

## Panel Type Heater for Hopper

Schedule Number	Description	Unit	QTY/Unit	Quoted/Not Quoted
Schedule No.:1	PANEL TYPE HEATING MODULE WITH LEADWIRE	ST	120	
Schedule No.:2	400 MM THERMOSTAT AS PER TECI:GEN:TH:013:REV 03 AND SUITABLE	ST	120	
Schedule No.:3	STUD LOCATING TEMPLATE FOR PANEL TYPE HOPPER	ST	2	

OFFER OF SUPPLIERS APPROVED BY CUSTOMER (NTPC) ON THE DATE OF TECHNICAL BID OPENING WILL ONLY BE ACCEPTED.

Note: Supplier should submit all attached ***Signed & Sealed*** enquiry documents given along with enquiry including ***Signed and Sealed*** SDDR (Specification deviation disposition report)

In case of non-submission of all requested documents along with offer, your offer will be liable for rejection in GeM Portal. Two days time will be given for representation within which supplier should submit all documents. On non-submission of representation within 2 days, your offer will be liable rejection.

Aslo Supplier should furnish there Project Coordinator contact details i.e Email ID's and Contact Number for Techno Commercial Queries.




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DOCUMENT TITLE : TECHNICAL SPECIFICATION FOR BOUGHT OUT ITEMS FOR  
ELECTROSTATIC PRECIPITATOR

ITEM : THERMOSTAT

PROJECT : BHEL STANDARD

	NAME	DESIGNATION	SIGNATURE	DATE
PREPARED BY	G.M.KUMAR	EAE		06.08.2016
REVIEWED BY	M.JAYAMURUGANAND	SDGM		06.08.2016
APPROVED BY	K.P.MANIMALA	AGM		06.08.2016

**ISSUED BY:**  
**EDC/ECI**

REVISION NO:03	CL.NO. 4.5, 4.7, 4.13, 4.15, 4.16, 4.18 ,4.33,8.0, 9.2 ALTERED & 8.4 DELETED	06.08.2016
REVISION NO:02	CL.NO. 4.13, 4.15, 4.16 & 4.18 ALTERED	20.05.2014
REVISION NO:01	GENERALLY REVISED	20.08.2008
REVISION NO:00	INITIAL RELEASE	29.01.2004

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#### 1.0 SCOPE:

The scope shall include design, development, manufacture, inspection, testing, packing and supply of THERMOSTATS as per Enquiry / PURCHASE Order.

**2.0 APPLICABLE STANDARDS** : IS4165, IS13947

**3.0 APPLICATION** : To control the ESP Bottom Hopper wall temperature and to control the air temperature inside the Insulator Housing.

#### 4.0 TECHNICAL PARTICULARS:

**4.1 INSTALLATION LOCATION** : (i) Outdoor, highly polluted with abrasive dust.  
(ii) The Thermostat will be subjected to constant vibration during operation.

4.2 SENSING : Liquid Expansion

4.3 SENSING BULB MATERIAL : Copper

4.4 CAPILLARY MATERIAL : Copper

4.5 CAPILLARY LENGTH : 280mm /400mm (As per enquiry / P.O) <sup>03</sup>

4.6 THERMOWELL MATERIAL : STAINLESS STEEL – SS 316L

4.7 THERMOWELL LENGTH : To suit 280mm/400mm thermostat capillary (As per enquiry / P.O). <sup>03</sup>

4.8 MOUNTING : Direct mounting on hopper wall & Insulator housing of ESP.

4.9 PROCESS CONNECTION : ½" BSP (Male)

4.10 OPERATING RANGE : 90 deg. C-160 deg. C

4.11 MAXIMUM PROCESS TEMPERATURE : 200 Deg.C





4.12 MAX. AMBIENT TEMPERATURE : 6 deg.C to 60 deg.C

4.13 MAXIMUM AMBIENT TEMPERATURE COMPENSATION : To be provided

4.14 INDICATING DIAL : To be provided internally (over the operating range)

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4.15 HOUSING	:	DIE CAST ALUMINIUM/ABS Plastic with paint shade 631 as per IS 5. 
4.16 HOUSING COVER	:	DIE CAST ALUMINIUM/ABS Plastic with paint shade 631 as per IS 5. 
4.17 LINK CHAIN FOR HOUSING COVER	:	To be provided
4.18 INGRESS PROTECTION	:	IP55 as per IS13947 
4.19 MICRO SWITCH	:	SPDT – 1No.
4.20 MICRO SWITCH RATING	:	230V, 5A, AC, INDUCTIVE
4.21 CONTACT ACTION	:	On increasing temperature
4.22 CONTACT RESISTANCE	:	BELOW 50 mΩ
4.23 SET POINT	:	Adjustable throughout entire operating range.
4.24 RESET	:	Auto Reset
4.25 TEMPERATURE SETTING	:	(i) Internal and (ii)Field setting
4.26 SWITCHING DIFFERENTIAL	:	7 deg.C (max.)
4.27 SCALE ACCURACY	:	Plus or Minus 2% FSR
4.28 REPEAT ACCURACY	:	Plus or Minus 1% FSR
4.29 INTERNAL WIRING	:	With 1.5 sq.mm multi stranded copper conductor with high temperature TEFLON coating
4.30 ELECTRICAL CONNECTION (EXTERNAL)	:	3C-2.5sqmm stranded Copper, Armoured PVC Cable.
4.31 CABLE GLAND TYPE	:	Double compression, Nickel Plated Brass glands with grommet
4.32 CABLE GLAND MAKE	:	COMMET/BRACCO/SUNIL&CO
4.33 CABLE GLAND SIZE	:	CBW 01 or BHEL approved Equivalent 
4.34 CABLE GLAND QUANTITY	:	1 No.

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- 4.35 CABLE LUG TYPE : Annealed Tinned Copper, Insulated Crimping type.
- 4.36 CABLE LUG MAKE : DOWELLS
- 4.37 CABLE LUG SIZE : CPI 19
- 4.38 CABLE LUG QUANTITY : 3 Nos.
- 4.39 EXTERNAL EARTHING PROVISION : Shall be provided (min. M6).
- 4.40 TERMINAL BLOCK : (i) 650 V grade  
(ii) Shall be suitable for terminating 3C– 2.5sq.mm copper stranded cable.
- 4.41 INSULATION RESISTANCE : > 100 MΩ at 500 V DC for 1 minute
- 4.42 HIGH VOLTAGE TEST : 1500 V AC , 50 Hz for 1 minute

#### 5.0 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER:

- 5.1 Compliance to enquiry technical specification.
- 5.2 Technical particulars of the offered model.

#### 6.0 DOCUMENTS TO BE SUBMITTED ON PLACEMENT OF ORDER FOR APPROVAL:

- 6.1 Six copies of Technical data sheet for the offered model covering all aspects of Enquiry / Order technical specification shall be submitted within 10 days from the date of Purchase order.
- 6.2 Six copies of GA Drawing indicating various dimensions and parts of THERMOSTAT shall be submitted within 10 days from the date of Purchase order.
- 6.3 Draft manual covering Dos & Don'ts, packing, storage, mounting, calibration, commissioning, trouble shooting, operation principle, technical datasheet, GA drawing, typical routine test certificate etc. of the THERMOSTAT, shall be submitted to BHEL for approval.
- 6.4 Forty-five copies of printed copy of the manual prepared based on BHEL/RANIPET approved draft manual, shall be submitted to BHEL along with the THERMOSTAT supply.
- 6.5 In addition, one set of manual shall be supplied in CD.

#### 7.0 PROTOTYPE APPROVAL:

Before starting bulk manufacturing, the vendor shall submit the prototype sample of the THERMOSTAT to BHEL for approval.

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## 8.0 INSPECTION & TESTING:

### 8.1 TYPE TESTS:

The vendor shall conduct the following TYPE TESTS in the presence of BHEL/BHEL Authorized Inspection Agency for each Type/Design. However, if the vendor has already conducted all the TYPE TESTS on identical design/type which is not older than 5 years from Purchase Order date, the same shall be submitted to BHEL/ BHEL Authorized Inspection Agency for review and acceptance. Other wise vendor has to conduct type test in presence of BHEL/BHEL Authorized Inspection Agency without any cost implication to BHEL.

### 8.2 LIST OF TYPE TESTS:

- a) Moisture resistance test
- b) Resistance to Rusting
- c) Overload test
- d) Degree of protection
- e) Vibration test
- f) Endurance test-Thermal & Mechanical

### 8.3 ROUTINE TESTS:


For all THERMOSTATS, all routine tests/Functional checks as per BHEL Standard quality plan ref.QP:E:842 (Latest revision) shall be carried out.

### 8.4 INSPECTION:

The THERMOSTAT will be inspected by BHEL/BHEL Authorized Inspection Agency based on the following documents at vendor's works.

- a) BHEL Purchase Order
- b) BHEL Technical Specification
- c) BHEL Standard Quality Plan
- d) Vendor data sheets & drawings approved by BHEL.

### 9.0 PACKING:

9.1 Each THERMOSTAT shall be packed in separate packing consisting of Thermocol or bubbled polythene sheet and hard board. The packing shall be done such that, the THERMOSTAT will not get damaged during transport, storage and handling. The packing material shall withstand long storage kept inside covered area. 

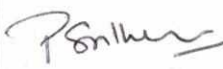


### 10.0 DESPATCH:

The Thermostats shall be dispatched from vendor's works only after obtaining written clearance from BHEL.

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TITLE : TECHNICAL SPECIFICATION FOR BOUGHT OUT ITMES FOR ESP.				
ITEM : PANEL TYPE HOPPER HEATER.				
	NAME	DESIGNATION	SIGNATURE	DATE
PREPARED BY	SRITHARUN.P	AE		16.08.2016
CHECKED BY	M. JEYAMURUGANAND	SDGM		16.08.2016
APPROVED BY	K.P.MANIMALA	AGM		16.08.2016
ISSUED BY				
EDC - ECI				
REVISION NO: 03	(1) Clause 6.1.0, 6.17.0 revised & 6.21.0 added			16.08.2016
REVISION NO: 02	(1) Clause 1.14.0 added(Wrap wound heater) (2) Clause no 5.23.0 (Details of WWH) (3) Clause 6.1.0 & 6.2.0(FMRC/CSA certified design) (4) Clause 19.00 (Preferred make of components)			29.10.2015
REVISION NO: 01	(1) Clause no 8.4.0 revised to indicate thickness of insulation in Project Data sheet. (2) Clause 14.1.0 (v) added.			27.06.2008
REVISION NO: 00	INTIAL RELEASE			12.05.2008

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**1.0.0 SCOPE OF SUPPLY :**

The scope of supply of PANEL TYPE HOPPER HEATER includes but not limited to the following.

- 1.1.0 Selection of various ratings of PANEL TYPE HOPPER HEATERS based on the input data given by BHEL, in this specification and based on the hopper drawing enclosed in the enquiry / Purchase order.
- 1.2.0 Manufacturing, testing and supply of PANEL TYPE HOPPER HEATERS.
- 1.3.0 Supply of heat resisting interconnecting lead wires between the HEATERS and the LOCAL JUNCTION BOX.
- 1.4.0 Supply of mounting accessories, supports etc for the HEATERS.
- 1.5.0 Furnishing technical specifications for all the components offered by the supplier including that of PANEL TYPE HOPPER HEATER, INTERCONNECTING CABLE BETWEEN the HEATERS etc. The details shall include material specification, constructional details, drawings etc.
- 1.6.0 Furnishing cable routing & inter connection drawing between HEATERS and LOCAL JUNCTION BOXES.
- 1.7.0 Furnishing locations, layout and mounting arrangement drawings of the HEATERS.
- 1.8.0 Furnishing the suggested layout of insulation materials.
- 1.9.0 Furnishing procedure for erection, pre commissioning & commissioning, replacement and maintenance of the HEATERS and the INTER CONNECTING CABLES.
- 1.10.0 Furnishing detailed BILL OF MATERIALS for the items offered.
- 1.11.0 Packing and dispatch of the items supplied.
- 1.12.0 Assisting BHEL SITE OFFICE in the erection of heaters in hoppers as per project data sheet.
- 1.13.0 Commissioning assistance of heaters in all hoppers.
- 1.14.0 Wrap Wound heaters shall be provided (If applicable in enquiry drawings)

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**2.0.0 APPLICATION :**

2.1.0 The PANEL TYPE HOPPER HEATERS are fixed in the ELECTROSTATIC PRECIPITATOR HOPPERS, to keep the collected fly ash hot so as to avoid sticking of the fly ash on the hopper walls and also to keep the fly ash in fluid condition.

2.2.0 Non sticking of fly ash in the hopper wall enables free flow of ash so as to make the ASH REMOVAL process much efficient.

**3.0.0 TECHNICAL DATA :**

The PANEL TYPE HOPPER HEATERS shall be designed taking into account the following TECHNICAL DATA.

3.1.0 Ambient temperature ; 5.2°C to 50°C.

3.1.1 Relative humidity : 100%.

3.1.2 Location of heater : Out door between the hopper walls and the external Insulation.

3.1.3 Environment : Highly polluted with abrasive dust, climate is tropical  
Conductive to fungus growth.

3.1.4 Flue gas temperature inside : 150 °C.  
ELECTROSTATIC  
PRECIPITATOR.

**4.0.0 POWER SUPPLY TO PANEL TYPE HOPPER HEATERS SYSTEM :**

4.1.0 Voltage : 415V, 3 Wire.

4.1.1 Frequency : 50 Hz.

4.1.2 Variations

Voltage :  $\pm 10\%$ .

Frequency :  $\pm 5\%$ .

Combined voltage &  
Frequency : 10% (Absolute sum).

4.1.3 Earth fault level : 50 KA rms for 1 sec.

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**5.0.0 SYSTEM REQUIREMENTS OF PANEL TYPE HOPPER HEATING SYSTEM :**

- 5.1.0 The PANEL TYPE HEATING MODULES shall be provided at all locations marked in the ENQUIRY / PURCHASE ORDER DRAWING.
- 5.1.0 The minimum number of Heaters to be provided per hopper shall be as per the enquiry drawing.
- 5.3.0 If additional heaters are required to meet other criteria of this specification and to meet bidder's / supplier's design, then the additional heaters shall also be provided without any additional price and delivery implications to BHEL.
- 5.4.0 Total heating module area (in contact with hopper) shall be as specified in the project data sheet.
- 5.5.0 The number of Heating Modules to be supplied during order execution shall be in line with the final offer of the bidder, which was accepted by BHEL.
- 5.6.0 The HEATER resistance value declared in the bidder's final offer, which was accepted by BHEL, shall be maintained during order execution.
- 5.7.0 The PANLE TYPE HOPPER HEATER (herein after referred as HEATERS) shall be capable of maintaining internal hopper temperature in excess of 140°C
- 5.8.0 The size and other details of 1/3 height of the HOPPER will be as per the drawing enclosed with the purchase enquiry / order. (The design, manufacture and supply of HOPPERS are in BHEL, RANIPET Scope).
- 5.9.0 The HOPPERS shall be electrically heated up to a minimum lower one third (1/3) of HOPPER height, but not less than 1.5 metre in height, by thermostatically controlled PANEL type HEATING ELEMENTS, to prevent ash bridge formation. The area to be heated shall be as per the drawing referred in the purchase enquiry / order. The THERMOSTATS (with setting range from, 90°C to 190°C) will be provided by BHEL.
- 5.10.0 The HEATERS shall be arranged in TWO groups, ie. For the lower and upper half of the heating capacity to be heated. The total heating capacity per HOPPER shall be as per project data sheet.
- 5.11.0 The minimum hopper heat input, in no case shall be less than 500 watts per square meter of hopper heated surface area (ie. 1/3 height of total hopper).
- 5.12.0 The wattage rating shall be calculated based on 415V, 3-phase power supply to the heating system at the junction box.
- 5.13.0 The supplier shall also furnish the locations of the HEATERS and the HEATER mounting arrangements.
- 5.14.0 The HEATERS shall be suitable for the conditions specified in various clauses of this specification.
- 5.15.0 The heater shall be designed to provide uniform heat on all steel work within the external insulation.

