKBORI TPS

Enquiry No. : PE/PG/WAN/E-5142/2015 Dated: 31/12/2015

PRICE SCHEDULE FOR OIL FILLED SERVICE TRANSFORMER

| Sr. No. | Item code | Item description | Unit | ORDERED QUANTITY | INDIAN BIDDER | | | | | | | | FOREIGN BIDDER | | Remark | |
|----------|-------------|---|-------|------------------|---------------------|----------------------|--|---|----------------------------------|----------------------------|--|------------------------------|---|--|--------|----------------------------|
| | | | | | UNIT EX-WORKS (INR) | TOTAL EX-WORKS (INR) | ED @ % AS APPLICABLE ON SELF MANUFACTURED ITEMS ONLY (INR) | CST @.....% AGAINST C FORM OR E1/E2 FORMS (INR) AS APPLICABLE | VAT @% (INR) AS APPLICABLE | Service Tax @% (INR) | FREIGHT @ % OF EX- WORK PRICE INCL. OF SERVICE TAX. IN (INR) | TOTAL F.O.R SITE PRICE (INR) | UNIT COST ON C & F BASIS (COST & FREIGHT BASIS - AT INDIAN PORT) (CURRENCY) | TOTAL COST ON C & F BASIS (COST & FREIGHT BASIS - AT INDIAN PORT) (CURRENCY) | | |
| 1.0 | 302-11015-A | 8000KVA, 11KV/3.6KV, 3 PHASE, 2 WINDING, OUTDOOR, ONAN, Z=9.0%, DYN11, OFF CIRCUIT TAPS. 5% IN STEPS OF 2.5% (WITH CABLE BOX TYPE HV AND WITH BUS-DUCT TYPE LV TERMINATION) | NOS. | 6 | | | | | | | | | | | | |
| 2.0 | 302-11018-A | 5000KVA, 11KV/6.9KV, 3 PHASE, 2 WINDING, OUTDOOR, ONAN, Z=8.0%, DYN11, OFF CIRCUIT TAPS. 5% IN STEPS OF 2.5% (WITH CABLE BOX TYPE HV AND WITH BUS-DUCT TYPE LV TERMINATION) | NOS. | 2 | | | | | | | | | | | | |
| 3.0 | 302-11045-A | 10 % EXTRA TRANSFORMER OIL IN SEALED NON RETURNABLE STANDARD DRUMS FOR 8000KVA, 11KV/3.6KV, 3 PHASE, 2 WINDING, OUTDOOR, ONAN, Z=9.0%, DYN11 | NOS. | 6 | | | | | | | | | | | | |
| 4.0 | 302-11045-A | 10 % EXTRA TRANSFORMER OIL IN SEALED NON RETURNABLE STANDARD DRUMS FOR 5000KVA, 11KV/6.9KV, 3 PHASE, 2 WINDING, OUTDOOR, ONAN, Z=8.0%, DYN11 | NOS. | 2 | | | | | | | | | | | | |
| 5.0 | 302-11055-A | MISCELLANEOUS ITEMS | | | | | | | | | | | | | | |
| 5.0(a) | | SPECIAL TOOLS AND TACKLES | LOT | 1 | | | | | | | | | | | | BIDDER TO FURNISH THE LIST |
| 5.0(b) | | FREQUENCY RESPONSE ANALYSIS TEST AT SITE AFTER TRANSFORMER INSTALLATION | | | | | | | | | | | | | | |
| 5.0(b.1) | | CHARGES PER VISIT | VISIT | 2 | | | | | | | | | | | | REFER NOTE 4 & 5 |
| 5.0(b.2) | | MANDAYS CHARGES | NOS. | 4 | | | | | | | | | | | | REFER NOTE 4 & 5 |
| 5.0(c) | | SUPERVISION OF COMMISSIONING | | | | | | | | | | | | | | |
| 5.0(c.1) | | CHARGES PER VISIT | VISIT | 2 | | | | | | | | | | | | REFER NOTE 7 & 8 |
| 5.0(c.2) | | MANDAYS CHARGES | NOS. | 4 | | | | | | | | | | | | REFER NOTE 7 & 8 |
| | | Total | | | | | | | | | | | | | | |

Notes:

- 1 ABOVE QUANTITY OF TRANSFORMERS SHALL BE FOR ORDERING. VARIATION IN RATING AND QUANTITY MAY BE TO THE EXTENT OF ±30% OF THE TOTAL ORDER VALUE.
- 2 **BIDDER SHALL SUPPLY 10% EXTRA OIL AS PER THE QUOTED PRICE. QUANTITY OF EXTRA OIL SHALL BE SUBJECT TO APPROVAL DURING DETAIL ENGINEERING.**
- 3 BIDDER TO NOTE THAT THE COST OF TRANSFORMER SHALL INCLUDE THE COST OF FOLLOWING SPECIAL TESTS AS ROUTINE TESTS:
 - a) OIL LEAKAGE TEST FOR 8 HRS
 - b) JACKING TEST ON TRANSFORMERS LOAD BEARING MEMBER
 - c) TANK PRESSURE & TANK VACUUM TEST
 - d) DIELECTRIC SPECIAL TESTS AS PER IEC-60076-3
 - e) MEASUREMENT OF CAPACITANCE & TAN DELTA TO DETERMINE CAPACITANCE BETWEEN WINDING, BETWEEN WINDING TO EARTH AND INSULATION SYSTEM CAPACITANCE.
 - f) FREQUENCY RESPONSE ANALYSIS TEST
 - g) MEASUREMENT OF ACOUSTIC SOUND LEVEL
 - h) MEASUREMENT OF ZERO SEQ. IMPEDANCE(S) ON THREE PHASE UNIT
 - i) TEST ON TRANSFORMER OIL AS PER IS:335.
 THE ABOVE MENTIONED TEST SHALL BE CARRIED OUT ON ALL TRANSFORMERS WITHOUT ANY ADDITIONAL COST. BIDDER SHALL QUOTE ACCORDINGLY.
- 4 FOR EACH RATING OF TRANSFORMER 1(ONE) VISIT AND 2(TWO) MANDAYS TO BE CONSIDERED. THE VISIT CHARGES SHALL BE INCLUSIVE OF CHARGES OF AIR FARE/TRAIN FARE , BOARDING/LODGING, MEDICAL , INSURANCE ETC. TOOLS & TACKLES INCLUDING FREQUENCY RESPONSE ANALYSER KIT FOR TESTING AT SITE SHALL BE ARRANGED BY BIDDER.
- 5 AMOUNT PAYABLE PER VISIT = VISIT CHARGES AS PER SL. NO. 5.0(b.1) ABOVE (+) MANDAYS CHARGES AS PER SL. NO. 5.0(b.2) ABOVE (x) NO. OF DAYS AT SITE(TO BE CERTIFIED BY BHEL SITE)
- 6 BOQ-CUM-PRICES SCHEDULE (ANNEXURE-A & ANNEXURE-C) AND TYPE TEST CONDUCTION SCHEDULE (ANNEXURE-D) WILL BE CONSIDERED FOR PRICE EVALUATION PURPOSE.
- 7 FOR EACH RATING OF TRANSFORMER 1(ONE) VISIT AND 2(TWO) MANDAYS TO BE CONSIDERED. THE VISIT CHARGES SHALL BE INCLUSIVE OF CHARGES OF AIR FARE/TRAIN FARE , BOARDING/LODGING, MEDICAL , INSURANCE ETC.
- 8 AMOUNT PAYABLE PER VISIT = VISIT CHARGES AS PER SL. NO. 5.0(c.1) ABOVE (+) MANDAYS CHARGES AS PER SL. NO. 5.0(c.2) ABOVE (x) NO. OF DAYS AT SITE(TO BE CERTIFIED BY BHEL SITE)

