NTPC LTD

USSC: CPG-1/VEC, Raipur

Sub: Qualifying Requirement (QR) for Vendor Enlistment for Supply of Energy Efficient LT Motors up to 100 kW.

A)	MEG DETAILS		**86MEG-08**
	1.0	MEG Description	**Energy Efficient LT Motors up to 100 kW. (Enlistment Category-I)**
	2.0	MEG Responsibility	VEC
	3.0	Category	Category I (Up to 4 Cr)
	4.0	Critical/ Not critical (for Requirement of Physical Assessment)	Critical

B) **Technical Criteria of QR:**

a) The Applicant should be a manufacturer of 415 V ,75 kW or above rating Motors.

b) The Applicant should have valid BIS licence (IS 12615) for IE3 or better Energy efficient Motors up to 100 kW rating.

c) The Applicant should have supplied minimum five (05) no 415 V, 75 kW or above rating LT motors to any industry during the preceding five (05) years from the last date of submission of application.

C) **Documents required in support of meeting QR:**

(1) Supporting Documents for QR - B.

(a) Latest Annual report or Udyam Registration / NSIC / SSI / MSME registration certificate / Valid BIS license / ISO certificate / Certificate of registration/Type Test Report / MDCC issued by the client or certified testing agency / any other statutory document as a proof of being manufacturer of the LT Motors. Brief details of Manufacturing facilities or the Standard published catalogue for LT Motors to be given.

(b) Copy of Purchase order(s) in support of award and copy of invoice(s) / Completion certificate from the buyer concerned to establish successful execution of the supply of LT Motors as per the QR.

(D) Documents to be submitted to establish the Execution Capability (EC):

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: -

4.1. Three (3) POs of the highest executed values of similar works (see definition at point E: Note- 1 below) executed during the previous five (5) years from the last date of submission of application. Copy of Invoice(s) / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. These will be required for calculation of execution capability.

4.2 Financials:

1. Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the last date of submission of application. In case the audited result for the preceding financial year is not available or not applicable for the applicant as per the GST and Tax Audit policy, certification of financial statements from a practicing-chartered accountant is to be uploaded. In case, applicant is not able to submit the certificate from practicing chartered accountant certifying its financial parameters, the audited results of the three consecutive financial years preceding the last financial years shall be considered for evaluating the financial parameters. Further, a certificate would be required from the CEO/CFO stating that the financial results are under audit as on the last date of submission of application and certificate from the practicing Chartered Accountant certifying the financial parameters are not available.
2. In case the applicant is not able to furnish its audited financial statements on stand-alone entity basis, the unaudited unconsolidated financial statements of the applicant can be considered acceptable provided the applicant further furnishes the following documents for substantiation of its qualification.

   (a) Copies of the unaudited unconsolidated financial statements of the applicant along with copies of the Audited consolidated financial statements of its Holding Company.

   (b) A Certificate from the CEO/CFO of the Holding Company, as per the format enclosed in the bidding documents, stating that the unaudited unconsolidated financial statements form part of the Consolidated Annual Report of the company.

4.3. GSTIN certificate, PAN, Power of attorney, Letter of undertaking, works information etc. as mentioned in enlistment application pages of website https://vdc.ntpc.co.in.

Note:

(i) Maximum Three Credential Order(s) / Similar Work(s) shall be considered for calculation

	of the EC. **(ii)** "All other terms & conditions of enlistment are as per the STC available at VDC portal https://vdc.ntpc.co.in'.	
E)	NOTE-1	Similar works means: " Supply of 415 V or above Voltage rating motors ".
	NOTE-2	The executed value means Basic value of quantity of similar works executed/supplied against thereference 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

STANDARD QUALITY PLAN

एनटीपीसी NTPC	**Item: -LT Induction Motor (IEC:60034/IS:12615)**	SQP NO:	CPG-QA-SQP-E004	P **1/4**	Prepared by JAI PRAKASH MAURYA Digitally signed by JAI PRAKASH MAURYA Date: 2023.07.21 12:29:22 +05'30' (J P Maurya)	Reviewed by ANKUSH BIRLA Digitally signed by ANKUSH BIRLA Date: 2023.07.21 12:27:01 +05'30' (Ankush Birla)	Approved by SUNIL MALANI Digitally signed by SUNIL MALANI Date: 2023.07.21 16:08:36 +05'30' (Sunil Malani)
		Rev.	01	Date 21.07.2023			