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- 5.16.0 The heater lead wire shall be connected and terminated to form DELTA connected load at the LOCAL JUNCTION BOX in such a way as to achieve uniform balanced distribution among the three phases.
- 5.17.0 The thermostat is not in heater supplier scope. However the location of thermostat shall be indicated by the heater supplier in their heater layout drawing. One thermostat per hopper is envisaged by BHEL. The heating system offered shall operate satisfactorily with one thermostat per hopper
- 5.18.0 The layout and dimension of heaters shall be such that the heaters do not hit the stiffener angles, channels, fluidizing pad, man hole door, poke hole tube, hopper anvil and any other object provided on the hopper wall.
- 5.19.0 The layout and rating of the heaters shall be such that uniform heating can be achieved as far as possible.
- 5.20.0 The layout, orientation of the heater and the routing of the lead wire shall be such that the distance between the heaters and the junction box shall be the minimum.
- 5.21.0 The arrangement of the heaters shall be such that, the heaters do not project outside the hopper walls.
- 5.22.0 The junction box (to be supplied by BHEL) will be designed by BHEL in such a way that it will have provision to switch OFF 50 % of heating capacity during running time for power saving purpose. For this, the panel type heater vendor shall group the total heaters into two groups so that the switching OFF of the 50 % heating capacity will not hamper the performance of heaters & ESP. The grouping shall be in such a way that each hopper face shall have heaters from both the groups so that switching off any of the 50 % heating capacity shall not completely 100% remove heating section of each face of hopper. Remaining 50 % of the heating capacity in service shall maintain uniform heating of all faces of hopper.

**5.23.0 WRAP WOUND HEATERS**

- 5.23.1 The heaters shall be identical to the heaters proposed for Hoppers and construction requirements given in cl.6.0.0, but with a difference that it should be flexible to be accommodated on the contour of the transition piece
- 5.23.2 The Wrap wound heater (WWH) shall be of 6 parallel paths (Heating elements to be in place between multiple layers of Fiber Glass Cloth).
- 5.23.3 WWH shall be provided with minimum 500 W suitable for 415V
- 5.23.4 WWH shall have eyelets and tying wire
- 5.23.5 WWH shall also have 5M length cold lead wire
- 5.23.6 If required, suitable step down transformer with GI Enclosure of IP 55 degree of protection for each hopper to be provided along with cable gland (to suit cable size of 3C-2.5 Sq.MM Copper Unarmored cable).
- 5.23.7 Fuse protection will be taken care by BHEL in their supply
- 5.23.8 Terminal Block shall be of screw type.
- 5.23.9 The specification of the transformer shall be confirming to Class B Insulation. Primary Voltage is 415V and Secondary Voltage to suit the design of the PTHE supplier. The

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preferred make of the transformer shall be explicitly brought out in the supplier's offer and subject to BHEL's acceptance and approval.

**6.0.0 CONSTRUCTION REQUIREMENTS OF PANEL TYPE HOPPER HEATERS:**

- 6.1.0 The heating module shall be of FMRC/CSA certified design
- 6.2.0 The construction of heating module shall comply with FMRC/CSA certificate.
- 6.3.0 The heating module shall be of proven design for coal based thermal power plant ELECTROSTATIC PRECIPITATOR application.
- 6.4.0 The HEATERS shall be of low wattage density (less than 3 watts / square inch of heater area) PANEL TYPE to avoid hot spot and to have more uniform distribution of heat.
- 6.5.0 The HEATERS shall be of BHEL / NTPC approved.
- 6.6.0 These heaters shall have high reliability by connecting multiple parallel circuits (not less than six), thereby ensuring that burn out of one element does not affect the other heater element.
- 6.7.0 Heating element shall be INCONEL or NICHROME. Brass or Aluminum alloys shall be avoided.
- 6.8.0 These heaters shall be able to with stand the thermal cycling as well as dynamic forces such as hopper poking, vibration, sledge hammering to the hopper wall or hopper anvil.
- 6.9.0 The HEATERS shall be low wattage density heating panels to spread the available heat over the largest surface area, to operate at the lowest surface temperature of the heater module.
- 6.10.0 The HEATERS shall be modular and unitized in design to simplify installation.
- 6.11.0 The HEATERS shall be resistant to natural and induced vibration plus shock loading that will be encountered during the normal operation
- 6.12.0 The heaters resistance variation shall be as per the heater design.
- 6.13.0 Two numbers earthing terminals M6 stud with nut & washer shall be provided in each heater. In case, the vendors are not able to provide Two no's, minimum one no. earthing terminal shall be provided in each heaters. Additional one no. earthing provision in mounting channel shall be provided.
- 6.14.0 Each heater shall be provided with ½"NPT (M) fitting to accommodate flexible metallic conduit, for routing the lead wire.
- 6.15.0 The heating module components and lead wire shall not be damaged or deformed electrically and physically when the thermostat fails or when the preceding Air Pre heater (heat exchanger) fails (the air heater failure will results in flue gas temperature of 400°C at the hoppers). The heater mechanical design shall consider maximum flue gas temperature of 400°C when the air heater is out of service.
- 6.16.0 The heating modules, lead wire, jointing kit etc, should not be damaged (electrically & physically) when the preceding air heater fails.
- 6.17.0 The design life of the heater shall be minimum 25 years during operation. For this the type tests listed in point no.4 & 5 of Cl.6.21.0 shall be conducted on sample heater and certificated shall be produced for verification.

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- 6.18.0 The INSULATION RESISTANCE value of each heating module at a voltage of 500 volts DC applied between each live conductor and earth point of the heating module for a period of one minute shall be at least one Mega ohm. This is corresponding to a leakage current value of 500 micro amperes at 500 V dc.
- 6.19.0 Two sets of heaters pertaining to two hoppers, each having one thermostat will be paralleled. Hence the power to both hoppers will be cut off, only when the temperature of both hoppers, reaches 140°C. In view of this the heater of the hopper, whose temp has reached 140°C will also be heated continuously until the other hopper temperature reaches 140 °C. During this time there shall be no damage to the heaters, lead wires and accessories.
- 6.20.0 The heater design shall take care that there shall not be any moisture ingress during Storage/transportation.
- 6.21.0 **TYPE TESTS:**
1. Dielectric test as per IEEE 515-2011 / CSA 22.2 no 72-10/ CSA22.2 no 130-03
  2. Elevated temperature test at 537°C for two weeks /as per IEEE515-2011
  3. Impact test as per CSA 22.2-72-10 / IEEE 515-2011
  4. Thermal ageing test / Thermal endurance test/ Thermal performance benchmark test as per CSA 22.2 no72-10 / IEEE 515-2011 / CSA 22.2-130-03.
  5. Vibration Test : 2g/50Hz for 94 hours with energization at vertical position
  6. Vibration Test : 8g/50Hz: a.144 hours without energization at vertical position  
b. 23 hours 30 minutes with energization at vertical position  
c. 15 minutes with energization in other two axis.

After vibration test and after cool down to room temperature the heater module shall pass the following tests:

1. Conductor Resistance (CR)
2. Insulation Resistance (IR) before High Voltage (HV)test
3. High voltage test at 2.2 KV for 1 min
4. IR test after HV test

**All the above test 1to 5 shall be conducted in FM lab/CSA lab/ Indian Government lab and certified by FM/CSA.**

**Test no 6 shall be conducted by Indian government lab and certificate to be produced or it not government lab the test shall be witnessed by BHEL/NTPC.**

**The validity of type test certificate shall be less than 20 years. In case of any change in design or material, type tests shall be conducted again**

#### **7.0.0 LEAD WIRES/ COLD LEADS:**

- 7.1.0 The interconnecting cable (COLD LEADS or LEAD WIRES) between the HEATERS and the LOCAL JUNCTION BOX shall be supplied without any joints
- 7.2.0 The lead wires / cold leads shall be suitable for the temperature & vibration encountered during operation of the ELECTROSTATIC PRECIPITATOR.
- 7.3.0 The junction box (to be supplied by BHEL) will be located approximately 1.5 m above from the bottom of hopper, at the wall adjacent to the manhole door wall. Length of each lead wire from each heater shall be sufficient enough to terminate the same at the junction box, without any joint. However the length of each lead wire from each heater shall be minimum 5 meter.

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- 7.4.0 The junction box will be kept 500 mm away from the hopper wall. The terminal block will be kept 200 mm away from the gland plate inside the junction box. Hence while calculating the length of each lead wires this additional requirement (700 mm) shall also be included.
- 7.5.0 The lead wire should not be damaged (electrically & physically) when the preceding air heater fails or when the thermostat fails.

**8.0.0 HOPPER EXTERNAL INSULATION:**

- 8.1.0 BHEL will provide the external insulation for the HOPPERS.
- 8.2.0 BHEL will provide insulation material as specified in this specification,. Supplier / bidder shall confirm that no other insulation is required for the system, to maintain the required temperature in the hopper.
- 8.3.0 If any other insulation materials are required the same shall be supplied as part of the basic scope by the vendor without any extra cost to BHEL.
- 8.4.0 The thickness of insulation will be as per project data sheet.
- 8.5.0 The insulation material will be LIGHTLY BONDED ROCK WOOL MATRESS. The K value of the insulation materials will be as follows. The bulk density will be 100Kg / cubic meter + / -10%.
- | Mean temp. In Deg. C | Thermal conductivity or 'K' value mW/cm. Deg. C. |
|----------------------|--|
| 50                   | 0.43   |
| 100                  | 0.52   |
| 150                  | 0.62   |
| 200                  | 0.73   |
| 250                  | 0.84   |
| 300                  | 0.95   |
- 8.6.0 The supplier shall furnish the recommended insulation fixing arrangement at various parts of HOPPER where the heaters are to be fixed, taking into consideration of replacement of heaters to enable BHEL to take care of the same during erection.

**9.0.0 HEATER MOUNTING ACCESSORIES:**

- 9.1.0 Suitable mounting channels, spacers, studs with washers and nuts shall be supplied for mounting the heater on the hopper wall.
- 9.2.0 The studs supplied for mounting the heaters shall be suitable for ARC WELDING on the hopper walls.
- 9.3.0 The mounting channel shall be of Aluminium.
- 9.4.0 The mounting channel shall have circular hole at one end and elliptical hole / 'U' slot at the other end for easy installation of the heaters along with stud nut and washers.

**10.0.0 TEMPLATES:**

- 10.1.0 Templates for easy erection of the heater shall be supplied at the rate of 6 Numbers in each variety.

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10.2.0 Mounting channel for the heaters shall not be used as templates for locating studs.

10.3.0 The template shall be fabricated out of M.S. Sheet Steel (painted).

**11.0.0 ADDITIONAL REQUIREMENTS:**

11.1.0 The offer shall indicate detailed bill of materials as per the enquiry.

During delivery, the supply of the materials type, quantity, rating etc. shall be strictly in line with the bidder's final offer accepted by BHEL and shall be in line with the order.

11.2.0 The number of Heating Modules to be supplied during order execution shall be in line with the final offer of the bidder, which was accepted by BHEL. The number of heater indicated in the final offer should not be decreased during the heater delivery

11.3.0 The HEATER resistance value declared in the bidder's final offer, which was accepted by BHEL, shall be maintained during order execution.

**12.0.0 RATING / NAME PLATE / IDENTIFICATION:**

12.1.0 The rating plate shall be made of non – corrosive material and shall be suitable for the temperature encountered by the Heating Module during operation.

12.2.0 The rating plate shall have the following details.

- (i) Manufacturer's name.
- (ii) Equipment / Item name.
- (iii) Type number.
- (iv) Serial number.
- (v) Wattage Rating.
- (vi) Resistance value
- (vii) Service conditions (designed).
- (viii) Diagram plate.

12.3.0 Each mounting channel shall also be suitably identified for easy erection.

12.4.0 All the rating / name plate shall be in English.

**13.0.0 EXCLUSIONS FROM THE SCOPE OF THE BIDDER / SUPPLIER:**

13.1.0 The following items are excluded from the scope of the bidder / supplier and the same will be supplied by BHEL directly to the site.

- (i) The junction box for terminating the cold leads / lead wires.
- (ii) The flexible metallic conduits for routing the COLD LEADS / LEAD WIRES from the heaters to the junction box.

**14.0.0 DOCUMENTATION:**

14.1.0 The supplier shall furnish the following documents along with the offer.

- (i) Schedule A (Schedule of technical confirmations)
- (ii) Schedule B (Schedule of technical deviations)
- (iii) Schedule C (Schedule of BILL OF MATERIALS)
- (iv) Schedule D (Schedule of SCOPE OF WORK)

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- (v) Schedule E (To be filled up in Excel format)
  - (vi) Heater layout drawing (prepared TO SCALE) indicating heater type, dimension, resistance, KW rating, location for both style 01 & 02.
  - (vii) Heaters Electrical interconnection diagram for two hoppers with STYLE-01 & STYLE-02 hoppers.
  - (viii) Electrical interconnection drg. Indicating two groups in each hopper, (with each group catering to 50 % of heating capacity. App.)
  - (ix) Lead wire routing diagram from heater to the junction box for both style 01 & 02.
- 14.2.0 The following documents / details shall be submitted to BHEL for approval within four weeks after placement of purchase order, but before starting manufacture.
- (i) Heater layout drawing for both style 01 & 02 (prepared TO SCALE) in AUTOCAD version indicating location of heaters, wattage rating, resistance, model no. of the heaters, location of thermostat, & junction box, dimensional details of various heaters and all stiffeners, inspection door, poke hole tube, fluidizing pad, Hopper anvil etc.
  - (x) Electrical interconnection drg. Indicating two groups in each hopper, (with each group catering to 50 % of heating capacity. App.)
  - (ii) Detailed bill of materials for various items, including various heater types, quantity of each type of heater, mounting channel varieties & quantity, templates varieties & quantity, details of other accessories and weight of all loose components.
  - (iii) Data sheet for panel type heaters.
  - (iv) Typical construction details of heaters showing, arrangement of various sub-components, earthing terminals, fitting to accommodate flexible metallic conduit.
  - (v) Lead wire routing diagram from heater to the junction box for both style 01 & 02 hoppers..
  - (vi) Insulation Resistance values of all heaters.
  - (vii) Recommended insulation fixing & layout arrangement drawing.
  - (viii) Overall diameter of COLD LEADS / LEAD WIRE, including outer jacket (if applicable).
  - (ix) Dimensional details of all types of heaters, including thickness, width, length of heating elements, enclosure etc, shall be furnished immediately after placement of order for information purpose.
  - (x) Erection drawing for heater mounting.
  - (xi) Other details as indicated in the scope of supply.
  - (xii) Lead wire conductor cross section and lead wire construction details.
  - (xiii) Mounting channel dimensioned drawing.
  - (xiv) Template dimension drawing.

