

CLAUSE NO.	TECHNICAL REQUIREMENTS		
	(vi) Protection Class		IP: 55 minimum for indoor & IP-65 minimum for outdoor applications.
	(vii) Grounding		To be provided.
	(viii) Color		To be decided during detailed engineering & subject to Employer's approval.
11.00.00	CONDUITS		
11.01.00	Conduits shall be generally used for interconnecting cables from field instruments to Local JB's. All rigid conduits, couplings and elbows shall be hot dipped galvanised rigid mild steel in accordance with IS: 9537 Part-I (1980) and Part-II (1981). The conduit interior and exterior surfaces shall have continuous zinc coating with an overcoat of transparent enamel lacker or zinc chromate. Flexible conduit shall be heat resistant lead coated steel, water leak, fire and rust proof. The temperature rating of flexible conduit shall be suitable for actual application.		
11.02.00	The Bidder shall install conduits according to the general routing as approved by Employer and shall coordinate conduit locations with other works.		
11.03.00	All grounding bushings within all enclosures shall be wired together and connected internally to the enclosure grounding lug or grounding bus with 8 AWG bare copper conductor. Conduit runs to individually mounted equipment shall be grounded to the Employer's cable tray grounding conductor with 12 AEG bare copper conductor. All grounding bushings, clamps and connectors shall be subject to approval of the Employer.		
11.04.00	All rigid conduit fittings shall conform to the requirements of IS: 2667, 1976. Galvanized steel fitting shall be used with steel conduit. All flexible conduit fittings shall be liquid tight, galvanized steel. The end fittings shall be compatible with the flexible conduit supplied.		
11.05.00	All individually mounted equipment and devices shall be connected to the supply conduit, using not more than one meter of flexible conduit adjacent to the equipment or device. Flexible conduit shall be installed in all conduit runs, which are supported by both building steel and structures subject to vibration or thermal expansion. This shall include locations where conduit supported by building steel enters or becomes supported by the turbine generator foundation and where conduit supported by building steel or foundation becomes supported by steam generator framing.		
11.06.00	Special areas, such as control rooms in which external noise is to be minimized, shall have flexible conduit in conduit runs where the runs cross from the main building framing to the control room framing.		
11.07.00	Conduit supports shall be furnished and installed in accordance with these specifications. Support material shall comply with the following requirements. i) Hanger rods shall be 12 mm diameter galvanized threaded steel rods. ii) Single conduit supports shall be one-hole cast metal straps and clamp backs		
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE	TECHNICAL SPECIFICATIONS SECTION-VI PART-B BID DOC. NO.: CS-0270-110-2	IIIC-07: INSTRUMENTATION AND POWER SUPPLY CABLE	PAGE 15 OF 16

CLAUSE NO.	TECHNICAL REQUIREMENTS		
	<p>unless other types are acceptable to the Employer. Multiple conduit bank supports shall be constructed of special galvanized support channels with associated conduit clips.</p>		
11.08.00	<p>Conduit sealing, explosion proof, dust proof and other types of special fittings shall be provided as required by these specifications and shall be consistent with the area and equipment with which they are installed. Fittings installed outdoors and in damp locations shall be sealed and gasketed. Hazardous area fittings and conduits sealing shall conform to NEC requirements for the area classification.</p>		
11.09.00	<p>Contractor shall provide double locknuts on all conduit terminations not provided with threaded hubs and couplings. Water tight conduit unions and rain tight conduit hubs shall be utilised for all the application which shall be exposed to weather. Moisture pockets shall be eliminated from conduits.</p>		
11.10.00	<p>Conduits shall be securely fastened to all boxes and cabinets.</p>		
12.00.00	<p>CABLE SUB-TRAY & SUPPORT</p>		
12.01.00	<p>The cable sub-trays and the supporting system, to be generally used between Local/Group JB's and the main cable trays and the same shall be furnished and installed by the Contractor. It is the assembly of sections and associated fittings forming a rigid structural system used to support the cable from the equipment or instrument enclosure upto the main cable trays (trunk route).</p>		
12.02.00	<p>The covers on the cable sub-trays shall be used for protection of cables in areas where damage may occur from falling objects, welding spark, corrosive environment, etc. & shall be electrically continuous and solidly grounded. The cable trays shall not have sharp edges, burrs or projections injurious to the insulation or outer sheath of the cables.</p>		
12.03.00	<p>The supporting arrangement of cable tray system shall be able to withstand the weight of the cable and cable tray system. The supporting interval shall not be more than the recommended span for the above loading for the type of cable tray selected. The tray shall not overhang by more than one meter from the support at the dead end. As far as practicable the cable sub-tray system shall be supported from one side only, in order to facilitate installation and maintenance of cables.</p>		
12.04.00	<p>The Bidder shall furnish and install the estimated quantities and sizes of sub trays/troughs including all required fittings and adaptors on as required basis.</p>		
<p>NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE</p>	<p>TECHNICAL SPECIFICATIONS SECTION-VI PART-B BID DOC. NO.: CS-0270-110-2</p>	<p>IIIC-07: INSTRUMENTATION AND POWER SUPPLY CABLE</p>	<p>PAGE 16 OF 16</p>