SL. NO.	COMPONENT/ OPERATION	CHARAC-TERISTICS	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	D	AGENCY		REMARKS
			M	N					M	N	
A)	***Raw material/BOI***										
1	Dual coated enameled round copper wire	Dimension, resistance, elongation, cut through test, resistance to abrasion, continuity (insulation), Mandrel winding test, springiness, BD voltage test, Heat shock test, Peel test.	1 sample/lot		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/IS 13730-Pt-13.		TC/IR		P/ V	@	
2	Insulation material- slot insulation	TS, Elongation, BDV & IR.	1 sample/lot		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P/ V	@	
3	Insulation material.	Bore dia thickness, BDV, IR, Bending before & after ageing, glass content, Voltage proof test at elevated temp, stability of coating.	1 sample/lot		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P/ V	@	
4	Shaft	Dimension, Chemical Composition, Hardness, TS & Elongation, Yield strength,	1 sample /heat		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std/IS 1570, Part-II.		TC/IR		P/ V	V	
		Heat treatment (If applicable)	100%		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		HT chart/HT report		P/ V	@	
		UT (≥50mm dia)	100%		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/ ASTM A 388/ Mfrr std.	Note 4	TC/IR		P/ V	V	
5	Castings (stator body, End shields, terminal box, Die cast rotor body)	Dimension conformity, Hardness, Tensile strength.	1 sample /heat		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std./IS:210		TC/IR		P/ V	@	
		Visible surface defects	100%		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P/ V	@	
6	Stampings	Stamping thickness, coating thickness, specific losses , Insulation resistance, Permeability, stacking factor, Burr height.	1 sample/lot		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std./IS:648		TC/IR		P/ V	V	

STANDARD QUALITY PLAN

एनटीपीसी NTPC	**Item: -LT Induction Motor (IEC:60034/IS:12615)**	SQP NO:	CPG-QA-SQP-E004	P **2/4**	Prepared by JAI PRAKASH MAURYA Digitally signed by JAI PRAKASH MAURYA Date: 2023.07.21 12:29:56 +05'30' (J P Maurya)	Reviewed by ANKUSH BIRLA Digitally signed by ANKUSH BIRLA Date: 2023.07.21 12:27:15 +05'30' (Ankush Birla)	Approved by SUNIL MALANI Digitally signed by SUNIL MALANI Date: 2023.07.21 16:08:10 +05'30' (Sunil Malani)
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SL. NO.	COMPONENT/ OPERATION	CHARAC-TERISTICS	QUANTUM OF CHECK M	QUANTUM OF CHECK N	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	D	AGENCY M	AGENCY N	REMARKS
7	Fan	Dimensions	Mfrr's Std		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P/ V	@	
		Visible surface defects	100%	--			TC/IR		P/ V	-	
8	Space heater	HV, IR & Wattage	100%	---	Mfrr std..		TC/IR		P/ V	-	
9	Bearing	Type & Model	100%		Mfrr std.		TC/IR		P/ V		
10	Varnish	Viscosity, shelf life	Mfrr std.	--	Mfrr std.		TC/IR		P/ V	-	
11	Gasket	Dimension, TS & Hardness before & after ageing, Neoprene test.	Mfrr's Std	--	NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std /IS:11149 & IS:3400 part-22.		TC/IR		P/ V	-	
12	Terminal block (Epoxy/DMC)	Dimension, Proof voltage test	1/lot	--	Mfrr std.		TC/IR		P/ V	-	
13	Paint	Shelf life, shade	Mfrr's Std	--	NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P/ V	-	
B)	***Process /Assembly check***										
1	Machined casting (stator body, End shields, terminal box, Die cast rotor body)	Dimensions, surface finish (Blowholes).	Mfrr's Std		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P	-	
		Overpressure test, Flame path dimensions.	100%		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/ IS:2148/IS:60079		TC/IR		P	V	For flame proof motors.
2	Stator core	Core length, Rigidity of core (*Pen knife test)	100%	--	NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P	-	*as applicable
3	Wound stator	Resistance, polarity, Intern turn(surge) test, HV, slot wedge tightness, Visual(joints)	100%	--	TC/IR				P	-	
4	Impregnation (VPI)	Viscosity, temp, pressure & curing time.	Mfrr std.	--	NTPC Approved Drg/ DS / Tender Tech. Spec./PO/Mfrr std		TC/IR		P	-	
5	Rotor with fan	Dynamic balancing.	100%		ISO:21940		TC/IR		P	V	