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(xv) The drawings shall be submitted in AUTOCAD version in soft media in addition to hard copies. Other data / details shall be furnished in MS office version in soft media as well as in hard copies.

(xvi) Manufacturing shall be taken up only after getting approval from BHEL / NTPC.

14.3.0 The following details shall be furnished in the heaters layout drawing for both style 01 & 02 (both during offer and on placement of order).

- (i) Heating module number as per drawing
- (ii) Heating module type number (if any)
- (iii) Heating module dimensions (horizontal & vertical) and effective heating area
- (iv) Heating module resistance
- (v) Heating module voltage as per circuit
- (vi) Heating module wattage as per circuit.
- (vii) Each heating module area.
- (viii) Watts / sq.inch details.

14.4.0 All items shall be identified in the drawings.

14.5.0 All dimensions shall be indicated drawing along with tolerances

**15.0.0 O & M, ERECTION, COMMISSIONING MANUAL.**

- (i) The erection & commissioning manual shall contain all the erection details, pre commissioning checks & commissioning procedures.
- (ii) The O & M manual shall describe the relevant operation & maintenance details.
- (iii) 30 copies of the O & M manuals shall be submitted in hard copies. The O & M manual shall also include the details as per 14.2.0, 14.3.0, 14.4.0 & 14.5.0 of this technical specification.
- (iv) In addition one set of O&M manuals shall be supplied in soft media.
- (v) Two sets of erection & commissioning manual shall be supplied in hard copies.
- (vi) In addition one set of erection & commissioning manual shall be supplied in soft media.

**16.0.0 INSPECTION:**

16.1.0 The inspection of the items offered shall be based on the following documents. The items will be inspected by BHEL / authorized inspection agency / NTPC.

16.2.0 BHEL Purchase order.

16.3.0 BHEL Technical specification.

16.3.1 BHEL approved suppliers drawing.

16.3.2 NTPC approved BHEL Quality checklist.

**17.0.0 PACKING:**

17.1.0 All the heaters shall be packed individually and then the heaters pertaining to one hopper shall be packed separately in a packing.

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- 17.2.0 The Wrap wound heater shall be of flat packing only and the same shall be packed along with each set of Hopper Heaters
- 17.3.0 The heaters pertaining to another hopper shall not be mixed in the same packing.
- 17.4.0 Similarly the mounting channels pertaining to one hopper shall be packed separately in packing.
- 17.5.0 The mounting channels pertaining to another hopper shall not be mixed in the same packing.
- 17.6.0 Spare items if any shall be packed separately.
- 17.7.0 The packing shall be such that there should not be any damage to the heaters or lead wire during transport.
- 17.8.0 The packing shall be suitable for transport by Air and by ship. (Sea worthy packing)
- 17.9.0 Required Qty of silica gel shall be provided in packing to arrest moisture ingress.

**18.0.0 GENERAL:**

- 18.1.0 This specification meets NTPC contract specification. Hence no deviation shall be taken by the supplier.

**19.0.0 PREFERRED MAKE OF MAJOR COMPONENTS OF PANEL TYPE HOPPER HEATER**

SL.NO	DESCRIPTION OF MATERIAL	PREFERRED MAKES
01	Wire /Heating Strip	Cooper Heat/ HTD, New Jersey USA Ulbrich - USA, Bylin - USA/Thermon-USA Omega wires, UK
02	Cold Lead Wire	Radix Wire Co, USA South Wire Co, USA SPC Products -Ahmedabad, Sukrithi Udyog-Ghaziabad/Thermopad, Hyderabad
03	Siliconized Glass Cloth (fabric)	Alpha Associates ,USA Vinayaka Associates ,Hyderabad Hitex Insulation ,China
04	Fibre Glass Insulation Mattresses	Owens Corning, USA Twiga Glass Wool, India/Indus Insul Pvt. Ltd., Hyderabad
05	Fibre Glass Insulation Cloth (fabric)	BGF Industries, USA Electrolock Inc., USA Resiglass, Hyderabad
06	Glass Cloth Tape	3M USA Permacel, USA CG-PPI, Goa Fixon, India Snaham International, Belgaum
07	Enclosure (Aluminium / Aluminised Steel)	Hindalco, Balco, Nalco, Jindal POSCO Korea, Jindal Steel, JSW, Tata Steel
08	Crane Glass	Electrolock,Neenah-USA DuPont-USA



## Pre-Qualification Requirement for Panel Type Hopper Heater

Offers from bidders meeting the following Pre-Qualification requirements only will qualify for technical evaluation and further process of this tender enquiry

S No	Pre-Qualification Criteria	Documents required	Bidder's Response
1	For additional vendor, vendor should have supplied for NTPC/PSU/SB plant for before Jul 2020 for minimum two project & running successfully.	Purchase Order copies / Invoice and Delivery challan etc. Contact details of the customer, Name, designation, contact number and email id of the customer to be provided for verification by BHEL	

Prepared by



वेमुला जय प्रकाश / VAMULA JAYA PRAKASH  
वरिष्ठ अभियंता / Senior Engineer  
ईडीसी - ई, सी & आई / EDC-E, C&I  
बीएचईएल, बीएपी, रानीपेट / BHEL, BAP, RANIPET-6.

Approved by



एम. जयामुरुगानन्द / M. JEYAMURUGANAND  
उप महाप्रबंधक / Addl. General Manager  
इंडीसी इलेक्ट्रिकल सी & आई / EDC Electrical C&I  
बलरान्डी, बीपी, रानीपेट / BHEL, BAP, RANIPET-632 405.

SCHEDULE 'A' (SCHEDULE OF TECHNICAL CONFIRMATIONS)		
OFFER FOR THE SUPPLY OF PANEL TYPE HOPPER HEATERS AND ITS ACCESSORIES		
BHEL ENQUIRY REFERENCE:		PROJECT:
		PAGE 01 OF 03
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI: NTPC: PHE: STD:REV 03</b>		
S. No.	DESCRIPTION	YES / NO
01	COMPLIANCE TO BHEL TECHNICAL SPECIFICATION	
02	MINIMUM NUMBER OF HEATERS PER HOPPER ENVISAGED	
03	TOTAL HEATING MODULE AREA (IN CONTACT WITH HOPPER) AS PER HOPPER :	
04	ANY ADDITIONAL HEATERS REQUIRED AS PER CLAUSE 5.3.0 OF BHEL TECHNICAL SPECIFICATION, ARE ENVISAGED IN THE BASIC SCOPE	
05	TOTAL HEATING CAPACITY PER HOPPER :	
06	THE HEATING MODULES ARE OF FMRC CERTIFIED DESIGN	
07	THE CONSTRUCTION OF HEATING MODULE WILL COMPLY WITH FMRC CERTIFICATE	
08	WATT DENSITY OF EACH HEATER : IS LESS THAN 3 WATTS PER INCH SQUARE	
09	THE HEATING MODULES ARE AS BEING MANUFACTURED BY BYLINE USA / COOPER HEAT UK	
10	EACH HEATING MODULE WILL HAVE MULTIPLE PARALLEL PATH ( NOT LESS THAN SIX )	
11	HEATING ELEMENT WILL BE INCONEL OR NICHROME	

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER

SCHEDULE 'A' (SCHEDULE OF TECHNICAL CONFIRMATIONS)		
OFFER FOR THE SUPPLY OF PANEL TYPE HOPPER HEATERS AND ITS ACCESSORIES		
BHEL ENQUIRY REFERENCE:		PROJECT:
		PAGE 02 OF 03
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI:NTPC:PHE:STD: REV 03</b>		
S. No.	DESCRIPTION	YES / NO
12	EACH HEATING MODULE WILL BE PROVIDED WITH TWO NUMBERS EARTHING TERMINALS	
13	EACH HEATER WILL BE PROVIDED WITH ½ INCH NPT (M) FITTING TO ACCOMMODATE FLEXIBLE METALLIC CONDUIT.	
14	DESIGN LIFE OF THE HEATING MODULE SHALL BE MINIMUM 25 YEARS DURING OPERATION	
15	THE INSULATION RESISTANCE VALUE OF HEATING MODULE SHALL BE AS PER BHEL TECHNICAL SPECIFICATION	
16	LENGTH OF EACH LEAD WIRE SHALL BE AS PER BHEL TECHNICAL SPECIFICATION	
17	ANY OTHER INSULATION REQUIRED AS PER CLAUSE 8.3.0 OF OF BHEL TECHNICAL SPECIFICATION	
18	IN THE EVENT OF ORDER, AGREED TO SUBMIT ALL DOCUMENTS AS PER BHEL TECHNICAL SPECIFICATION	
19	ERECTION ASSISTANCE FOR HEATERS INCLUDED IN SCOPE	
20	COMMISSIONING OF ALL HEATING MODULES INCLUDED IN SCOPE	
21	30 COPIES OF O&M MANUAL WILL BE SUPPLIED AS PER BHEL TECHNICAL SPECIFICATION	

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER

SCHEDULE 'A' (SCHEDULE OF TECHNICAL CONFIRMATIONS)		
OFFER FOR THE SUPPLY OF PANEL TYPE HOPPER HEATERS AND ITS ACCESSORIES		
BHEL ENQUIRY REFERENCE	PROJECT: _____	PAGE 03 OF 03
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI:NTPC:PHE:STD: REV 03</b>		
S. No.	DESCRIPTION	YES / NO
22	TWO SETS OF ERECTION & COMMISSIONING MANUAL WILL BE SUPPLIED AS PER BHEL TECHNICAL SPECIFICATION	
23	PACKING OF ALL ITEMS WILL BE AS PER BHEL TECHNICAL SPECIFICATION	
24	FOR WELDING THE STUDS ON THE HOPPER WALLS NO SPECIAL MACHINES LIKE STUD WELDING MACHINE IS REQUIRED AND ARC WELDING IS SUFFICIENT.	

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER

1209024/2022/BAP-9750\_ELEC

SCHEDULE 'B' (SCHEDULE OF TECHNICAL DEVIATIONS)		
OFFER FOR THE SUPPLY OF PANEL TYPE HOPPER HEATERS & ITS ACCESSORIES		
BHEL ENQUIRY REFERENCE:		PROJECT:
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI: NTPC: PHE: STD: REV 03</b>		
SPECIFICATION CLAUSE No.	SPECIFICATION REQUIREMENTS	BIDDER'S CLARIFICATION / DEVIATION

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER

SCHEDULE 'C' (SCHEDULE OF BILL OF MATERIALS)			
OFFER FOR THE SUPPLY OF PANEL TYPE HOPPER HEATERS & ITS ACCESSORIES			
BHEL ENQUIRY REFERENCE:		PROJECT:	
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI: NTPC: PHE: STD:REV 03</b> (ONE SET MEANS THE QUANTITY REQUIRED FOR ONE HOPPER)			
S. No.	DESCRIPTION	QTY / SET	Total QTY

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER

SCHEDULE 'D' (SCHEDULE OF SCOPE OF WORK)		
OFFER FOR THE SUPPLY OF PANEL TYPE HEATERS & ITS ACCESSORIES		
BHEL ENQUIRY REFERENCE :		
PROJECT :		
BHEL TECHNICAL SPECIFICATION REFERENCE: <b>TECI: NTPC: PHE: STD: REV 03</b>		
S. No.	DESCRIPTION	YES / NO
01	SUPPLY OF ALL MAIN ITEMS AS PER ENQUIRY	
02	SUPPLY OF SPARE COMPONENTS AS PER ENQUIRY	
03	SUPPLY OF TEMPLATES AS PER ENQUIRY	
04	ERECTION ASSISTANCE FOR HEATERS INCLUDED IN SCOPE	
05	COMMISSIONING OF ALL ITEMS IN ALL HOPPERS INCLUDED IN SCOPE	
06	SUBMISSION OF ALL DETAILS AND ALL DOCUMENTS AS PER BHEL TECHNICAL SPECIFICATION	
07	SUPPLY OF O&M MANUAL IN HARD COPIES AS PER BHEL TECHNICAL SPECIFICATION	
08	SUPPLY OF O&M MANUAL IN SOFT MEDIA AS PER BHEL TECHNICAL SPECIFICATION	
09	SUPPLY OF ERECTION & COMMISSIONING MANUAL IN HARD COPIES AS PER BHEL TECHNICAL SPECIFICATION	
10	SUPPLY OF ERECTION & COMMISSIONING MANUAL IN SOFT MEDIA AS PER BHEL TECHNICALSPECIFICATION	

SIGNATURE and OFFICIAL SEAL  
OF THE BIDDER



<p>PROJECT: WBDCL Sagardighi (R681) CONTRACTOR: BHEL - RANIPET</p>	<p><b>CONTRACT QUALITY REQUIREMENTS (CQR) for PANEL TYPE HOPPER HEATER</b>  WBDCL Sagardighi (R681)</p>	<p>DOC.NO: BAP/QR/R681: PTHE:001 Rev NO.: 00 PAGE : Page 1 of 3  DATE : 19.11.2022</p>	<p>##Indent No: ##Supplier Name: ##Offer reference: ##Date:</p>
<p>SL.NO.</p>	<p>DESCRIPTION</p>	<p>BHEL/WBDCL Requirements</p>	
			<p>##Specific confirmations by the vendor</p>

**ITEM: PANEL TYPE HOPPER HEATER**

<p>01</p>	<p><b>Quality Plan Requirement</b></p>	<p>1. RQP or MQP is applicable for these Panel type hopper heater</p> <p>2. If vendor has WBDCL and consultant DCPL approved RQP/MQP and having validity, the same is applicable for these Panel Type Hopper Heaters for inspection after approval from WBDCL and consultant DCPL.</p> <p>3. Otherwise, vendor shall submit a fresh MQP in line with already approved MQP to WBDCL and consultant DCPL for review &amp; approval. Ultimate Customer WBDCL and BHEL/BHEL AIA inspection is must being item under Inspection Categorization-A.</p>	
<p>02</p>	<p><b>Type Test Requirements</b></p>	<p>1 Vendor shall submit the valid type test reports of <i>all the type tests as listed as per clause no: 6.21.0 of TECI:NTPC:PHE:STD:REV 03 (copy attached) which is reproduced below in SL NO:4 in the event of an order.</i></p> <p>2 These reports should be for the test conducted on the similar equipment to those proposed to be supplied under this enquiry and test(s) either should have been conducted at an independent laboratory (or) should have been witnessed by TPI/BHEL/Ultimate customer.</p> <p>3 However, if vendor is not able to submit the similar type test report as per above condition (or) in the case of type test reports are not found to be meeting the specification requirement, the vendor shall conduct all the tests at no additional cost to BHEL either at third party lab (or) own lab in the presence of TPI/BHEL/ Ultimate customer and submit the reports for approval.</p> <p>4 Type Test reports review and approval by BHEL / Ultimate customer is a must.</p> <p>5 Type tests shall be conducted in line with relevant National / International Standards and following <u>Type tests are to be ensured in line with clause no: 6.21.0 of Engg Spec ref no: TECI:NTPC:PHE:STD:Rev 03.</u></p> <p>a) Dielectric test as per IEEE 515-2011 / CSA 22.2 no 72-10/ CSA22.2 no 130-03</p> <p>b) Elevated temperature test at 537°C for two weeks /as per IEEE515-2011</p> <p>c) Impact test as per CSA 22.2-72-10 / IEEE 515-2011</p> <p>d) Thermal ageing test / Thermal endurance test/ Thermal performance benchmark test as per CSA 22.2 no 72-10 / IEEE 515-2011 / CSA 22.2-130-03.</p> <p>e) Vibration Test : 2g/50Hz for 94 hours with energization at vertical position</p>	