Clause No.	LT SWITCHGEAR		
1.00.00	..... (Bidder's Name)		
	<p style="text-align: center;">LT SWITCHGEAR</p> <p>(Bidder to furnish following data as applicable for each type and class of switchgear separately)</p> <p>SWITCHGEAR & MCC</p> <p>a) General</p> <p style="padding-left: 40px;">i) Manufacturer's Name</p> <p style="padding-left: 40px;">ii) Type designation</p> <p style="padding-left: 40px;">iii) Country of origin</p> <p>b) Rated voltage</p> <p>c) Symmetrical short circuit withstand current at rated voltage of switchgear /MCC cubicle.</p> <p>d) Peak short circuit withstand current</p> <p>e) Rated current at ambient</p> <p>f) Degree of protection as per IS:13947</p> <p style="padding-left: 40px;">i) Breaker / MCC cubicles</p> <p style="padding-left: 40px;">ii) Busbar chamber</p> <p>g) Cubicle sheet metal details</p> <p style="padding-left: 40px;">i) Cold rolled / hot rolled</p> <p style="padding-left: 40px;">ii) Thickness, structural & load bearing members</p> <p style="padding-left: 40px;">iii) Thickness, front & rear</p> <p style="padding-left: 40px;">iv) Thickness, Sides & top</p> <p style="padding-left: 40px;">v) Thickness of gland plates</p>		
NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATA SHEET SECTION-VI PART-G BID DOC. NO. : CS-0270-110-2	DB2 : LT SWITCHGEAR PAGE 1 OF 12