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|---------------|---|---|------|------------------|---------------------|----------------------|--|---|--------------------|--|------------------------------|---|--|--------|--|
| | | | | | UNIT EX-WORKS (INR) | TOTAL EX-WORKS (INR) | ED @ % AS APPLICABLE ON SELF MANUFACTURED ITEMS ONLY (INR) | CST @.....% AGAINST C FORM OR E1/E2 FORMS (INR) AS APPLICABLE | VAT @% (INR) | FREIGHT @ % OF EX- WORK PRICE INCL. OF SERVICE TAX. IN (INR) | TOTAL F.O.R SITE PRICE (INR) | UNIT COST ON C & F BASIS (COST & FREIGHT BASIS - AT INDIAN PORT) (CURRENCY) | TOTAL COST ON C & F BASIS (COST & FREIGHT BASIS - AT INDIAN PORT) (CURRENCY) | | |
| | 302-11000-B | MANDATORY SPARES FOR EACH TYPE AND RATING OF TRANSFORMER | | | | | | | | | | | | | |
| 1.0 | | BUSHING | | | | | | | | | | | | | |
| 1.0(a) | | HV BUSHING | NO. | 2 | | | | | | | | | | | |
| 1.0(b) | | LV BUSHING | NO. | 2 | | | | | | | | | | | |
| 1.0(d) | | LV NEUTRAL BUSHING | NO. | 2 | | | | | | | | | | | |
| 2.0 | | WINDING TEMPERATURE INDICATOR WITH ALL ACCESSORIES | NO. | 2 | | | | | | | | | | | |
| 3.0 | | OIL TEMPERATURE INDICATOR | NO. | 2 | | | | | | | | | | | |
| 4.0 | | PRESSURE RELIEF DEVICE OR DIAPHRAGM FOR EXPLOSION RELIEF VENT | NO. | 2 | | | | | | | | | | | |
| 5.0 | | MAGNETIC OIL LEVEL GAUGE | NO. | 2 | | | | | | | | | | | |
| 6.0 | | BUCHHOLZ RELAY | NO. | 2 | | | | | | | | | | | |
| 7.0 | | SILICA GEL BREATHER | NO. | 2 | | | | | | | | | | | |
| 8.0 | | OIL SURGE RELAY FOR OLTC | NO. | 2 | | | | | | | | | | | |
| 9.0 | | COMPLETE CABLE CUM BUSDUCT LV TERMINALS | NO. | 1 | | | | | | | | | | | |
| | | Total | | | | | | | | | | | | | |
| Notes: | | | | | | | | | | | | | | | |
| 1 | BIDDER TO CONSIDERED ABOVE QUANTITY FOR EACH RATING OF TRANSFORMER AND QUOTE ACCORDINGLY. | | | | | | | | | | | | | | |

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PRICE SCHEDULE FOR OIL FILLED SERVICE TRANSFORMER

| Sr. No. | Item code | Item description | UNIT PRICE (EX-WORKS) FOR 8000KVA Rs. | UNIT PRICE (EX-WORKS) FOR 5000KVA Rs. | Total Test charges | Service tax @ ----- % | Total Test Charges + Service Tax. | REMARKS |
|---------------|---|---|--|--|--------------------|--------------------------|-----------------------------------|---------|
| | 302-11051-A | TYPE TESTS ON ONE NUMBER OF EACH TYPE AND RATING OF TRANSFORMER | | | | | | |
| 1.0 | | TEMPERATURE RISE TEST | | | | | | |
| 2.0 | | DIELECTRIC TYPE TESTS (IEC60076-3) | | | | | | |
| 3.0 | | SHORT CIRCUIT TEST** | ** REFER NOTE- 2 | | | | | |
| | | Total | | | | | | |
| Notes: | | | | | | | | |
| 1 | BIDDER TO QUOTE UNIT PRICES FOR TYPE TESTS AT SL. NO. 1.0 & 2.0 ONLY. CONDUCTION OF SHORT CIRCUIT TEST WILL ALSO BE IN THE SCOPE OF BIDDER, BUT ACTUAL CHARGE FOR THE SAME WILL BE BORNE BY BHEL AS PER NOTE NO. 2 BELOW. | | | | | | | |
| 2 | ** CHARGES FOR CARRYING OUT SHORT CIRCUIT TEST SHALL BE PAYABLE BASED ON ACTUAL INVOICE FROM DESIGNATED LABORATORIES (CPRI, BHOPAL/ CPRI, BANGLORE / ERDA, VADODARA) WITH AN ADDITIONAL LUMP SUM AMOUNT OF 5% OF EX-WORKS PRICE OF TRANSFORMER BEING TESTED TO COVER HANDLING COSTS (TRANSPORTATION, INSURANCE ETC.). | | | | | | | |
| 3 | TYPE TEST REPORTS (CONDUCTED FOR THIS CONTRACT) SHALL BE SUBMITTED FOR APPROVAL DURING DETAILED ENGINEERING. | | | | | | | |