PROJECT: WBDCL Sagardighi (R681) CONTRACTOR: BHEL - RANIPET	<b>CONTRACT QUALITY REQUIREMENTS (CQR) for ELEC PANEL TYPE HOPPER HEATER</b>  WBDCL Sagardighi (R681)	DOC.NO: BAP/QR/R681: PTHE:001 Rev NO.: 00 PAGE : Page 2 of 3  DATE : 19.11.2022	##Indent No: ##Supplier Name: ##Offer reference: ##Date:
SL.NO.	DESCRIPTION	BHEL/WBDCL Requirements	##Specific confirmations by the vendor

02	<b>Type Test Requirements .....Contd</b>	<p>f) Vibration Test: 8g/50Hz:</p> <p>(i) 144 hours without energization at vertical position</p> <p>(ii) 23 hours 30 minutes with energization at vertical position</p> <p>(iii) 15 minutes with energization in other two axis.</p> <p>After vibration test and after cool down to room temperature the heater module shall pass the following tests:</p> <ul style="list-style-type: none"> <li>o Insulation Resistance (IR) before High Voltage (HV) test</li> <li>o Conductor Resistance (CR)</li> <li>o High voltage test at 2.2 KV for 1 min</li> <li>o IR test after HV test</li> </ul> <p><b>All the above test (a) to (e) shall be conducted in FM lab/CSA lab/ Indian Government lab and certified by FM/CSA.</b></p> <p><b>Test no (f) shall be conducted by Indian government lab and certificate to be produced or if not government lab, the test shall be witnessed by BHEL/BHEL TPA/Ultimate Customer</b></p> <p><b>The validity of type test certificate shall be less than 20 years. In case of any change in design or material, type tests shall be conducted again.</b></p>	
04	<b>For Inspection call</b>	Inspection call by Vendor to be raised for BHEL/BHEL AIA inspection / Ultimate Customer including for type test witnessing to be ensured / addressed to Mr R ., DGM (QC-Proc)., Mobile no: +91 9443006303., Email id: kesavan@bhel.in and Mr Zeeshan Ali., SIE (QC-Proc)., Mobile no: +91 9443149691., Email id: <a href="mailto:zeeshan@bhel.in">zeeshan@bhel.in</a> ncluding for inspection related activities for immediate response / resolution.	
04 (a)	<b>Inspection Methodology to be adopted</b>	No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer WBDCL/WBDCL representative Inspection and dispatch clearance (CHP/MDCC).	
05	<b>Document Package</b>	<p>1. Specific confirmation for Document Package in the event of an order (2 Hard Copies &amp; PDF File) is to be given containing the following with proper linkages (.)</p> <p>Index Sheet</p> <ul style="list-style-type: none"> <li>(i) QP</li> <li>(ii) TCs identified by BHEL/Ultimate Customer for record for "CHP" and Verification portion as given in RQP/QP.</li> <li>(iii) Final Inspection Report + TC</li> <li>(iv) BHEL/BHEL authorized Inspection Agency report + TC</li> <li>(v) Ultimate Customer CHP/MDCC</li> <li>(vi) Type test reports conducted</li> <li>(vii) Type test approval / clearance obtained from BHEL/ Ultimate Customer.</li> <li>(viii) BOM with actual make used with customer approved drgs</li> </ul>	

PROJECT: WBPDC  
Sagardighi (R681)  
CONTRACTOR:  
BHEL - RANIPET

**CONTRACT QUALITY REQUIREMENTS  
(CQR) for  
ELEC PANEL TYPE HOPPER HEATER**

WBPDC Sagardighi (R681)

DOC.NO:  
BAP/QR/R681:  
PTHE:001  
Rev NO.: 00  
PAGE : Page 3 of  
3  
DATE :  
19.11.2022

##Indent No:  
##Supplier Name:  
##Offer reference:  
##Date:

SL.NO.	DESCRIPTION	BHEL/WBPDC Requirements	##Specific confirmations by the vendor
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		2. The TCs / Type Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB).	
06	<b>Packing</b>	Shall be as per Specification / Drg so that any handling/transit damage can be avoided.	
07	<b>Preferred make of major components for Panel Type Hopper Heater</b>	<b>Preferred make of major components of panel type hopper heater</b> Shall be in line with clause no: 19.0.0 of Engg Spec ref no: <u>TECI:NTPC:PHE:STD:Rev 03</u> which is reproduced below	
SL. NO	DESCRIPTION OF MATERIAL	PREFERRED MAKES	
a	Wire /Heating Strip	Cooper Heat/ HTD, New Jersey USA Ulbrich - USA, Bylin - USA/Thermon-USA Omega wires, UK	
b	Cold Lead Wire	Radix Wire Co, USA South Wire Co, USA SPC Products -Ahmedabad, Sukrithi Udyog-Ghaziabad, Thermopad, Hyderabad	
c	Siliconized Glass Cloth (fabric)	Alpha Associates ,USA Vinayaka Associates ,Hyderabad Hitex Insulation ,China	
d	Fiber Glass Insulation Mattresses	Owens Corning, USA Twiga Glass Wool, India Indus Insul Pvt. Ltd., Hyderabad	
e	Fiber Glass Insulation Cloth (fabric)	BGF Industries, USA Electrolock Inc., USA Resiglass, Hyderabad	
f	Glass Cloth Tape	3M USA Permacel, USA CG-PPI, Goa Fixon, India Snaham International, Belgaum	
g	Enclosure (Aluminum / Aluminized Steel)	Hindalco, Balco, Nalco, Jindal POSCO Korea, Jindal Steel, JSW, Tata Steel	
h	Crane Glass	Electrolock,Neenah-USA DuPont-USA	

**Supplier signature with seal**

## Necessarily to be filled up by the vendor at the time of offer itself otherwise the offer may not be considered w.r.t  
Quality Requirements being customer specific requirements.



## The West Bengal Power Development Corporation Limited

(A Government of West Bengal Enterprise)

Corporate Identity No.: U40104WB1985SGC039154

Registered & Corporate Office: Bidyut Unnyan Bhavan,

Plot - 3/C, LA - Block, Salt Lake City, Sector - III, Kolkata - 700 098

Phone: 033-2335-0445/2335-0571/2339-3100

Fax: 033-2339-3286/2335-0516

website: [www.wbpdcl.co.in](http://www.wbpdcl.co.in). E-mail: [wbpdcl@wbpdcl.co.in](mailto:wbpdcl@wbpdcl.co.in)

Ref. No. WBPDC/Corp./SGMP03/AV/8/047

Date: 16.06.2020

To,  
Shri A.K. Singhal, GM  
PS- MKTG. BHEL House,  
Siri Fort, New Delhi 110 049

Sub : Vendor List of Sagardighi Thermal Power Extension Project Unit No.5 (1X660MW)

Ref : E-mail from BHEL PS-MKTG dtd. 29<sup>th</sup> August, 2019

Dear Sir,

Please find the reviewed Vendor List for the captioned Project.

BHEL may note that some Vendors have been identified under 'DR' category for which BHEL is requested to provide detail credentials of the Vendor in line with the tender requirements for Approval consideration from WBPDC.


The entire Vendor List is divided under the following sub heads-

- |    |                           |   |            |
|----|---------------------------|---|------------|
| a) | Mechanical Aux.Packages   | : | Annexure-A |
| b) | Mechanical Equipment List | : | Annexure-B |
| c) | FGD Plant Equipment List  | : | Annexure-C |
| d) | CHP Equipment List        | : | Annexure-D |
| e) | AHP Equipment List        | : | Annexure-E |
| f) | Electrical Equipment List | : | Annexure-F |
| g) | C&I Equipment List        | : | Annexure-G |
| h) | FPA Equipment List        | : | Annexure-H |
| i) | HVAC System               | : | Annexure-I |
| j) | PSER Erection Vendors     | : | Annexure-J |

This is for your information and further necessary action from your end.

Thanking you,

Yours faithfully

  
16.6.2020  
Kalyanbrata Chakrabarty  
GM (Projects)

<p><i>Bandel Thermal Power Station</i> GM-26846369,DGM(O) 26846447, DGM(M) 26846403, Senior Manager(P&amp;A)-26845086 Senior Manager-26845083 Guest House-26845201 Fax : 2684 6151</p>	<p><i>Santalidih Thermal Power Station</i> GM-260227 Senior Manager(P&amp;A)260226 Senior Manager(F&amp;A)260341 Electrical Control Room-260228 Guest House260342/260203 Guest House260217 STD Code-3251</p>	<p><i>Kolaghat Thermal Power Station Ph:</i> GM 231110,DGM(O)231254 DGM(M)231261 DGM(U)231255 DGM(Accts.)231290 STD Code-03228 E mail: <a href="mailto:ktpsdc@cal.vsnl.net.in">ktpsdc@cal.vsnl.net.in</a></p>	<p><i>Bakreswar Thermal Power Project</i> GM- 220201DGM(Const.)-220210 Senior Manager(P&amp;A)/(F&amp;A)-220202 Guest House(Abdarpur)225475/225346 PBX:220694, Fax-220214 Email:<a href="mailto:bktp@cal2.vsnl.net.in">bktp@cal2.vsnl.net.in</a> STD Code:03462</p>
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**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

SL. NO.	Item Description	Vendor Name	Remarks
1	OXYGEN DOSING SYSTEM	ENPRO INDUSTRIES PVT.LTD. MARKAL KHED,PUNE	Approved
		POWER PIPING COMPANY ,Mandaiyur	DR
		PSI ENGINEERING SYSTEMS (P) LTD., Chennai	Approved
		Positive Metering Pumps (I) Pvt. Ltd.,Nasik	DR
		V.K PUMP INDUSTRIES PVT LTD, Nasik	Approved
2	CHEMICAL DOSING SYSTEM	ENPRO INDUSTRIES PVT.LTD., MARKAL KHED,PUNE	Approved
		PSI ENGINEERING SYSTEMS (P) LTD., Chennai	Approved
		SWELORE ENGG. PVT. LTD, AHMEDABAD	Approved
		TECHNO CONSULTANTS , GHATKOPAR (W) MUMBAI	Approved
		MILTON ROY INDIA (P) LTD.	Approved
V.K PUMP INDUSTRIES PVT LTD, Nasik	Approved		
3	CONDENSATE POLISHING UNIT	BGR ENERGY SYSTEMS LIMITED.,	Approved
		DRIPLEX WATER ENGINEERING INTERNATIONAL PRIVATE LIMITED, Hardwar	Approved
		ION EXCHANGE (INDIA) LTD	Approved
		THERMAX LTD. PUNE	Approved
		VA TECH WABAG LTD	Approved
4	MILL REJECT SYSTEM (PNEUMATIC TYPE)	MECAWBER BEEKAY PVT LTD., GREATER NOIDA	Approved
		UNITED CONVEYOR CORPORATION (INDIA) PVT.LTD.,KOLKATA	Approved
5	COLTCS	GEA BGR ENERGY SYSTEM INDIA LTD., Nellore	Approved
		TAPROGGE GmBH, Noida	Approved
		TECHNOS, FRANCE	Approved
		EIMCO WATER TECHNOLOGIES ,LLC, USA	Approved
		KLUMP & KOLLER GmbH	Approved
		FILTRATION ENGINEERS LTD.	Approved
MULTITEX FILTRATION ENGINEERS LIMITED,	Approved		
6	CW TREATMENT PLANT (Items to be procured from the approved Vendor List)	CLEAR WATER LTD.	Approved
		THERMAX LTD.	Approved
		DRIPLEX WATER ENGG. LTD.	Approved
		CHEMBOND ASHLAND WATER TECHNOLOGIES LTD.,MUMBAI	Approved
		VA TEC WABAG LTD	Approved
7	CHLORINATION PLANT (Items to be procured from the approved Vendor List)	PERFECT CHLORO SYSTEMS	Approved
		METITO POLLUTION CONTROL INDIA LTD	Approved



**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
1	VIBRATION ISOLATION	GERB	Approved
2.	STEEL GATE / GLOBE / NR VALVES  'BHEL' Make Valves are approved for only for 1500 CLASS or below.	WEIR B.D.K VALVES INDIA PVT. LTD.	Approved
		KIRLOSKAR BROTHERS LTD.	Approved
		LEADER VALVES LTD.	Approved
		KSB VALVES	Approved
		FOURESS ENGG.INDIA LTD.	Approved
		VAG VALVES	DR
		AUDCO INDIA	Approved
		DEWARANCE	DR
		Hawa Valves (India) Pvt. Ltd.	Approved
		HAWA ENGINEERS LTD.	Approved
		INTERVALVE POONAWALLA LTD.	Approved
MICON VALVES (INDIA) PVT. LTD.	DR		
3.	BALL VALVES	FLOW CHEM INDUSTRIES	Approved
		FISHER SANMAR LIMITED	Approved
		KIRLOSKAR BROS. LTD.	Approved
		LEADER VALVES LTD.	Approved
		KSB VALVES	Approved
		WEIR B.D.K VALVES INDIA PVT. LTD.	Approved
		VAG VALVES	Approved
		A.V. VALVES LTD	Approved
		Hawa Valves (India) Pvt. Ltd.	Approved
INTERVALVE POONAWALLA LTD.	Approved		
4.	CAST IRON GATE /GLOBE/ NR/ SAFETY RELIEF VALVES	H.SARKER & COMPANY	Approved
		G.M.DALUI & SONS PVT.LTD.	Approved
		KIRLOSKAR BROS. LTD.	Approved
		LEADER VALVES LTD.	Approved
		VENUS PUMP & ENGG. WORKS	Approved
5.	SAFETY RELIEF VALVE (TUBE SIDE AND SHELL SIDE)	BHEL-HPBP TRICHY	Approved for Class 1500 or below
6.	Safety Valve, Safety relief Valve & ERV  'BHEL' Make Valves are approved for only for 1500 CLASS or below.	SEMPELL GmbH./Germany	Approved
		DRESSER CONSOLIDATED,/USA	Approved
		DRESSER CONSOLIDATED,/United Kingdom	Approved
		TYCO VALVES & CONTROLS,/USA	Approved
		MEIWA CORPORATION,/Japan	Approved
		BOPP&REUTHER,SICHERHEITS-UND/Germany	Approved
		REINEKE MESS-UND REGELTECHNIL GMBH/Germany	Approved
		VALVTECHNOLOGIES,/USA	Approved
		BOPP&REUTHER,SICHERHEITS-UND/Germany	Approved
		VALVTECHNOLOGIES,/USA	Approved
7	GUN METAL VALVES	A.V.VALVES LTD,	Approved
		LEADER VALVES LTD.,	Approved
		VALTECH INDUSTRIES	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
8	BUTTER FLY VALVES (STEAM SERVICE)	FOURESS ENGG.INDIA LTD.	Approved
		INSTRUMENTATION LTD.	Approved
		BDK PROCESS CONTL. HUBLI	Approved
9.	BUTTER FLY VALVES (WATER SERVICE)	WEIR B.D.K VALVES INDIA PVT. LTD.	Approved
		FOURESS ENGG.INDIA LTD.	Approved
		INSTRUMENTATION LTD.	Approved
		LARSEN & TOUBRO LTD.	Approved
		KIRLOSKAR BROS. LTD.	Approved
		TYCO VALVES & CONTROLS INDIA PVT.LTD.	Approved
10.	SPRING LOADED BYPASS VALVES/ PLUG VALVES/ ANGLE DRAIN VALVES	WEIR VALVES & CONTROLS M.E.	Approved
		WEIR B.D.K VALVES INDIA PVT. LTD.	Approved
		FISHER SANMAR LIMITED	Approved
		LARSEN & TOUBRO LTD	Approved
		LEADER VALVES LTD.	Approved
		REINEKE MEB-UND REGELTECHNIK GMBH	Approved
		SEMPELL AG, GERMANY	Approved
		VELAN INC.,CANADA	Approved
11.	AIR RELEASE VALVES	H.SARKER & COMPANY	Approved
		LEADER VALVES LTD.	Approved
		VENUS PUMP & ENGG. WORKS	Approved
		G.M.DALUI & SONS PVT.LTD.	Approved
		A.V. VALVES LTD	Approved
12.	DUAL PLATE CHECK VALVES	VENUS PUMP & ENGG. WORKS	Approved
		FLUIDLINEVALVES COMPANY PRIVATE LTD.	Approved
13.	FLOAT VALVES	H.SARKER & COMPANY	Approved
		G.M.DALUI & SONS PVT.LTD.	Approved
		LEADER VALVES LTD.	Approved
14	CONDENSATE PUMP-LP	SAM TURBO INDUSTRY PVT LIMITED	Approved
		SULZER PUMPS INDIA PVT LTD	Approved
		KIRLOSKAR BROTHERS LTD	Approved
		CLYDE PUMPS INDIA PVT LTD,	Approved
15.	FUEL OIL PUMPS (POSITIVE DISPLACEMENT PUMPS)	TUSHACO PUMPS PVT. LTD.,	Approved
		ALEKTON ENGG.INDUSTRIES PVT.LTD.	Approved
		U.T.PUMPS & SYSTEMS (P) LTD.	DF
		ALLWEILER INDIA PVT.LTD.,	Approved
16.	PGB SPECIAL OIL-ISO VG 320	INDIAN OIL CORPN.LTD.,	Approved
		HINDUSTAN PETROLEUM CORPN. LTD.	Approved
		CASTROL INDIA LIMITED	Approved
		EXXONMOBIL LUBRICANTS PVT LTD	Approved
		SHELL INDIA MARKETS PRIVATE LIMITED	Approved
17.	JACKING OIL PUMPS WITH MOTOR (SCREW TYPE) FOR MAIN TURBINE	TUSHACO PUMPS LIMITED	Approved
		ALLWEILER AG ,GERMANY	Approved