Clause No.	LT SWITCHGEAR		
	..... (Bidder's Name)		
	h) Painting shade & Thickness		
	i) External surfaces (front & raer)	.....
	ii) End covers	.....
	i) Mimimum Clearance in air for Busbars		
	i) Between phases	.....
	ii) Between phase & earth	.....
	j) Standard height, width & depth of typical panel	.....
	i) Circuit breaker panel	.....
	ii) MCC panels (S.F/D.F.)	.....
	iii) Circuit breaker panel with Bus trunking /Bus Duct termination	.....
	iv) ACDB/DCDB	.....
	v) AC/DC Fuse boards	.....
	k) Width of cable alley	.....
	l) Shrouding arrangement in cable alley provided or not	Yes/No	
	m) Earth busbar size & material	.....
	n) Approx weight of one panel with circuit breaker	.....
	o) Recommended dynamic loading for foundation design	
	p) Approx weight of one MCC panel	
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Clause No.	LT SWITCHGEAR			
5.00.00 (Bidder's Name)			
	AIR BREAK SWITCHES (The following details shall be furnished for each type & rating)			
	a) Make	.....	
	b) Type	.....	
	c) Applicable standards	.....	
	d) Rated current at design ambient temperature (Amps)	.....	
	e) Design ambient temperature Deg C	.....	
	f) Rated breaking current (kA)	.....	
	g) Maximum through fault current withstand kA	.....	
	h) Door interlock as specified has been provided ?	Yes/No		
	i) No. of auxilairy contacts and its rating	.....	
	6.00.00	CONTROL/SELECTOR SWITCH		
	a) Make	.....	
	b) Type Designation	.....	
	c) Voltage grade	.....	
7.00.00	CONTACTOR (The following details shall be furnished for each type and rating)			
a) Make	.....		
b) Type & applicable standards			
c) Rated voltage of main and auxiliary contacts			
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Clause No.	LT SWITCHGEAR			
8.00.00	 (Bidder's Name)		
	d) Rated voltage of coils		
	e) Limits of operation			
	i) Supply voltage variation +/-%		
	ii) Supply frequency variation for closing (+/-)%		
	iii) Drop out voltage %		
	f) Rated (thermal) current A		
	g) Rated duty			
	h) Rated utilisation category as per IS:13947		
	i) Rated breaking capacity kA		
	j) Rated making capacity - kA		
	k) Coil VA burden		
	8.00.00	AUXILIARY CONTACTOR		
	a) Make		
	b) Type		
	c) Catalogue attached as Annexure No.		
	9.00.00	FUSES		
	a) Make		
	b) Type		
	c) Category		
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Clause No.	LT SWITCHGEAR		
18.00.00 (Bidder's Name)		
	LOCAL STARTERS		
	a)	Make & Type
	b)	Catalogue
19.00.00	415 V NON SEGREGATED BUSDUCTS (If Applicable)		
	a)	Manufacturer's name & address	.....
	b)	Type of busduct	.....
	c)	Material and cross section of busbars	.....
	d)	Rated voltage (volts)	.....
	e)	Maximum voltage at which busduct can operate continuously (volts)	.....
	f)	Continuous current rating of busbars (Amps)	.....
	g)	Short circuit current ratings & duration (kA /Sec)	.....
	h)	Momentary current rating kA peak	.....
	i)	Temperature rise over the ambient temperature	.....
	i)	Busbars	.....
	ii)	Enclosures	.....
	j)	Material of support insulator	.....
k)	No. and arrangement of support insulators	.....
l)	Material of Gaskets	.....
m)	One minute power frequency withstand voltage (kV)	.....
NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATA SHEET SECTION-VI PART-G BID DOC. NO. : CS-0270-110-2	DB2 : LT SWITCHGEAR PAGE 10 OF 12

Clause No.	LT SWITCHGEAR		
20.00.00		..... (Bidder's Name)	
	n) Minimum creepage distance over insulator (mm)	.....
	o) Conductor treatment	.....
	p) Clearance (mm)	.....
	i) Phase to Phase	.....
	ii) Phase to earth	.....
	q) Average weight per meter of busduct (kg)	.....
	r) Material and thickness of Busduct	.....
	s) Shape & size of enclosure	.....
	EMERGENCY LIGHTING TRANSFORMERS		
	a) Make	.....
	b) Voltage Ratio	.....
	c) KVA Rating	.....
	d) Vector Group	.....
	e) Type of Cooling	.....
	f) Percentage impedance	.....
	g) Details of taps provided	.....
	h) Class of insulation	.....
	i) Degree of protection for enclosure	.....
	j) Whether mounted inside MLDB or outside	
k) If it is mounted outside dimension of the enclosure		
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Clause No.	LT SWITCHGEAR		
21.00.00	<p style="text-align: right;">..... (Bidder's Name)</p> <p>RESISTOR CUBICLE</p> <p>a) Make & type</p> <p>b) Material of Resistor</p> <p>c) Overall dimension</p> <p>d) Degree of protection</p>		
<p>NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE</p>	<p>TECHNICAL DATA SHEET SECTION-VI PART-G BID DOC. NO. : CS-0270-110-2</p>	<p>DB2 : LT SWITCHGEAR</p>	<p>PAGE 12 OF 12</p>

