NTPC LTD

CC-OS

EOC NOIDA

Sub: Qualifying Requirement for Vendor Enlistment for supply of Transformers up to 100kVA

A)	MEG DETAILS		
	1.0	MEG NO.	87MEC-01
	2.0	MEG DESCRIPTION	Transformers upto 100kVA
	3.0	RESPONSIBILITY CENTRE	CC
B)	**Technical Criteria of QR:** 1) The applicant should have manufactured and supplied at least five numbers of 100kVA or above rating Dry Type Transformers of 415V class or above within last FIVE years from date of application for enlistment which should be in operation for at least two years as on the date of application for enlistment. 2) The applicant should have tested minimum 01 Transformer, within last FIVE years from date of application for enlistment, of 100kVA or above rating dry type transformers of 415V class or above, in any third party lab / in-house lab with witnessing from client, as per IS 2026/ 11171.		
C)	**Other Documents to be submitted**: In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the Applicants applying for enlistment:- 1. Three POs of the highest executed values of similar work during previous five years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. 2. Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the date of application. In case the audited documents are not ready / available, then certified copy by a registered practicing Chartered accountant may be submitted. 3. Latest annual report OR NSIC / SSI / MSME registration certificate / BIS license / ISO certificate / Certificate of registration from the concerned excise department / any other statutory document as a proof of being manufacturer of the required material. 4. Any other documents in addition to the above which the applicant wants to submit.		
D)	NOTE-1	Similar works means: Supply of 415V, 100kVA or higher rating Transformer.	
	NOTE-2	The executed value means Basic value of quantity of similar works executed/supplied against the reference PO(also applicable to partly executed POs as on date of application).Where PO value is composite(i.e. including Taxes etc.),the applicant to give item-wise break-up of Composite PO value mentioning Basic Value, Taxes etc.	

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EOC NOIDA

Sub: Technical Specifications for Vendor Enlistment for supply of Transformers up to 100kVA

A)	MEG DETAILS		
	1.0	MEG NO.	87MEC-01
	2.0	MEG DESCRIPTION	Transformers upto 100kVA
	3.0	RESPONSIBILITY CENTRE	CC
B)	**Technical Specifications:** As per attached annexure below		

SPECIFICATION FOR LIGHTING / ISOLATION TRANSFORMER

1.00 TECHNICAL PARAMETERS

1)	Type & Rating	Dry type ,Three Phase & 100 KVA
2)	Voltage Ratio	415/415V, +/- 5% taps(OCTC) in steps of 2.5%
3)	Class of insulation	B or better
4)	One minute power frequency withstand voltage	2.5 KV
5)	Winding HV/LV	Delta/Star

2.00 SPECIFICATIONS

1. Each AC Lighting Distribution Board (LDB) shall be fed from 415V / 415V, 100kVA isolating transformer.
2. The lighting / Isolation transformer may be located:

   a. Inside the LDB / Welding DB panel itself.

   b. By the side of respective LDB / Welding DB.

   c. In a separate 2 mm thick CR sheet steel enclosure with IP-42 degree of protection as per IS/IEC 60947. However, the transformer terminal box shall have IP-52 degree of protection.

   d. Bidder to coordinate with respective Site for necessary requirements.

3. Lighting / Isolation transformers shall be dry type, natural air cooled with class B insulation or better.

4. Impedance of lighting / isolation transformer shall be so selected to meet site requirements.

5. Lighting / Isolation transformers shall be tested as per IS: 2026/11171

6. Winding conductor shall be of copper free from any deformity impacting transformer performance.

7. Core and windings shall be capable of withstanding shocks during transport, installation, service and adequate provision shall be made to prevent movement of core and winding relative to enclosure during these conditions.

8. The insulation of transformer windings & connections shall be free from insulating compounds which are liable to soften, ooze out, shrink or collapse.

9. Wherever cable connections are specified, suitable cable boxes shall be provided and shall be air insulated type and shall be of sufficient size to accommodate cable and termination.

10. Fittings

(a) The following fittings, (wherever applicable) shall be provided with all the transformers, unless mentioned specifically otherwise.

1. Termination insulators.
2. Winding temperature indicator (s) with alarm and trip contact (as applicable).
3. Cover lifting eyes, transformer lifting lugs, towing holes, core and winding lifting lugs, supporting structure, foundation bolts etc. as applicable
4. Rating and diagram plate.
5. Off circuit tap changing links.
6. Earthing terminals.
7. Cable boxes.

(b) The fittings listed above are only indicative and any other fittings which are generally required for satisfactory operation of the transformers are deemed to be included, in the scope of supply of the Contractor.

3.0 TESTS

3.01.00 The contractor shall only submit the type tests reports as listed in the technical specifications on the equipment mentioned therein and carried out within last ten years from date of bid opening.

3.02.00 These reports should be for the tests conducted on the equipment similar to those proposed to be supplied under this contract and test(s) should have been either conducted at an independent laboratory or should have been witnessed by a client. In case the contractor is not able to submit report of the type tests(s) conducted within last ten years from date of bid opening or in case the type test report(s) are not found to be meeting the specification requirements, the contractor shall conduct all such tests under the contract at no additional cost to the owner either at third part lab or in presence of client/owner's representative and submit the report for approval.

3.03.00 All routine tests in accordance with relevant IS shall be carried out on each transformer. Cost of carrying out routine tests will be included in the price of equipment.

3.04.00 The Contractor shall carry out a comprehensive inspection and testing program during manufacture of the transformer. It is Contractor's responsibility to draw up and carry out such a program in the form of detailed quality plan duly approved by Employer for necessary implementation.

3.05.00

Each transformer shall be completely assembled with all fittings & accessories meant for the particular transformer before offering for inspection & testing by Employer.

Following routine tests are to be carried out as quality assurance requirement:

a.)	Measurement of winding Resistance for each tap position.	Routine Test
b.)	Measurement of voltage ratio at each taps position.	Routine Test
c.)	Vector group and polarity check	Routine Test
d.)	Measurement of impedance voltage/short circuit impedance & load loss at principal tap and extreme taps	Routine Test
e.)	Measurement of no load losses and magnetising current at rated frequency and 90%, 100% and 110% rated voltage	Routine Test
f.)	Measurement of insulation resistance	Routine Test
g.)	*Dielectric Tests*	
1)	Power frequency/separate source AC withstand voltage test.	Routine Test
2)	Induced over voltage withstand test	Routine Test
h.)	Measurement of iron loss & Insulation resistance (repeat after completion of all dielectric test)	Routine Test
i)	DOP check (if applicable)	Routine Test
j)	Paint shade/ thickness/adhesion	Routine Test
k)	Enclosure sheet thickness	Routine Test

4.0 Type test as per IS/IEC:

1. Temperature rise test for transformer.
2. Dynamic short circuit test for transformer.
3. IP protection for Cable box & Enclosure.

INSPECTION:

The power and dielectric tests shall be duly witnessed by NTPC if the order quantity is 05nos or more such transformers.

Technical Specification for Control Transformer

1.1.00 **Parameters**

1)	Type	Dry
2)	Voltage Ratio	415V/ * (as per site requirement) with taps ± 5% in steps of 2.5%
3)	Class of insulation	Class-B or better
4)	One minute power frequency withstand voltage	2.5 KV
5)	Rating	As per site requirements.

1.2.00 **Specifications**

a) The control transformers shall be 415 V/ * (as per site requirement) with neutral point-earthed, of insulation class 'B' or better.

b) Contractor to furnish relevant factory test report as per IS 12021

Note: Site to carry out necessary modifications suitably as per their requirements.