Sagardighi Extn. U#5 (PRO13)

Mech Equipments

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
19.	AUX. OIL PUMP (AOP) & EMERGENCY OIL PUMP WITH MOTOR (EOP) FOR MAIN TURBINE	KSB PUMPS LIMITED	Approved
		MATHER & PLATT PUMPS	Approved
		KBL	Approved
20.	VACUUM PUMPS	EDWARDS LIMITED, UK	Approved
		NI-TECH INC. USA	DR
		NASH ELOM INDUSTRIES, GERMANY	Approved
21	LUB OIL TRANSFER PUMPS	MATZ PUMPS PVT.LTD.	DR
		TUSHACO PUMPS PVT.LT	Approved
		IDEX INDIA PVT LTD	DR
		DELTA P D PUMPS PVT LTD	Approved
		ALLWEILER INDIA PRIVATE LIMITED	Approved
22	CONCRETE VOLUTE PUMP	KIRLOSKAR BROS. LTD.	Approved
		CLYDE UNION PUMPS	Approved
		FLOWSERVE CORPORATION	Approved
		BHEL HYD BASED ON MHI COLLABORATION	DR
23.	MISC.PUMPS (VERTICAL)	KIRLOSKAR BROS. LTD.	Approved
		KSB PUMPS LTD.	Approved
		SULZER PUMPS INDIA LTD.	Approved
		WEIR,UK	Approved
		WPIL LIMITED	Approved
		FLOWMORE	Approved
		BHARAT PUMPS & COMPRESSORS LTD	Approved
WILO MATHER & PLATT PUMPS PVT. LTD.	Approved		
24.	BOILER WATER RECIRCULATION PUMP	TORISHIMA PUMP MFG CO.LTD, Japan	Approved
		KSB AKTIENGESELLSCHAFT, Germany	DR
25.	PUMPS (HORIZONTAL) Type-I (FLOW<300 CMH)	KIRLOSKAR BROS. LTD.	Approved
		MATHER & PLATT PUMPS LTD.	Approved
		KSB PUMPS LTD.	Approved
		SULZER PUMPS INDIA LTD.	Approved
		WEIR,UK	Approved
26.	PUMPS (HORIZONTAL) Type- II (FLOW>300 CMH)	FLOWMORE LTD.	Approved
		WPIL LIMITED	Approved
27.	SUMP PUMPS / SUBMERSIBLE PUMPS/ SLUDGE PUMP	KISHOR PUMPS PVT.LTD	Approved
		KIRLOSKAR BROS. LTD.	Approved
		KSB PUMPS LTD.	Approved
		FLOWMORE LTD.	Approved
		JASCO PUMP PVT. LTD.	Approved
		SAM TURBO	Approved
28.	OIL MODULE AND ACCESSORIES	HYDAC (INDIA) PVT. LTD.	Approved
		ALLWEILER INDIA PRIVATE	Approved
		AEL APPARATEBAU GMBH LEISNIG	Approved
		VDL DELMAS GMBH	Approved

Sagardighi Extn P. III (P.013)  
Mech. Equipments

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
		FLENCO FLUID SYSTEM S.R.L (FOR KELAG AG	Approved Approved
29.	LUBE OIL PUMPS (CENTRIFUGAL)FOR TDBFP	KSB PUMPS LTD. KIRLOSKAR EBARA, KIRLOSKARWADI SULZER, MUMBAI. FLOWSERVE SANMAR LTD.,	Approved Approved Approved Approved
30.	LUBE OIL PUMPS (SCREW TYPE) FOR TDBFP	ALLWEILER, GERMANY IMO PUMP, USA TUSHACO, DAMAN LEISTRITZ (EMPIRE), GERMANY	Approved Approved Approved Approved
31.	JACKING OIL PUMP TDBFP	HAGULLAND DENSION TUSHACO PUMPS PVT. LTD., DELTA P D PUMPS PVT LTD	Approved Approved Approved
32.	EHA FOR TURBINE VALVES	BOSCH REXROTH AG HORST THIELE MASCHINENBAU HYDRAULISCHE GERATE GMBH, GERMANY	Approved Approved
33.	HPSU FOR TURBINE VALVES	HYDAC (INDIA) PVT LTD REINEKE MESS-UND REGELTECHNIK GMBH BOSCH REXROTH (INDIA) PRIVATE LIMITED; HYDAC SYSTEM GMBH KEICHER ENGINEERING AG	Approved Approved Approved Approved Approved
34.	OIL ACCUMALATOR	BOLENZ & SCHAFFER MASCHINENFABRIK, Germany HYDAC INDIA PVT LTD, Navi Mumbai PARKER HANNIFIN CORPORATION, USA	Approved Approved Approved
35.	VACUUM BREAKER VALVE ASSY	MULLER CO-AX AG INSTRUMENTATION LIMITED CRANE PROCESS FLOW	Approved Approved DR
36.	SCANNER AIR FAN	C.DOCTOR & CO.PVT.LTD. PATELS AIRFLOW LTD. AIR CONTROL & CHEMICAL ENGG. CO.LTD.	Approved Approved Approved
37.	OIL PURIFICATION UNIT (OIL CENTRIFUGE)/PORTABLE OIL PURIFIERS	ALFA LAVAL LIMITED, INDIA SERVIZE INDUSTRIAL, ITALY ALFA-LAVALSEPARATION AB - SWEDEN	Approved DR Approved
38.	ELECTRICAL HOIST	REVA INDUSTRIES LTD CONSOLIDATED HOIST PVT LTD TUOBRO FURGUSON(INDIA)PVT.LTD HERCULES HOISTS LTD. UNIVERSAL HOIST – O- FABRIK BRADY & MORRIS ENGINEERING CO. LTD. TRACTEL TIRFOR INDIA PVT. LTD.	Approved Approved Approved Approved Approved Approved Approved
		UNIVERSAL HOIS –O-FABRIK HERCULES HOISTS LTD. TUOBRO FURGUSON(INDIA)PVT.LTD	Approved Approved Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
39	CHAIN PULLEY BLOCK	BRADY & MORRIS ENGINEERING CO. LTD.	Approved
		TRACTEL TIRFOR INDIA PVT. LTD.	Approved
		UNIVERSAL HOIS -O-FABRIK	Approved
		HERCULES HOISTS LTD.	Approved
		TUOBRO FURGUSON(INDIA)PVT.LTD	Approved
40	DOUBLE GIRDER EOT CRANES UPTO 50T	UNIQUE INDUSTRIAL HANDLERS PVT.LTD	Approved
		MUKAND LIMITED,	Approved
		REVA INDUSTRIES LTD.	Approved
		HEAVY ENGG. CORPORATION LTD.	Approved
		UNIVERSAL HOIST-O-FABRIK,	Approved
		CONSOLIDATED HOISTS PVT LIMITED	Approved
41	D/G EOT CRANES UP TO 100T	FURNACE & FONDRY EQUIPMENT CO.	Approved
		FURNACE & FONDRY EQUIPMENT CO.	Approved
		Grip Engineers Pvt. Ltd.,	Approved
		HEAVY ENGG. CORPORATION LTD.	Approved
		MUKAND LIMITED	Approved
		REVA INDUSTRIES LTD.	Approved
		TUOBRO FURGUSON (INDIA) PVT LTD	Approved
UNIQUE INDUSTRIAL HANDLERS PVT LTD.	Approved		
42	D/G EOT CRANES ABOVE 100T	FURNACE & FONDRY EQUIPMENT CO.	Approved
		HEAVY ENGG. CORPORATION LTD.	Approved
		MUKAND LIMITED	Approved
		REVA INDUSTRIES LTD.	Approved
		UNIQUE INDUSTRIAL HANDLERS PVT LTD.	Approved
43	Single Girder EOT / HOT Misc. Cranes	BRADY & MORRIS ENGINEERING CO. LTD.	Approved
		CONSOLIDATED HOISTS PVT LTD	Approved
		REVA INDUSTRIES LTD.	Approved
		TRACTEL TIRFOR INDIA PVT. LTD.	Approved
		Universal Hoist-O-Fabrik	Approved
44	MILL HANDLING EQUIPMENT	GRIP ENGINEERS PVT LTD, HYDERABAD	Approved
		LIFTING EQUIPMENT & ACCESSORIES ,NEWDELHI	Approved
		REVA INDUSTRIES LIMITED,FARIDABAD	Approved
		CONSOLIDATED HOIST,PUNE	Approved
		EDDYCRANES ENGINEERS PVT,MUMBAI	Approved
		CENTURY CRANE ENGINEERS (P) LTD.	Approved
UNIVERSAL HOIST-O- FABRIK,MUMBAI	Approved		
45	FURNACE MAINTENANCE PLATFORM	N.V.SKY CLIMBER EUROPE S.A	Approved
		N.V.SKY MAN INTERNATIONAL S.A.	Approved
		ALTREX B.V, Netherlands	DR
46	QUICK ERECT SCAFFOLD	INSTANT UPRIGHT LIMITED,DUBLIN	Approved
47	ELEVATOR-PASSENGER CUM GOODS	KONE ELEVATOR INDIA LTD.	Approved
		OTIS ELEVATOR	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
48.	CASTABLE REFRACTORY	BASKAR REFRACTORIES AND S.W PIPES(P)LTD	Approved
		THE ACE REFRACTORIES LTD.	Approved
		DALMIA REFRACTORIES	Approved
		SOUVENIOR CERAMICS	Approved
		MAHAKOSHAL REFRACTORIES PVT. LTD,	DR
		CASTWEL INDUSTRIES	DR
49.	POURABLE INSULATION	BASKAR REFRACTORIES & STONEWARE PIPES(P)LTD	Approved
		THE ACE REFRACTORIES LTD.	Approved
		DALMIA REFRACTORIES	Approved
		INDUSTRIAL ASSOCIATES,	Approved
		CASTWEL INDUSTRIES	DR
50.	FIRE BRICKS	BASKAR REFRACTORIES AND STONEWARE PIPES (P) LTD	Approved
		DALMIA REFRACTORIES	Approved
51.	WOOL MATTRESS	ROCKWOOL INDUSTRIES LTD	Approved
		MINWOOL ROCK FIBRES LTD	Approved
		LAPINUS ROCKWOOL PVT. LTD	Approved
		ROCKWOOL INDIA LTD.	Approved
		LLOYD INSULATION (I) LTD.	Approved
		LLOYD ROCKFIBRES LTD.	Approved
		DHANBAD ROCKWOOL INSULATION PVT LTD	Approved
		GOENKA ROCKWOOL ( INDIA ) PVT LTD.,	Approved
JAMSHEDPUR MINERAL WOOL MFG.CO.	Approved		
52.	MINERAL WOOL MATTRESS	JAMSHEDPUR MINERAL WOOL MFG.CO.	Approved
		ROCKWOOL (INDIA) PVT LTD.	Approved
		ROCKWOOL INDUSTRIES	Approved
		DHANBAD ROCKWOOL INSULATION PVT LTD	Approved
		GOENKA ROCKWOOL ( INDIA ) PVT LTD.,	Approved
53.	THERMAL INSULATION OF STEAM TURBINE/THERMAL INSULATION OF TURBINE INTEGRAL PIPING/THERMAL INSULATION-ROCKWOOL MATTRESSES/ PIPE SECTIONS	LLOYD INSULATIONS	Approved
		ROCKWOOL	Approved
		HEINRICH TAPP GMBH	Approved
		EUGEN ARNOLD GMBH	Approved
		Dhanbad Rockwool Insulation (P) Ltd.	Approved
		GOENKA ROCKWOOL ( INDIA ) PVT.LTD.	Approved
54.	THERMAL INSULATION - ANCILLARY MATERIAL	LLOYD INSULATIONS ( INDIA) LIMITED	Approved
		ALLIED INSULATIONS (INDIA), GHAZIABAD	Approved
		ENERGY SAVING & ALLIED PRODUCTS	Approved
55.	INSULATION:BED MATERIALS	BHASKAR REFRACTORIES&SW PIPES P LTD, Faridabad	Approved
		SOUVENIOR CERAMICS, Faridabad	Approved
		ALWAR REFRACTORIES PVT LTD, Jaipur	Approved
		CHAMPION CERAMICS PVT LTD, Champa	DR

Sagardighi Extn. U#5 (PROJ3)