Clause No.	POWER AND CONTROL CABLES		
	..... (Bidder's Name)		
	<p>POWER AND CONTROL CABLES (Use separate sheet for each type and size of cables)</p>		
1.00.00	Make	.....	.....
1.02.00	Country of Manufacturer	.....	.....
1.03.00	Type & designation	.....	.....
1.04.00	Applicable standard	.....	.....
1.05.00	Cable size & no. of cores	.....	.....
1.06.00	Rated voltage	.....	.....
1.07.00	Catalogue attached as Annexure No.	.....	.....
1.08.00	Continuous current rating for max. conductor temperature	.....	.....
	a) When laid in air at an ambient temperature of 50 deg. C	.....	.....
	b) When buried in soil having thermal resistivity of 150 deg.C cm/n at a depth of 1000 mm at ground ambient temperature of 40 deg. C	.....	.....
1.09.00	Short circuit withstand capacity and duration for	.....	.....
	a) Conductor	.....	.....
	b) Screen	.....	.....
	c) Armour	.....	.....
1.10.00	Conductor	.....	.....
	a) Material	.....	.....
	b) Nominal cross section area in sq. mm	.....	.....
NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATA SHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB3 : POWER AND CONTROL CABLES
			PAGE 1 OF 2

Clause No.	CABLING EARTHING AND LIGHTNING PROTECTION		
		.....	(Bidder's Name)
	CABLE SUPPORT SYSTEM		
1.00.00	Cable Trays, Fittings & Accessories		
1.01.00	Makers, Name, Country of manufacturer	.....	.....
1.02.00	Type & Material of cable tray	.....	.....
2.00.00	Conduit Pipes & Accessories		
2.01.00	Maker's Name and Country of manufacture	.....	.....
2.02.00	Material	.....	.....
2.03.00	Class of duty	.....	.....
2.04.00	Applicable Standard	.....	.....
3.00.00	Cable Glands		
3.01.00	Maker's Name and Country of manufacture	.....	.....
3.02.00	Type of cable gland	.....	.....
3.03.00	Applicable Standard	.....	.....
3.04.00	Material	.....	.....
4.00.00	Earthing System		
	Equipment earthing		
	i) Material	.....	.....
	ii) Size	.....	.....
	iii) Applicable Standard	.....	.....
NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB4 : CAB. EARTH. & LIGHT. PROTEC.
		PAGE 1 OF 2	

Clause No.	CABLING EARTHING AND LIGHTNING PROTECTION		
5.00.00	<p style="text-align: right;">..... (Bidder's Name)</p> <p>Cable Tray Support System</p> <p>(a) Maker's Name, Country of Manufacturer</p> <p>(b) Type & Material of cable tray support system</p> <p>(c) Catalogue and indicative sketch attach as annexure No.</p>		
<p>NABINAGAR THERMAL POWER PROJECT (4x250 MW) STEAM TURBINE GENERATOR PACKAGE</p>	<p>TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2</p>	<p>DB4 : CAB. EARTH. & LIGHT. PROTEC.</p>	<p>PAGE 2 OF 2</p>

Clause No.	MOTORS		
	..... (Bidder's Name)		
	Applicable Data to be filled for each rating of HT, LT and DC motors		
	MOTORS		
1.00.00	GENERAL		
1.01.00	Manufacturer & Country of origin	.....
1.02.00	Equipment driven by motor	.....
1.03.00	Motor type	.....
1.04.00	Quantity	.....
2.00.00	DESIGN AND PERFORMANCE DATA		
2.01.00	Frame size	.....
2.02.00	Type of duty	.....
2.03.00	Type of enclosure and method of cooling, Degree of protection	.....
2.04.00	Applicable standard to which motor generally conforms	.....
2.05.00	Type of mounting	.....
2.06.00	Direction of rotation as viewed from DE END	.....
2.07.00	Standard continuous rating at 40 deg.C. ambient temp. (KW)	.....
2.08.00	De rated rating for specified normal condition i.e. 50 deg.C ambient temperature (KW)	.....
2.09.00	Rated Voltage (volts)	.....
2.10.00	Permissible % variation of		
	a) Voltage (Volts)	.....
	b) Frequency (Hz)	.....
	c) Combined voltage and frequency	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 1 OF 12