STANDARD QUALITY PLAN

एनटीपीसी NTPC	**Item: -LT Induction Motor (IEC:60034/IS:12615)**	SQP NO:	CPG-QA-SQP-E004	P **3/4**	Prepared by JAI PRAKASH MAURYA Digitally signed by JAI PRAKASH MAURYA Date: 2023.07.21 12:30:22 +05'30' (J P Maurya)	Reviewed by ANKUSH BIRLA Digitally signed by ANKUSH BIRLA Date: 2023.07.21 12:27:27 +05'30' (Ankush Birla)	Approved by SUNIL MALANI Digitally signed by SUNIL MALANI Date: 2023.07.21 16:07:37 +05'30' (Sunil Malani)
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SL. NO.	COMPONENT/ OPERATION	CHARAC-TERISTICS	QUANTUM OF CHECK M	QUANTUM OF CHECK N	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	D	AGENCY M	AGENCY N	REMARKS
6	Final assembly	Shaft run out, check terminal box assembly, gasketing, crimping.	100%		**Mfrr std.**		TC/IR		P	@	
C)	***Finished Product / Final Inspection***										
1	Final test	Name plate verification, paint shade, thickness & adhesion test (cross hatch method), mounting & overall dimensions, Degree of protection (by feeler gauge wire).	Random		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/IS 60034 /IS 12615		IR	Y	P	W	
2		HV test on winding & space heater, IR test before & after HV test on winding & space heater, reduced voltage running test, Over speed test (at 120% of rated speed for 2 Minute), Vibration measurement, Direction of rotation, Measurement of winding resistance, No load & locked rotor test.	100%		NTPC Approved Drg/ DS / Tender Tech. Spec./PO/IS 60034 /IS 12615		IR	Y	P	W	
3	Pre-Dispatch	Completeness & Packing.	100%		NTPC Approved DS / Tender Tech. Spec./PO/Mfrr std		IR		P	-	
D)	*Type Test clearance from NTPC site shall be reviewed during final inspection if envisaged by tender/PO spec.*										

Notes: -

1. Y mark in Column 'D' means such document shall be furnished by the manufacturer / supplier.
2. Calibrated equipments required for performing the tests in the presence of NTPC or authorized representative, shall be arranged by the supplier without any extra cost.
3. Reference and Acceptance norms shall be derived from following in the same sequence a) NTPC Approved drawing / data sheet, b) NTPC tech specs, c) Purchase Order, d) Relevant national standard. e) Relevant International standard, f) Manufacturer's standard g) Good Engineering practices.
4. When back wall echo(BWE) is set to 100% of full screen height(FSH), a defect echo>20% of FSH is not acceptable. Also loss of BWE>20% is not acceptable. Frequency of probe used shall be 2MHZ min.
5. @Motor manufacturer shall maintain records for surveillance check by NTPC.
6. For energy efficient motors, core length, core material and frame size shall be same as those used in type tested motors.

एनटीपीसी NTPC	**Item: -LT Induction Motor (IEC:60034/IS:12615)**	SQP NO:	CPG-QA-SQP-E004	P **4/4**	Prepared by JAI PRAKASH MAURYA Digitally signed by JAI PRAKASH MAURYA Date: 2023.07.21 12:30:48 +05'30' (J P Maurya)	Reviewed by ANKUSH BIRLA Digitally signed by ANKUSH BIRLA Date: 2023.07.21 12:27:40 +05'30' (Ankush Birla)	Approved by SUNIL MALANI Digitally signed by SUNIL MALANI Date: 2023.07.21 16:06:27 +05'30' (Sunil Malani)
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SL. NO.	COMPONENT/ OPERATION	CHARAC-TERISTICS	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	D	AGENCY		REMARKS
			M	N					M	N	