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PRICE SCHEDULE FOR OIL FILLED SERVICE TRANSFORMER

| Sr. No. | Item code | Item description | 11/3.6KV, 8000KVA | 11/6.9KV, 5000KVA | REMARKS |
|---------|-----------|---|----------------------|----------------------|---------|
| 1.0 | | OIL LEAKAGE TEST FOR 8 HRS | INCLUSIVE | INCLUSIVE | |
| 2.0 | | TANK PRESSURE TEST | INCLUSIVE | INCLUSIVE | |
| 3.0 | | TANK VACUUM TEST | INCLUSIVE | INCLUSIVE | |
| 4.0 | | MEASUREMENT OF ACOUSTIC NOISE LEVEL AS PER NEMA TR-1 | INCLUSIVE | INCLUSIVE | |
| 5.0 | | DGA TEST ON OIL BEFORE AND AFTER TEMPERATURE TEST | INCLUSIVE | INCLUSIVE | |
| 6.0 | | JACKING TEST ON TRANSFORMERS LOAD BEARING MEMBER | INCLUSIVE | INCLUSIVE | |
| 7.0 | | MEASUREMENT OF WINDING RESISTANCE | INCLUSIVE | INCLUSIVE | |
| 8.0 | | MEASUREMENT OF VOLTAGE RATIO AND CHECK OF VOLTAGE VECTOR RELATIONSHIP | INCLUSIVE | INCLUSIVE | |
| 9.0 | | MEASUREMENT OF IMPEDANCE VOLTAGE /SHORT-CIRCUIT IMPEDANCE (PRINCIPAL TAPPING) AND LOAD LOSS | INCLUSIVE | INCLUSIVE | |
| 10.0 | | MEASUREMENT OF NO-LOAD LOSS AND CURRENT | INCLUSIVE | INCLUSIVE | |

Notes:

- 1 TYPE TESTS ON TRANSFORMERS AS LISTED ABOVE (SL NO. 1.0 TO 10.0) AND LISTED IN QUALITY PLAN SHALL BE DEEMED TO BE INCLUDED IN TRANSFORMER PRICES. BIDDER TO NOTE THAT NO SEPARATE TYPE TEST CHARGES SHALL BE PAYABLE EXCEPT CHARGES FOR SHORT CIRCUIT AS OUT LINED IN ANNEXURE-D.
- 2 TESTS (SL NO. 1.0 TO 10.0) SHALL BE CONDUCTED AT THIRD PARTY LAB OR IN PRESENCE OF CLIENT/ EMPLOYER'S REPRESENTATIVE AND VENDOR TO SUBMIT THE REPORTS FOR APPROVAL.

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|---------|-----------|---|----------------------|----------------------|---------|
| 1.0 | | DEGREE OF PROTECTION (IP 55) TESTS ON MARSHALLING BOX | APPLICABLE | APPLICABLE | |
| 2.0 | | DEGREE OF PROTECTION (IP 55) TESTS ON CABLE BOX | APPLICABLE | APPLICABLE | |
| 3.0 | | PRD OPERATION TEST(APPLICABLE FOR 2000kVA & ABOVE RATING TRANSFORMER) | APPLICABLE | APPLICABLE | |
| 4.0 | | MEASUREMENT OF HARMONICS CURRENT IN NO LOAD CURRENT | APPLICABLE | APPLICABLE | |

Notes:

- 1 TYPE TEST REPORTS OF A SIMILAR TRANSFORMER (AS PER THE GUIDANCE FOR IDENTIFICATION OF A SIMILAR TRANSFORMER AS DEFINED IN ANNEXURE-B OF IEC 60076-5) TO BE FURNISHED AFTER AWARD OF CONTRACT.
- 2 THE TYPE TEST REPORTS SHALL NOT BE MORE THAN 5 YEARS OLD FROM THE DATE OF TECHNICAL OFFER AND TEST(S) SHOULD HAVE BEEN EITHER CONDUCTED AT AN INDEPENDENT LABORATORY OR SHOULD HAVE BEEN WITNESSED BY A CLIENT.
- 3 IF VALID TYPE TEST REPORTS ARE NOT AVAILABLE OR REPORTS ARE NOT ACCEPTABLE OR REPORTS ARE NOT MEETING THE CONTRACT SPECIFICATION REQUIREMENT DURING DETAILED ENGINEERING THEN ALL TYPE TESTS LISTED ABOVE SHALL BE CONDUCTED FREE OF COST ON ONE TRANSFORMER OF EACH TYPE AND RATING .