Clause No.	MOTORS		
		..... (Bidder's Name)	
2.11.00	Minimum permissible starting Voltage (Volts)	.....
2.12.00	Rated speed (RPM) at rated voltage and frequency	.....
2.13.00	At rated Voltage and frequency		
	a) Full load current (Amps)	.....
2.14.00	Power Factor at		
	a) 100% load	.....
	b) NO load	.....
2.15.00	c) Starting	.....
	Efficiency at rated voltage and frequency,		
	a) 100% load	.....
2.16.00	b) 75% load	.....
	c) 50% load	.....
	Starting current (amps) at		
2.17.00	a. 100 % voltage	.....
	b. 85% voltage	.....
	c. 80% voltage	.....
	d. Min permissible voltage	.....
2.17.00	Starting time (secs) with minimum permissible voltage		
	a. Without driven equipment coupled	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 2 OF 12

Clause No.	MOTORS		
		..... (Bidder's Name)	
	b. With driven equipment coupled	.....
2.18.00	Safe stall time (secs) with 100% and 110% of rated voltage		
	a. From hot condition	.....
	b. From cold condition	.....
2.19.00	Torques in Kg-m and in % of FLT		
	a. Starting torque at min. permissible voltage	.....
	b. Pull up torque at rated voltage	.....
	c. Pull out torque	.....
	d. Min accelerating torque (kg.m) available	.....
	e. Rated torque (kg.m)	.....
2.20.00	Stator winding DC resistance per phase (ohms at 20 Deg.C.)	.....
2.21.00	GD2 value of motors	.....
2.22.00	No of permissible successive starts when motor is in hot condition	.....
2.23.00	a. locked rotor KVA input	.....
	b. Locked rotor KVA/KW	.....
2.24.00	Bearings		
	a. Type	.....
	b. Manufacturer	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 3 OF 12

Clause No.	MOTORS			
		.....	(Bidder's Name)
	c. Self Lubricated or forced Lubricated d. Recommended Lubricants e. Guaranteed Life in Hours f. Whether Dial Type thermometer provided g. Oil pressure Gauge/switch i. Range ii. Contact Nos. & ratings iii. Accuracy	..... ..... ..... ..... ..... ..... ..... ..... ..... .....	
2.25.00	Vibration a) Velocity (mm/s) b) Displacement (microns)	..... ..... .....	
2.26.00	Noise level (DB) or Noise pressure or Noise power	.....	
3.00.00	CONSTRUCTIONAL FEATURES			
3.01.00	Stator winding insulation / Armature winding insulation in case of a. Class & Type b. Tropicalised (Yes/No) c. Temperature rise over specified max. i. Cold water temperature of 39 DEG. C. ii. Ambient Air 50 DEG. C. (for air cooled motor)		
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Clause No.	MOTORS		
	 (Bidder's Name)	
	g. Lubrication type	
	h. Whether dial type thermometer provided	
	i. Oil pressure gauge/ switch	.....
3.05.00	Type of cooler		
	a. CACA / CACW / Number for HT motors	.....
3.06.00	Cooling water requirements (if applicable)		
	a. Quantity required (M3/hr)	.....
	b. Maximum permissible inlet water temp. in deg.C	.....
	c. Pressure of water (KSC) at inlet to coolers	.....
	d. Outlet temperature (deg.C) of water at full load	.....
	e. Cold air temp. (deg.C) at outlet	.....
3.07.00	Paint shade	.....
	3.08.00 Max. permissible temperature of rotor (deg.C)	.....
	3.09.00 Temp. Rise of rotor during 1st start (deg.C)	.....
	3.10.00 Temp. rise of rotor during 2nd start (deg.C)	.....
	3.11.00 Surge withstand voltage (stator winding) only for HT Motors	
	a) 0.3/3 micro sec surge (KVp)	
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Clause No.	MOTORS			
3.12.00	 (Bidder's Name)		
	b) 1.2/50 micro sec surge (KVp) Weight of a. Motor stator (KG) b. Motor Rotor (KG) c. Total weight (KG)			
4.00.00	LIST OF ACCESSORIES.			
	a) RTDs for winding for HT motors (Type/Nos/Leads/ Location/make/Res.at 0 Deg.C)	.....	
	b) RTDs for bearing for HT motors (Type/Nos/Leads location/make/Res.at 0 Deg.C)	.....	
	c) RTDs for Hot Air for HT motors (Type/No/Leads)	.....	
	d) RTDs for Cold Air for HT motors (Type/No./Leads)	.....	
	e) Space Heaters for motors beyond 30KW rating			
	i) Nos.	.....	
	ii) Power (Watts)	.....	
	iii) Supply Voltage	.....	
	f) Stator Terminal Box (For HT motor)			
	i) Type	.....	
	ii) Fault Level (MVA)	.....	
	iii) Fault Level duration (secs)	.....	
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 7 OF 12	