Mech.Equipments

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
56.	INSULATION:CALCIUM SILICA	HYDERABAD INDUSTRIES LTD., Faridabad NEWKEM PRODUCTS CORPORATION, Mumbai	DR DR
57.	INSULATION:CERAMIC WOOL	LLOYD INSULATIONS (INDIA) LIMITED, Chennai	Approved
58.	INSULATION:WOVEN WIRE CLO	BANARASWALA METAL CRAFTS PVT.,COIMBATORE	Approved
		BOKARIA WIRENETTING INDUSTRIES,CHENNAI	Approved
		JEETMULL JAICHANDLALL (MADRAS),CHENNAI	Approved
		KIRAN WIRE NETTING CO.,CHENNAI	Approved
		QUALITY WIRE PRODUCTS,NAVI MUMBAI	Approved
59	STEAM TRAPS	SPIRAX MARSHALL PVT.LTD.	Approved
		PENNANT ENGINEERING PVT.LTD.	Approved
		ESCO STEAMCON PVT. LTD.	Approved
		FORBES MARSHALL PVT. LTD.	Approved
60	AIR TRAPS	PENNANT ENGINEERING PVT.LTD.	Approved
		SPIRAX MARSHALL PVT.LTD.	Approved
		ESCO STEAMCON PVT. LTD.	Approved
		FORBES MARSHALL PVT. LTD.	Approved
61	GRAVIMETRIC FEEDER	STOCK INDIA	Approved
62	COMPRESSED AIR SYSTEM	ATLAS COPCO (INDIA) LTD.	Approved
63	SELF CLEANING STRAINERS	FILTRATION ENGINEERS (I) PVT. LTD.	Approved
		GEA BGR ENERGY SYSTEM INDIA LTD.	Approved
		MULTITEX FILTRATION ENGINEERS LIMITED	Approved
64	DEBRIS FILTER	GEA BGR ENERGY SYSTEM INDIA LTD.	Approved
		MULTITEX FILTRATION ENGINEERS LIMITED	Approved
		TAPROGGE GmbH	Approved
65	ALUMINIUM SHEETS/ COILS/CLADDING	BHARAT ALUMINIUM CO.LTD.	Approved
		INDIAN ALUMINIUM CO.LTD.	Approved
		HINDALCO INDUSTRIES LTD.	Approved
		NATIONAL ALUMINIUM COMPANY LTD.	Approved
		JINDAL ALUMINIUM LIMITED	Approved
66	CORRUGATED AL SHEET	HINDALCO INDUSTRIES LTD.,Chennai	Approved
		JINDAL ALUMINIUM LIMITED, Bangalore	Approved
		MPIL STEEL STRUCTURES LTD.,Thane	Approved
67	HOC TYPE GAS DRIER	DELAIR INDIA PVT. LTD.	Approved
		ATLAS COPCO (INDIA) LTD.	Approved
68	REFRIGERATION TYPE GAS DRIER	DELAIR INDIA PVT. LTD.	Approved
		SUMMIT	Approved
		SAVRO	Approved
		JINDAL ELECTRONICS PVT. LTD.	Approved
		SPAN MANUFACTURING CO. PVT.	DR
		MELLCON ENGINEERS PVT. LTD.	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
69	MISC. TANKS (SHOP)	GENERAL MECHANICAL WORKS	Approved
		UNITECH MACHINES LTD.	Approved
		TECHNO ELECTRIC & ENGG. CO. LTD.	Approved
		THERMOPADS PVT LIMITED	Approved
		VIJAY TANKS & VESSELS LTD	Approved
		THERMOSYSTEMS PVT. LTD.	Approved
70	MISC. TANKS(SITE FABRICATED)	TECHNO ELECTRIC and ENGG. CO. LTD.	Approved
		THERMOSYSTEMS PVT. LTD. HYDERABAD	Approved
		UNITECH MACHINES LTD.	Approved
71.	FLAME ARRESTOR ( MISCELLANEOUS TANKS )	PROCESS INSTRUMENTS	Approved
		ASIAN INDUSTRIAL VALVES	Approved
		ACCOUSTICS INDIA PVT. LTD.	Approved
		MULTITEX FILTERS PVT. LTD.	Approved
72	M.E. BELLOWS	FLUIDINE ENGRS.INDIA PVT.LTD	Approved
		EXPANSION JOINT SYSTEMS INC. USA	Approved
		MUNRO & MILLER FITTINGS LTD., U.K	Approved
		SENIOR FLEXONICS, U.K.	Approved
		SUR INDUSTRIES PVT.LTD.,KOLKATA	Approved
		CORBIS	Approved
		FLEXATHERM EXPANLLOW PVT LTD	Approved
		MB METALLIC BELLOWS PVT. LTD,	Approved
FLEXICAN BELLOWS & HOSES (P) LTD	Approved		
	LONE STAR INDUSTRIES	Approved	
73	EXPANSION BELLOWS-NON METALLIC	EAGLE BURGMANN K.E. PVT.LTD, Chennai	Approved
		AIROCHEM ENGINEERING COMPANY, Kolhapur	Approved
		PATELS AIRFLOW LIMITED,Ahmedabad	Approved
		MECHWELL INDUSTRIES LTD, Mumbai	Approved
74	HEAT EXCHANGERS (PLATE TYPE)	ALFA LAVAL (INDIA) LTD.	Approved
		GEA ECOFLEX INDIA PVT LTD	Approved
		TRANTER INDIA PRIVATE LIMITED	Approved
		L&T	Approved
		IDMC LIMITED	Approved
75	JOURNAL BEARING BFP & BP/THRUST CUM JOURNAL BEARING FOR CEP/THRUST BEARING (BFP & BP)	COLHERENE, UK	Approved
		WAUKESHA BEARINGS (GLACIER), UK	Approved
		KINGSBURY, USA	Approved
		MITCHELL, UK	Approved
76	THRUST BEARING FOR CWP	MICHELL BEARINGS,	Approved
		OSBORNE ENGINEERING LIMITED	DR
		OSAKA ASAHI METAL MFG. CO. LTD.	DR
		MICHELL BEARINGS (INDIA) LLP	Approved
77.	HYDRAULIC COUPLING	VOITH TURBO PVT LTD	Approved
		VOITH TURBO PVT. LTD. - HYDERABAD, INDIA	Approved
		VOITH TURBO GMBH & CO. KG. - GERMANY	Approved
78.	DISCONNECTING COUPLING FOR TDBFP	ZURN INC, USA	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
79.	SUCTION STRAINERS (BFP, BP & CEP)	OTOKLIN	Approved
		MULTITEX	Approved
		GUJARATH OTOFILT	Approved
		FILTRATION ENGINEERS INDIA PVT LTD	Approved
		JAY-EESH ENGINEERING COMPANY	Approved
80.	MECHANICAL SEAL (BFP/BP & CEP)	BURGMANN, GERMANY.	Approved
		EAGLE POONAWALA LTD.PUNE	Approved
		FLOWSERVE SANMAR, CHENNAI	Approved
81.	CONNECTING COUPLING FOR CEP , DRIP PUMP , CWP, BFP & BP	FLEXIBOX LTD., UK	Approved
		TURBOFLEX, UK	Approved
		BIBBY TURBOFLEX (FORMERLY EUROFLEX), UK	Approved
		EUROFLEX TRANSMISSION LTD., HYDERABAD.	Approved
		CUBIC TRANSMISSION PVT. LTD.	DR
		JOHN CRANE SEALING SYSTEMS, UK	Approved
82.	CONNECTING COUPLING (MEMBRANE TYPE/GEAR TYPE) FOR TDBFP	EUROFLEX TRANSMISSION, HYDERABAD.	Approved
		RENK AG,GERMANY	Approved
		JOHN CRANE, UK	Approved
		KOPFLEX, USA	Approved
		BIBBY TURBOFLEX (FORMERLY EUROFLEX), UK	Approved
		AMERIDRIVES (ZURN), USA	Approved
		LUFKIN, USA/FRANCE	Approved
		BHS, GERMANY	Approved
		FLENDER GRAFFENSTADEN, FRANCE	Approved
		RENK AKTIENGESELLSCHAFT -	Approved
83.	GEAR BOX FOR TDBFP	WALCHAND NAGAR, PUNE	Approved
		RENK AG,GERMANY	Approved
		LUFKIN, USA/FRANCE	Approved
		FLENDER GRAFFENSTADEN, FRANCE	Approved
		BHS, GERMANY	Approved
		VOITH TURBO BHS - GETRIEBE GMBH,	Approved
		RENK AKTIENGESELLSCHAFT -	Approved
		TRIVENI ENGG & IND LTD	Approved
84.	BARE RUBBER BELLOWS	CORI ENGINEERS PVT. LTD CHENNAI.	Approved
		SRM ESOFLEX PVT. LTD. KOLKATTA	Approved
		CORBIS	Approved
85.	SPRING SUPPORTS / HANGERS	SARATHI ENGG. ENTERPRISES PVT. LTD.	Approved
		HYDERABAD PIPING & ENERGY PRODUCTS (P) LTD. NEW DELHI	Approved
		SHAPE BAHADARABAD	Approved
		DARSHANI-INDIA	Approved
		PAL ENGINEERING YAMUNANAGAR	Approved
86.	SELF LUBRICATING BEARING	TEN MAT LTD UK	Approved
		(FEROFORM T 814 TUBES)	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
	TUBES FOR BF VALVES	THORDON	Approved
		THORPLAS TUBES, CANADA	Approved
87	KNIFE GATE VALVES	VAAS	Approved
		TYCO, USA	Approved
		VELAN, UK/USA	Approved
		INDURE PVT. LTD.	Approved
		ORBINOX INDIA (P) LTD.	Approved
		JASH ENGINEERING LIMITED	Approved
		GALAXY CONTROLS PVT LTD.,	Approved
88	MS AND GI PIPES	SAIL	Approved
		JINDAL	Approved
		INDUS TUBES	Approved
		SURYA ROSHNI	Approved
		TATA	Approved
89	STAINLESS STEEL PIPES	RATNAMANI METAL & TUBES	Approved
90	VACUUM PUMP / MECHANICAL EXHAUSTER (LIQUID RING TYPE)	VACUNAIR	Approved
		GARDNER DENVER,KOREA	Approved
		EDWARDS LIMITED, UK	Approved
91	STRAINER	STRAINWELL INDIA	Approved
		ACME FLUID SYSTEMS	Approved
		SRK STRAINERS & VALVES INDIA	Approved
		FILTRATION ENGINEERS INDIA PVT LTD	Approved
		GUJARAT OTOFILT,	Approved
92	CONICAL STRAINERS	FILTRATION ENGINEERS (I) PVT. LTD.	Approved
		GUJARAT OTOFILT	Approved
		JAY-EESH ENGINEERING COMPANY	Approved
		MULTITEX FILTRATION ENGINEERS LIMITED	Approved
		OTOKLIN GLOBAL BUSINESS LIMITED	Approved
93	CONDENSER TUBES	RATNAMANI METALS & TUBES LTD	Approved
		REMI EDELSTAHL TUBULARS LTD	Approved
		RATNADEEP METAL & TUBES LTD.	Approved
94	GRINDING ROLLS	AIA Engineering Ltd., Ahmedabad	Approved
		Magotteaux Industries Pvt. Ltd.,Rajkot	Approved
95	BULL RING SEGMENTS	AIA Engineering Ltd., Ahmedabad	Approved
		Magotteaux Industries Pvt. Ltd.,Rajkot	Approved
96	PGB SPECIAL OIL-ISO VG 320	INDIAN OIL CORPN.LTD.,	Approved
		HINDUSTAN PETROLEUM CORPN. LTD.	Approved
		CASTROL INDIA LIMITED	Approved
		EXXONMOBIL LUBRICANTS PVT LTD	Approved
		SHELL INDIA MARKETS PRIVATE LIMITED	Approved



Sagardighi Extn. Uts (P.O.13)  
Mech. Equipments

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
97	CANISTER DRAINAGE PUMP SUBMERSIBLE/ BOOSTER PUMPS OF CVP	KIRLOSKAR BROTHERS LTD	Approved
		KSB PUMPS LIMITED,	Approved
		SULZER PUMPS INDIA LIMITED	Approved
		CLYDE PUMPS LTD.	Approved
98	SPIRAL WOUND GASKETS	CHAMPION SEALS (INDIA) PVT LTD.,	Approved
		STARFLEX SEALING (I) PVT .LTD	DR
		DYNAMIC GASKETS PVT LTD	DR
		SPIRASEAL GASKETS PVT LTD	DR
		GOODRICH GASKET PRIVATE LIMITED,	DR
99	PTFE SHEETS	As per BHEL Approved Sources	
100	AVERAGING PITOT TUBE	TECHNOMATIC	Approved
		EMERSON PROCESS MANAGEMENT (I) PVT	Approved
		MINCO (INDIA ) PVT. LTD.	DR
		SWITZER PROCESS INSTRUMENTS	Approved
101	SEALING COMPOUND	As per BHEL Approved Sources	
102	H2, N2 & CO2 CYLINDERS (EMPTY)	BHARAT PUMPS AND COMPRESSORS	Approved
		SARJU IMPEX LTD	Approved
		EVEREST KANTO CYLINDER LIMITED	Approved
		RAMA CYLINDERS PVT LTD.	DR
103	STROBOSCOPE	ZENTRONIC SYSTEMS	Approved
		BEM-MESSTECHNIK GMBH	Approved
		IAG AUTOMATION PVT LTD	Approved
104	AIR CYLINDER	EASTERN PNEUMATICS PRIVATE LTD., Kolkata	Approved
		INSTRUMENTATION LTD.,Kerala	Approved
		KELTRON CONTROLS,Aroor	Approved
		NUCON PNEUMATICS PVT.LTD. Medak	Approved
		VELJAN HYDRAIR LIMITED, Hyderabad	Approved
		DUNCAN ENGINEERING LIMITED, Pune	Approved
		NEWTON PNEUMATICS, Chennai	Approved
105	SLIDING BEARING	Avi Oilless die Components India Pvt. Ltd, Pune	DR
		NEXGEN FLUOROPOLYMERS PVT.LTD, Alwar	DR
106	BLOWERS	ACME AIR EQUIPMENTS CO PVT LTD,Ahmedabad	Approved
		AERZEN MACHINES INDIA PVT.LTD., Vadodara	Approved
		RKR,GEBLASE UND VERDICHTER GMBH, Germany	Approved
		SWAM PNEUMATICS PVT LTD.	Approved
107	DIRECT WATER LEVEL GUAGE	CLARK RELIANCE CORPN, USA	Approved
		IGEMA GmbH, Munster Germany	Approved
		NISAN SCIENTIFIC PROCESS,Mumbai	Approved

Sagardighi Extn. Unit#5 (PROJ3)

Mech. Equipments

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description	Vendor Name	Remarks
		PENTAIR VALVES & CONTROLS INDIA, Baroda	Approved
108	HEA IGNITOR ASSY	UNISON INDUSTRIES, USA	Approved
		IGNITION SYSTEM Inc., USA	Approved
		DURAG, Germany	Approved
		FIVES COMBUSTION SYSTEMS PVT. LTD	Approved
		TESI SPA, Italy	Approved
		TURBINE TECHNICS, INC., Florida USA	Approved
109	HP FILL & PURGE FILT	PALL INDIA PVT LTD, Mumbai	Approved
		VENS HYDROLUFT (P) LTD, Chennai	Approved
110	VARIABLE ORIFICE	BMW STEELS LTD., UTTAR PRADESH	DF
		ELECTRO PORCELAIN DIVN., BANGALORE	DF
		PROMECON GmbH., GERMANY	Approved
111	Lub oil system for FANS (ID, FD & PA)	PSI ENGINEERING Systems pvt ltd	Approved
		SOUTHERN LUBRICATION PVT LTD	Approved
		YUKEN INDIA LTD	Approved
112	STEAM COIL AIR PRE HEATR	C DOCTOR INDIA PVT LTD	Approved
		PATEL AIR TEMP(INDIA) LTD	Approved
		BARODA EQUIPMENT &VESSEL PVT LTD	Approved
		NU WAY HEATRANSFER PVT LTD	Approved
		CHINTAMANI THERMAL TECHNOLOGIES PVT LTD	Approved
		PAR ENERGY INFRA PVT.LTD	Approved
113	AIR RECEIVER	VEE SONS ENERGY SYSTEM PVT LTD	Approved
		PATEL AIR TEMP(INDIA) LTD	Approved
		C DOCTOR INDIA PVT LTD	Approved
		AIRCON HANDLING SYSTEMS PVT LTD	Approved
		BARODA EQUIPMENT &VESSELS PVT LTD	Approved