7. For energy efficient motors, comparison of winding resistance and no-load losses measured in identical conditions (either cold or hot) w.r.t. type tested motor of same rating –

   (a) Winding resistance with (+/-)5% of type tested motor value, both values corrected at 20 degree centigrade.
   (b) If winding resistance and no-load losses are not within tolerances w.r.t type tested motor, motor manufacturer to conduct efficiency test on the offered motor for witness by NTPC.
   (c) Tolerances: i) No-load current: +/- 15%. ii) No-load loss: +/- 15% (on motor rating ≤150KW)/ +/- 10 % (on motor rating>150KW)

Abbreviations: -

M/Mfrr	***Manufacturer***	***P***	***Perform***	***IR***	***Inspection Record / Report***
N	***NTPC Ltd or authorized representative***	***W***	***Witness***	***TC***	***Test Certificate***
CoC	***Certificate of Conformance***	***V***	***Verification/Review of records***	***MTC***	***Manufacturer's Test Certificate***
DS	***Data sheet***	***PO***	***Purchase Order***	***Drg***	***Drawing***

Attributes / Criteria for Physical Assessment	MAX Marks	Obtained Marks
GENERAL		
1. **Premises and Resources** a. Statutory document viz. Factory License / SME registration /BIS License permitting manufacturing of intended item at proposed works location and long-term lease / ownership document / Electricity bill as evidence of possession of declared premises. PCB clearance for applicable industry b. Adequacy of space including housekeeping, identification, Storing/stacking for input material, c. Physical Verification of available working well-maintained machines as per declaration with evidence of owning (viz. invoices in the applicant's name) AND Physical Verification of available working maintained calibrated test facilities & measuring instruments as per declaration with evidence of owning (viz. invoices or calibration certificates in the Applicant's name) d. Availability of Qualified & Experienced regular manpower in design-as applicable, production & quality control with permanent staff on key positions with salary statement & pf statement (if applicable) as evidence	**50**	
2. Experience & Quality Control a. Supply experience for same item for last 3 years , commissioning protocol / customer feedback / repeat orders AND delivery commitment through random verification of invoices & LRs against randomly selected orders or the for orders submitted as credentials, from the declared works location b. Control on quality of raw material , bought out items, and out-sourced processes (if any) through controlled procurement from the established listed sources, regular quality checks / audits at suppliers' works, checks / verification of test records at incoming stage, controlled receipt & issue of material, actions for non-compliant supplies. c. Control on quality of in-process inventories at various critical stages, proper identification on items and maintenance of corresponding updated QC records for traceability from raw material till finished product.Display of key processes critical steps / parameters /SOPs in local language at shop floor d. Capability for & Acceptability to NTPC's Quality Plan. Successful Random inspection / witnessing tests on finished products available on the shop floor / test lab	**50**	

MEG ITEM SPECIFIC		
1. Resources : a. Availability of approved BPS,PQR and qualified brazers , in-house or tied up lab/qualified personnel for carrying out UT for plates and rounds >=40mm b. Facilities to manufacture formed coils, stator winding, brazing , dynamic rotor balancing, seamless smooth varnishing / VPI, painting c. Availability of dust free and controlled atmosphere (Clean, pressurized and / or A.C) in Coil forming & Stator Winding areas. d. Availability of expert experienced manpower in design and validated software for motor design capable of taking care of customised motors' requirements substantiated **simulation tools** (electromagnetic, thermal, vibration analysis).	**50**	
2. Quality Management System: a. WIs / SOPs at working places for critical processes like coil making, core building, varnishing, rotor balancing b. Type test certificate for the highest rating motor supplied, NFPA certification / compliance for flameproof machines c. Availability of inhouse calibrated test facilities for conducting routine tests as per IS / IEC 60034,IS including following additional tests- i. Vibration ii. Noise Level iii. Overspeed Test iv. Direct load test facility and Efficiency measurement for IE2/IE3/IE4 Motors v. Elcometer for paint thickness	**50**	