Clause No.	MOTORS		
	 (Bidder's Name)	
	g) Neutral TB for HT motors i) Type	
	h) Current Transformer for HT motors i) Nos. ii) Ratio iii) Accuracy Class iv) Knee Point Voltage-Vk (Volts) v) Exciting Current vi) Max Secondary Resistance	
	i) Dial Type Thermometer for HT motors (Type/make/Accuracy/Connection type & size) i) For Bearings (Nos.) ii) For Air Temp (Nos.) a. Hot Air b. Cold Air iii) Contact Rating iv) Range v) Supply Voltage	
	j) Rotor Terminal Box	
	k) TBs for RTDs. BTDs & Space Heater (Yes/No)	
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Clause No.	MOTORS		
		(Bidder's Name)
	l) Sole Plate (Yes/No)	
	m) Foundation & Anchoring bolts (Yes/No)	
	n) Base Frame (Yes/No)	.....
	o) speed switch (Yes/No)	.....
	i) No of contacts and contact ratings of speed switch	.....
	p) Insulation of bearing (Yes/No)	.....
	q) Forced oil lubrication (Yes/No)	.....
	r) Oil level indicator (Yes/No)	.....
	s) Noise reducer (Yes/No)	.....
	t) Flow switch for CACW motor (Quantity)	.....
	i) No of contacts and contact ratings	.....
	u) Water leakage detector for HT motors	.....
	i) No of contacts and contact ratings	.....
	v) Grounding pads	.....
	i) No and size on motor body	.....
	ii) Nos on terminal Box	.....
	w) Vibration pads	.....
	i) No and size	.....
	ii) Location	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE	TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS	PAGE 9 OF 12

Clause No.	MOTORS		
5.00.00	<p style="text-align: right;">..... (Bidder's Name)</p> <p>x) Any other fitments</p> <p>LIST OF CURVES</p> <p>i. Torque speed characteristic of the motor</p> <p>ii. Calibration characteristic of platinum type resistance temperature detector</p> <p>iii. Calibration characteristic of platinum BTM</p> <p>iv. Thermal withstand characteristic</p> <p>v. starting current Vs. Time</p> <p>vi. starting. current Vs speed</p> <p>vii. Neg. sequence current vs Time</p> <p>viii. P.F. and Effi. Vs Load</p>		
6.00.00	Additional Data to be filled for each rating of DC Motor		
6.01.00	Rated armature voltage (Volt)	.....
6.02.00	Rated field excitation (Amp)	.....
6.03.00	Permissible % variation in voltage	.....
6.04.00	Minimum Permissible Starting voltage (volt)	.....
6.05.00	<p>At rated voltage</p> <p>i) Full load Armature current. (Amp)</p> <p>ii) Full load Field current (Amp)</p> <p>iii) No load Armature current (Amp)</p>		
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Clause No.	MOTORS		
	 (Bidder's Name)	
6.06.00	Full load Field current (Amp)	
6.07.00	No load Aramature current (Amp)	
6.08.00	Minimum permissible field current (Amp) to avoid overspeeding at		
	i) Maximum permissible voltage	.....
	ii) Rated voltage	.....
	iii) Minimum Permissible Voltage	.....
6.09.00	Resistance (indicative Values) in ohm		
	i) Armature winding (Arm + IP + Series) at 25 deg.C	.....
	ii) Field Winding at 25 deg. C	.....
6.10.00	Inductance (indicative values)		
	i) Armature winding	.....
	ii) Field winding	.....
6.11.00	Value of trimmer resistance (ohm) to be connected in series with the shunt field to obtain rated speed at		
	i) 220 V DC	.....
	ii) 220 V DC + 10 % DC	.....
	iii) 220 V - 15% DC	.....
6.12.00	Value of the external resistance (ohm) required to be connected in series with armature during starting only		
6.13.00	Technical data sheet for external resistance box	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 11 OF 12