**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

SL. NO.	Item Description	Vendor Name	Remarks
1	Slurry Recirculation pumps	BHEL, Hyderabad	DR
		Duchting Pumpen, Germany	Approved
		KSB, Germany	Approved
		KSB India	DR
		Weir Minerals, Australia	Approved
		Weir Minerals, India	DR
		Andritz China	
		Andritz India	DR
		Xiangyang WuerWu China	
2	Oxidation Blowers	BHEL, Hyderabad	DR
		ITO, Japan	Approved
		GEMSL, UK	Approved
		Aerzen, Germany	Approved
		Aerzen, India	Approved
		Howden, India	Approved
		Boldrocchi, India	Approved
		Siemens, Italy/Germany	Approved
		Boldrocchi, Italy	Approved
3	Slurry pumps	Duchting Pumpen, Germany	Approved
		Weir Minerals, Australia	Approved
		Weir Minerals, India	DR
		Andritz China	
		Andritz India	DR
		Metso Minerals USA	Approved
		Metso Minerals India	DR
		KSB Germany	Approved
		KSB India	DR
		Krebs USA	Approved
		Krebs India	DR
4	Agitators	Ekato, Germany	Approved
		Ekato, India	DR
		STC, Germany	Approved
		REMI-STC, India	DR
		Nippon Gears, Japan	Approved
		SPX, USA	Approved
		SPX, India	DR
		Chemineer, China	

SL. NO.	Item Description	Vendor Name	Remarks
		Zhejiang Great wall mixers china	
		Mixing Solutions, USA	Approved
		Mixing Solutions, India	DR
		Milton Roy Mixing, France	Approved
		Milton Roy Mixing, India	Approved
		Tschamber, Germany	Approved
5	Mist Eliminator	REA Plastik Tech GmbH, Berlin Germany	Approved
6	Wet Ball Mills	Christian Pfeiffer, Germany	Approved
7	Vacuum Belt Filter and Hydrocyclone	Xuhe, Japan	Approved
8	Rubber lining	Steuler-KCH GmbH	Approved
		Rubber Source Inc.	Approved
		Blair Rubber Company	Approved
9	Rubber lining Applicator	Labrex, Puducherry	Approved
10	Alloy C276/Alloy 59 liner	ATI, Relentless Innovation	Approved



**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

SL. NO.	Item Description	Vendor Name	Remarks
1	PIPES & CONDUITS/ACCESSORIES	As per BHEL approved source.	
2	EM BRAKES	SIEGERLAND-BREWSEN, GERMANY	Approved
		STROM KRAFT CONTROLS, MUMBAI	Approved
		BCH Electric Limited	Approved
		SIEMENS India Ltd.	Approved
	Caliper Brakes,EHT Gear Boxes,Industrial Valves,	KATEEL Engineering Industry Pltd	DR
3	SOLENOID VALVES	ASCO, Chennai	Approved
4	AIR CONDITIONING SYSTEMS	shall be as per approved sources listed in Package items in Main Plant Package area.	
5	VENTILATION SYSTEM	shall be as per approved sources listed in Package items in Main Plant Package area.	
6	VALVES	shall be as per approved sources listed in Mechanical Equipment in Main Plant Package area.	
7	DUST EXTRACTION SYSTEM	C.Doctor & Company Privae Ltd.,	Approved
		DUSTVEN Pvt .Ltd., Bangalore	Approved
		THERMEX	Approved
		Batlboi Environmental Engg Ltd.,	Approved
		TPS,DELHI	Approved
		F. Harley	Approved
SPRAYING SYSTEMS INDIA PVT. LTD	Approved		
8	DUST SUPPRESSION SYSTEM	SPRAYING SYSTEMS INDIA PVT. LTD	Approved
		KAVERI ULTRA POLYMER LTD.	Approved
		F. HARLEY & COMPANY. PVT. LTD.	Approved
		TPS INFRASTRUCTURE LTD.	Approved
9	E O T CRANE / MANUAL HOIST	shall be as per approved sources listed in Mechanical Equipment in Main Plant Package area.	
10	PUMPS & ACCESSORIES	shall be as per approved sources listed in Mechanical Equipment in Main Plant Package area.	
		PHOENIX CONVEYOR BELT INDIA PVT LTD	Approved
		SEMPERTRANS INDIA PRIVATE LIMITED	Approved
		HILTON-FORECH	Approved

Sagardighi Extn. U#5 (PROJ3)

CHP-Mech. Package

Ref: SGMPO3/AV/8/047

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

11	CONVEYOR BELT	MRF	Approved
		YOKOHAMA	Approved
		FORECH INDIA LTD, KOLKATA	Approved
		HINDUSTAN RUBBERS, SILVASA	Approved
		NORTHLAND RUBBER MILLS, NEW	Approved
		ORIENTAL RUBBER INDUSTRIES PVT LTD.	DR
		JONSON RUBBER INDUSTRIES	Approved
		EUREKA COVEYOR BELTINGS PVT LTD.	Approved
		FLEXER RUBBER PVT LTD	Approved
12	BELT VULCANIZER	SHAW ALMEX	Approved
		S. V. DATTAR	Approved
		NILOS	Approved
13	STRUCTURAL STEEL	Follow Civil Structural Vendor Approval List.	
14	COAL SAMPLING UNIT	ADVANCED SYSTEMS SAMPLING PVT LTD	Approved
		THERMO RAMSAY, AUSTRALIA	Approved
		ERIEZ MAGNETICS EUROPE LTD., CAERPHILLY	Approved
		EASTMAN CRUSHER Co. (P) Ltd.	Approved
15	BELT WEIGHER SCALES	THERMO RAMSAY, AUSTRALIA	Approved
		AVERY INDIA LTD., NEW DELHI	Approved
		TRANSWEIGH	Approved
		SCHENCK PROCESS INDIA LIMITED	Approved
16	FLAP GATES	PRECISION PROCESSING EQUIPMENT CO.	Approved
		DA ENGG.	Approved
		MERIT CHENNI	Approved
		MMHE	Approved
		MSE	Approved
		HINDUSTAN M/C TOOLS CORPORATION, KOLKATA	Approved
		CONTINENTAL PROFILES LTD., FARIDABAD	Approved
17	Flow elements, Condensate pots, Manifolds etc for process instrumentation	shall be as per approved sources listed in C&I in Main Plant Package area.	
18	GRATINGS	PATNY SYSTEMS, HYDERABAD	Approved
		PINAX STEEL INDUSTRIES PVT LTD	Approved
		INDIANA GRATINGS PVT. LTD	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

		CAUVERY ENGINEERING WORKS	Approved
19	GEAR BOXES	R&D MULTIPLES (METAL CAST) PVT. LTD.	Approved
		ESSENTIAL POWER TRANSMISSION PVT.LTD	Approved
		FLENDER	Approved
		NEW ALLENBURY	Approved
		KATEEL Engineering Industry Pltd	DR
		PREMIUM TRANSMISSION LIMITED	Approved
		SHANTHI GEARS LIMITED	Approved
20	ERW PIPES	STEEL AUTHORITY OF INDIA LTD.	Approved
		WELSPUN GUJARAT STAHL ROHERN LTD	Approved
		TUBES INDIA	Approved
		JCO GAS PIPE LIMITED	Approved
		RATNAMANI METALS & TUBES LTD	Approved
		MAHARASHTRA SEAMLESS LIMITED	Approved
		JINDAL PIPES LIMITED	Approved
21	COMPRESSORS	ATLAS COPCO (INDIA) LIMITED	Approved
		ELGI EQUIPMENTS LTD	Approved
		INGERSOLL- RAND (INDIA) LIMITED	Approved
22	Bull Dozer	BHARAT EARTH MOVERS LIMITED	Approved
23	Twin Wagon Trippler	THYSSENKRUPP INDUSTRIES INDIA PV	Approved
24	Feeders (Apron ; Grizzly; Vibrating; Paddle)	FL Smidth	
		Metso Minerals(l) Pvt.Ltd.	Approved
		LARSEN & TOUBRO LTD, ECC DIVN	Approved
		ELECON ENGINEERING COMPANY LTD	Approved
		TRF LTD., JAMSHEDPUR	Approved
		THYSSENKRUPP INDUSTRIES INDIA PVT	Approved
25	Crusher	LARSEN & TOUBRO LTD	Approved
		TRF LIMITED	Approved
		ELECON ENGINEERING COMPANY LTD	Approved
		THYSSENKRUPP INDUSTRIES INDIA PV	Approved
		SANDVIK ASIA PRIVATE LIMITED	DR
		MCNALLY SAYAJI ENGINEERING LIMITED	Approved
		Amps Engineering & Equipments Pvt Ltd	DR
		Devas Engineering Systems	DR
		GOLDEN ENGINEERING INDUSTRIES	DR
		INDIANA CONVEYORS PVT LTD	DR
		VISHWA INDUSTRIAL COMPANY LTD.,	DR
		NEW ERA CONVEYORS PVT LTD.,	DR

Sagardighi Extn. U#5 (PROJ3)

CHP-Mech. Package

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

26	Idlers	TURBO ENGINEERS (CBE),	DR
		ROLLWELL CONVEYOR COMPONENTS PVT LTD	DR
		ELECON ENGINEERING CO. LTD.	Approved
		ARUDRA	Approved
		TRF LIMITED	Approved
		MCNALLY BHARAT, ENGG. CO. LTD.	Approved
		TEGA	Approved
		BENGAL TOOLS.	Approved
		ARYAN CLEAN COAL TECHNOLOGIES PVT LTD.,	DR
		Bevcon Wayors Pvt Ltd	DR
		I & B ENGINEERS PVT LTD	DR
TECHNO IMPEX	DR		
27	Pulleys	INDIANA CONVEYORS PVT LTD	DR
		AMPS ENGINEERING & EQUIPMENTS PVT LTD	DR
		Devas Engineering Systems	DR
		VISHWA INDUSTRIAL COMPANY LTD.,	DR
		NEW ERA CONVEYORS PVT LTD.,	DR
		TURBO ENGINEERS (CBE),	DR
		BENGAL TOOLS	Approved
		MCNALLY BHARAT ENGG. CO. LTD.	Approved
		ELECON	Approved
		ARUDRA	Approved
		ROLLWELL CONVEYOR COMPONENTS PVT LTD	DR
		ARYAN CLEAN COAL TECHNOLOGIES PVT LTD.,	DR
		BEVCON WAYORS PVT.LTD.	DR
		I & B ENGINEERS PVT LTD	DR
TECHNO IMPEX	DR		
28	Internal / External Scrapers & Skirt Board Sealing System	As per BHEL approved source.	
29	Roller SCREENS	POSCO PLANT ENGINEERING CO., LTD.,	DR
		ELECON	Approved
		msei	Approved
		Thyssen	Approved
		Electro Zavod (India) Pvt Ltd.	DR
30	RPG GATES	BENGAL TOOL	Approved
		MSEL	Approved
		DA ENGG.	Approved
		HMTC ENGINEERING CO (KOLKATA) PVT LTD	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

31	HVAC System	shall be as per approved sources listed in Package items in Main Plant Package area.	
32	REDUCTION GEAR BOX	PREMIUM ENERGY TRANSMISSION	Approved
		FLENDER LIMITED	Approved
		ELECON ENGINEERING CO. LTD.	Approved
33	FLUID COUPLING	VOITH	Approved
		PREMIUM ENERGY TRANSMISSION	Approved
		FLUIDOMAT	Approved
34	FLEXIBLE GEAR COUPLING	GMB MFG. (P) LTD., KOLKATA	Approved
		HI-CLIFF	Approved
		FENNER	Approved
		LOVEJOY	Approved
		WELLMAN	Approved
		CONCORD	Approved
		ELECON ENGINEERING COMPANY LIMITED	Approved



**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

SL. NO.	Item Description	Vendor Name	Remarks
1	Ash Slurry Pumps	SAM TURBO INDUSTRY PRIVATE LTD	Approvec
		WIER MINERALS (India) Pvt. Ltd	Approvec
		INDURE PVT. LTD.	Approved
		METSO MINERALS (INDIA) PVT LTD.,	Approvec
2	Water Pumps & Accessories	KIRLOSKAR BROTHERS LIMITED	Approvec
		Flowmore Limited, Gurgaon	Approvec
		BEACON WEIR LTD, CHENNAI	Approvec
		Kishor Pumps Pvt. Ltd., Chennai	Approvec
		Maxflow pumps india Pvt ltd.	Approvec
		Wilo Mather and Platt Pumps Pvt Ltd	Approvec
3	ERW Pipes	STEEL AUTHORITY OF INDIA LTD.	Approvec
		WELSPUN GUJARAT STAHL ROHERN LTD	Approvec
		TATA	Approved
		JCO GAS PIPE LIMITED	Approvec
		TUBES INDIA	Approvec
		RATNAMANI METALS & TUBES LTD	Approvec
		MAHARASHTRA SEAMLESS LIMITED	Approvec
		JINDAL PIPES LIMITED	Approvec
4	Compressors	ATLAS COPCO (INDIA) LIMITED	Approvec
		ELGI EQUIPMENTS LTD	Approvec
		INGERSOLL- RAND (INDIA) LIMITED	Approvec
5	FLUIDIZING AIR HEATER	ESCORTS	Approvec
		SPHEREHOT	Approvec
		RAYCOLD	Approvec
		INDURE PVT. LTD.	Approvec
6	Cast Basalt Lined bends/ fittings/ pipes	TURBO ENGINEERS (CBE)	Approvec
		INDURE PVT. LTD.	Approvec
		DEMECH	Approvec
		ENVIRO ABRASION	Approvec
		Densen Technologies, Thane	Approvec
		Deccan Mechanical and Chemical Industries Pvt. Ltd.,	Approvec
7	ALLOY C.I. FITTINGS & LINERS	MENON METALLIKS	Approvec
		CRAWLEY & RAY	Approvec
		SAM CASTINGS	Approvec
		CRESENT	Approvec

8	E O T CRANE / MANUAL / Electric HOIST	shall be as per approved sources listed in Mechanical Equipment in Main Plant Package area.	
9	Gear Box	R&D MULTIPLES (METAL CAST) PVT. LTD.	Approved
		ESSENTIAL POWER TRANSMISSION PVT.LTD	DR
		KATEEL Engineering Industry Pltd	DR
		PREMIUM TRANSMISSION LIMITED	Approved
		New Allenburry	Approved
10	Couplings	ESCO COUPLINGS & TRANSMISSIONS PVT LTD	Approved
		PREMIUM TRANSMISSION LIMITED	Approved
		ELECON ENGINEERING COMPANY LIMITED	Approved
11	Air conditioning	shall be as per approved sources listed in Package items in Main Plant Package area.	
12	Ventilation System	shall be as per approved sources listed in Package items in Main Plant Package area.	
13	Valves/Gate	shall be as per approved sources listed in Mechanical Equipment in Main Plant Package area.	
14	TWIN LOBE TYPE ROTARY FLUDIZING AIR BLOWER	SWAM PNEUMATICS	Approved
		KAY INTERNATIONAL	Approved
		EVEREST	Approved