Clause No.	MOTORS		
		
		(Bidder's Name)	
6.14.00	Terminal box arrangement	.....
6.15.00	GA drawing of motor	.....
6.16.00	Starting time calculation	.....
6.17.00	Starter resistance design calculation	.....
6.18.00	Electrical connection diagram of motor	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC. NO. : CS-0270-110-2	DB6 : MOTORS PAGE 12 OF 12

CLAUSE NO.	BIDDER'S NAME		
7.00.00	INSTRUMENTATION CABLE, INTERNAL WIRING AND ELECTRICAL FIELD CONSTRUCTION MATERIAL		
7.01.00	TECHNICAL INFORMATION		
	1. Detailed technical literature and data covering specification of each type of instrumentation cable, internal wiring, electrical field construction material and all other accessories		Page No. Sec No
	2. Typical interconnection philosophy diagram (Sub-Section-Inst. Cable, Part-B of Sec.-VI) indicating signal routing from field to the control system cabinets along with the type of cables employed for each interconnection furnished at (This should cover both main plant and auxiliary plant)		Page No. Sec No
7.02.00	BILL OF MATERIAL		
	Complete Bill of Material for all instrumentation cables including prefabricated cables, co-axial cables, electrical field construction materials and accessories furnished as per Specification		
7.03.00	PROPOSAL DATA SHEETS		
7.03.01	Bidder shall furnish the following data separately for each type & size of instrumentation cable including special cables		
	1. Manufacturer s name	.....
	2. Reference design standards	.....
	3. Conductor size	.....
	4. Conductor material	.....
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATA SHEET SECTION-VI PART - G BID DOC NO.: CS-0270-110-2	DC-6 : INST. CABLE PAGE 1 OF 9

CLAUSE NO.	BIDDER'S NAME			
	<ul style="list-style-type: none"> e) Calculated dia. under outersheath (mm) f) Oxygen index (as per ASTM D-2863) in % g) Temperature index (in deg. C as per ASTM D-2863) h) Maximum acid gas generation (by weight) as per IEC-754-1 (in%) i) Maximum Smoke Density Rating as per ASTM D-2843 (Sub-Section-Inst. Cable, Part B, Sec-VI. j) Colour of outersheath sky blue as per specification 13. <ul style="list-style-type: none"> a) Overall diameter of cable (mm) b) Tolerance on overall diameter (mm) c) Weight per km. of cable 14. Cable Parameters at 20 deg.C. (+/- 3 deg.C) <ul style="list-style-type: none"> a) Conductor resistance (max.) b) Insulation resistance (min.) c) Mutual capacitance at 0.8 KHz (max.) d) Crosstalk at 0.8 KHz (min.) e) Attenuation at 1 KHz (max.) 	<ul style="list-style-type: none"> Yes / No 		
NABINAGAR THERMAL POWER PROJECT (4 X 250 MW) STEAM TURBINE GENERATOR PACKAGE		TECHNICAL DATASHEET SECTION-VI PART - G BID DOC NO.: CS-0270-110-2	DC-6 : INST. CABLE	PAGE 4 OF 9