SAGARDIGHI THERMAL Power EXTENSION PROJECT PHASE-III, UNIT#5 (1 x660 MW)			
Sl. NO.	Item Description	Vendor Name	Remarks
1	Electrical Valve Actuators	AUMA (I) LTD., BANGALORE	Approved
		AUMA, GERMANY	Approved
		LIMITORQUE (I) LTD, FARIDABAD	Approved
		LIMITORQUE, US	Approved
		ROTORK CONTROLS (I) LTD, CHENNAI & BANGALORE	Approved
		ROTORK, UK	Approved
		NIPPON GEAR CO., JAPAN	DR
2	OIL FILLED TRANSFORMER ( More than 10 MVA)	BHEL	Approved
		GE	Approved
		AREVA T & D INDIA LIMITED	Approved
		FUJI	Approved
		ABB	Approved
3	OIL FILLED SERVICE TRANSFORMER ( Applicable only for less than 10 MVA)	KIRLOSKAR ELECTRIC CO.LTD. Mysore	Approved
		BHEL	Approved
		SCHNEIDER ELECTRIC INFRASTRUCTURE LIMITED	DR
		TOSHIBA TRANSMISSION & DISTRIBUTION SYSTEMS(i) PVT.LTD.,MEDAKH	DR
		CROMPTON GREAVES LTD.	Approved
		AREVA T & D INDIA LIMITED ,	Approved
		MARSONS LIMITED	Approved
		VOLTAMP TRANSFORMERS LTD.	Approved
4	SEGREGATED PHASE BUSDUCTS	BHEL	Approved
		L&T	Approved
		SIEMENS	Approved
		ALSTOM LTD.	Approved
		BEST & CROMPTON	Approved
5	ISOLATED PHASE BUSDUCT	BHEL	Approved
		SIMELECTRO, FRANCE	Approved
6	HT MOTORS (above 500 kW)	ABB	Approved
		BHEL	Approved
		SIEMENS	Approved
7	HT MOTORS (upto 500 kW)	ABB	Approved
		BHEL	Approved
		SIEMENS	Approved
		CROMPTON GREAVES	Approved

8	ELECTRIC LT MOTOR (ABOVE 90 KW)	CG POWER AND INDUSTRIAL SOLUTIONS LIMITED	Approved
		MARATHON ELECTRIC MOTORS INDIA LIMITED	Approved
		ABB	Approved
		SIEMENS	Approved
9	ELECTRIC LT MOTOR (UPTO 90 KW)	CG POWER AND INDUSTRIAL SOLUTIONS LIMITED	Approved
		MARATHON ELECTRIC MOTORS INDIA LIMITED	Approved
		ABB	Approved
		SIEMENS	Approved
		KIRLOSKAR	Approved
		BHARAT BIJLEE	Approved
10	HT SWITCHGEAR (11KV, 3.3 KV)	AREVA LTD.	Approved
		BHEL.	Approved
		Schneider	Approved
		SIEMENS LTD	Approved
11	LT Switch Gear Panel [PMCC, PCC & MCC]	Siemens India ltd	Approved
		GE India Industrial pvt ltd	Approved
		Schneider Electric India pvt ltd	Approved
		ABB	Approved
		AREVA LTD.	Approved
		LARSEN & TOUBRO LTD.	Approved
12	TRANSFORMER (DRY TYPE)	VOLTAMP	Approved
		AREVA	Approved
		CGL	Approved
		BHEL	Approved
13	NON SEGREGATED PHASE BUS DUCTS	KGS Engineering Limited	Approved
		L&T	Approved
		SIEMENS	Approved
		ALSTOM LTD.	Approved
		BEST & CROMPTON	Approved
14	ACDB, DCDB, , MLDB, ELDB, PDB, WELDING DB, VENTILATION DB	Siemens India ltd	Approved
		GE India Industrial pvt ltd	Approved
		Unilec Engineers ltd	Approved
		Schneider Electric India pvt ltd	Approved
		ABB	Approved
		AREVA LTD.	Approved
		LARSEN & TOUBRO LTD.	Approved
15	LOCAL STARTER PANEL, LOCAL CONTROL PANEL, LIGHTING PANEL	L & T	Approved
		Schneider	Approved
		L & T	Approved
		Siemens	Approved
		UNILEC ENGINEERS LTD.	Approved
		AREVA LTD.	Approved
		PYROTECH	Approved
16	VacuumInterrupter,3.6kV40kA	BharatElectronicsLtd.	Approved
17	VacuumInterrupter,12kV50kA	EatonIncorporation	Approved

18	Air Circuit Breaker (ACB)	ABB	Approved
		Schneider	Approved
		L & T	Approved
		Siemens (3WL model only)	Approved
		AREVA LTD.	Approved
		GE-POWER	Approved
19	Molded case circuit breakers (MCCB)/Motor Protection Circuit Breaker (MPCB)/ Power Contactor/Aux. Contactor/ Thermal Overload Relay (OLR)/SFU	ABB	Approved
		Schneider	Approved
		L & T	Approved
		Siemens	Approved
		GE-POWER	Approved
20	Miniature Circuit Breaker (MCB)	ABB	Approved
		Schneider	Approved
		L & T	Approved
		Siemens	Approved
		GE-POWER	Approved
		LEGRAND	Approved
21	Electronic Motor Protection Relay (EMPR)	ABB	Approved
		Schneider	Approved
		Siemens	Approved
		GE-POWER	Approved
22	Current transformer / Voltage Transformers (VT/PT)/ Control Transformers(CST) upto 1.1KV	Automatic Electric	Approved
		Prayog Electricals	Approved
		Precise Electricals	Approved
		Kappa Electricals	Approved
		Pragati Electricals	Approved
		Indcoil	Approved
23	Interposing Relays	Jyoti	Approved
		OEN	Approved
		PLA	Approved
		Schneider	Approved
		GUARDIAN	Approved
		OMRON	Approved
24	Numerical Relay	Asea Brown Boveri Ltd., Vadodara	Approved
		Asea Brown Boveri Limited, Bangalore	Approved
		GE (Alstom)	Approved for MICOM Series
		Siemens Ltd.	Approved for SIPROTEC Series
		Schnieder Electric Infrastructure limited	Approved for MICOM Series



25	Static / Electromechanical / Auxiliary / Tripping Relays	Asea Brown Boveri Ltd., Vadodara	Approved
		Asea Brown Boveri Limited, Bangalore	Approved
		Schnieder Electric Infrastructure limited	Approved
		GE T & D India Limited	Approved
		Siemens Ltd.	Approved
		Alstom, Chennai	Approved
26	Energy Meters	SCHNEIDER CONZERVE	Approved
		Secure Meters (SEMS)	Approved
27	Multifunction Meter	Secure Meters (SEMS)	Approved
		SIEMENS Ltd.	Approved
		Schneider	Approved
28	Alarm Annunciators	MINILEC India Pvt Ltd.	Approved
		Accord Electro-Technics Pvt. Ltd.	Approved
		Alan Instrumentation Pvt. Ltd.	Approved
		JVS Electronics Pvt. Ltd.	Approved
		PROCON Instrumentation (P) Ltd.	Approved
		VESTAL Electronics	Approved
29	Timer/ TIME DELAY RELAY	ABB	Approved
		Schneider	Approved
		L & T	Approved
		Siemens	Approved
		GE-POWER	Approved
30	Digital Indicating meters	Automatic Electric Limited (AEL)	Approved
		RISHABH Instruments Pvt Ltd.	Approved
		L&T	Approved
		MECO Instrument Pvt. Ltd.	Approved
		MASIBUS AUTOMATION & INSTRUMENTATIO, GANDHI NAGAR	Approved
		Secure	Approved
Schneider/conzerv	Approved		
31	Analog Indicating meters	Automatic Electric Limited (AEL)	Approved
		MECO Instrument Pvt. Ltd.	Approved
		RISHABH Instruments Pvt Ltd.	Approved
		ABB	Approved
		GOSSEN	Approved
		YOKOGAWA	Approved
		PYROTECH Electronics Pvt. Ltd.	Approved
SELEC Controls Pvt. Ltd.	Approved		
32	Transducers	Camille Bauer, Germany	Approved
		Automatic Electric Limited (AEL)	Approved
		ELSTER Metering Pvt Ltd, Mumbai	Approved
		Siemens	Approved
		MASIBUS Automation and Instruments (P) Ltd.	Approved
		Southern Transducers Pvt. Ltd.	Approved
33	Control / Selector Switches	KAYCEE Industries Ltd., Mumbai	Approved
		L & T (Salzer)	Approved
		Reliable Electronic Components Pvt. Ltd (RECOM)	Approved
		SETON Electrical Products	Approved
		SWITRON Devices	Approved

34	Discrepancy switch	Asea Brown Boveri Limited(ABB)	Approved
		Control Dynamics	Approved



35	FUUSE Base with holder	ABB	Approved
		Schneider	Approved
		L & T	Approved
		Siemens	Approved
		GE-POWER	Approved
36	FUSES (Power/Control)	GE-Power	Approved
		Siemens	Approved
		L & T	Approved
		Schneider	Approved
		COPPER BUSSMANN	Approved
		ABB	Approved
37	Indicating Lamp	Siemens	Approved
		Vaishno	Approved
		L & T (ESBEE)	Approved
		Schneider	Approved
		ABB	Approved
		SECO	Approved
		TEKNIK	Approved
38	Push Button	Siemens	Approved
		Vaishno	Approved
		L & T (ESBEE)	Approved
		TEKNIK	Approved
		Schneider	Approved
		ABB	Approved
39	Disturbance Recorders / Event Logger	Asea Brown Boveri Limited (ABB)	Approved
		Alstom T&D India Ltd. Chennai	Approved
		Ametek Power Instruments, USA	Approved
		QUALITROL HATHWAY, UK	Approved
40	Time Synchronizer	SERTEL, Chennai	Approved
		ARBITER, USA	Approved
		SEL, USA	Approved
		MASIBUS Automation and Instruments (P) Ltd.	Approved
41	(Indoor ) CT / PT up to 11 kV, CBCT,Aux. CT / PT (ICT )	Prayog Electricals (P) Ltd.	Approved
		Pragati Electricals Pvt. Ltd.	Approved
		Silkaans Elect. Mfg. Co. Pvt. Ltd.	Approved
42	Surge Suppressor/Arrestor (Less than 15KV)	Ravchem	Approved
		CGL	Approved
		Elpro	Approved
		Oblum Electrical Industries (P) Ltd.	Approved
43	Bus Transfer Scheme Panel(Numerical )	Aartech Solonics Ltd.	Approved
		Asea Brown Boveri Ltd.	Approved
44	Data Concentrator	ABB	Approved
		Schneider	Approved
		SIEMENS	Approved
		GE(ALSTOM)	Approved

45	Ethernet Switches	RUGGEDCOM	Approved
		NETGEAR	Approved
		HIRSCHMANN	Approved
		MOXA	Approved
		CISCO	Approved
46	Terminals Block	Phoenix	Approved
		Connect well	Approved
		Elemex	Approved
		Wago	Approved
47	Cable Glands	HEX	Approved
		Commet	Approved
		DOWELLS	Approved
		Jainson	Approved
		3D	Approved
		Sunil & Co.	Approved
48	Cable Lugs	HEX	Approved
		Commet	Approved
		DOWELLS	Approved
		Jainson	Approved
		3D	Approved
		Sunil & Co.	Approved
49	Local Motor Starter	L & T	Approved
		Schneider	Approved
		ABB	Approved
		BCH	Approved
50	LPBS ( NON-FLAME PROOF)	L&T	Approved
		SCHNEIDER	Approved
		Tecknic Controls	Approved
		SIEMENS	Approved
51	LPBS(FLAME PROOF)	BALLIGA	Approved
		EX-PROTECTA	Approved
52	Industrial Switch & Socket / Receptacles	Schneider	Approved
		Anchor	Approved
		Bajaj	Approved
		Philips	Approved
		crompton Greaves	Approved
		BEST & CROMPTON ENGG. LIMITED	Approved
		AJMERA INDUSTRIES & ENGG. WORKS	Approved
		BCH Electric	Approved
53	ISOLATING SWITCH	SALZER, L&T	Approved
		SIEMENS	Approved
		ALSTOM LTD.	Approved
		GE – POWER	Approved
		SCHNEIDER	Approved
		ABB	Approved
		KAYCEE	Approved

54	SYNCHROSCOPE	AUTOMATIC ELECTRIC	Approved
		GEC - ALSTHOM	Approved
55	EARTH LEAKAGE CB	SCHNEIDER	Approved
		L&T	Approved
		SIEMENS	Approved
		ABB	Approved
56	EARTH LEAKAGE RELAY [ELR] ALONGWITH CBCT	AREVA	Approved
		PRO'KDEVICES	Approved
57	EARTH LEAKAGE RELAY [ELR] ALONGWITH CBCT	AREVA	Approved
		PRO'KDEVICES	Approved
58	PANEL SPACE HEATER	C&S ELECTRIC	Approved
		SPACEAGE	Approved
59	Neutral Grounding Transformer	Pragati Electricals Pvt. Ltd., Thane	Approved
		Prayog Electricals Pvt. Ltd., Pune	Approved
60	Lightning Arrester for Busduct	Elpro International Ltd., Pune	Approved
		Oblum Electronics, Hyderabad	Approved
61	Surge Capacitor	ABB Ltd., Bangalore	Approved
		Madhav Capacitor Pvt. Ltd., Pune	Approved
62	NEUTRAL GROUNDING RESISTOR	LACHHMAN ELECTRONICS, NEW DELHI	Approved
		RSI SWITCHGEAR PVT. LTD., Bhiwadi Extn, INDIA	Approved
		RESITECH ELECTRICALS PVT.LTD. KOLKATA	Approved
		S.R.NARKHEDE ENGG.PVT.LTD. PUNE	Approved
63	TREFOIL CLAMPS	AJMERA INDUSTRIAL & ENGINEERING WORKS, MUMBAI	Approved
		ELECTROMAC INDUSTRIES, MUMBAI	Approved
		MOULDED FIBREGLASS PRODUCTS, KOLKATA	Approved
		SUMIP COMPOSITES PVT.LTD. Ahmedabad	Approved
64	CABLE TRAYS & ACC	INDUSTRIAL PERFORATION (I) PVT.LTD.	Approved
		PREMIER POWER PRODUCTS (CAL) PVT. LTD., Howrah	Approved
		PATNY SYSTEMS (P) LTD	Approved
		PARMAR METALS PVT.LTD.	Approved
		UNITECH FABRICATORS and ENGINEERS PVT LTD	Approved
		RATAN PROJECTS & ENGINEERING CO. PVT.LTD., Howrah	Approved
RABI ENGINEERING WORKS PVT. LTD., Kolkata	Approved		



65	CABLE TRAY SUPPORT SYSTEM- WELDED(GALV)	INDUSTRIAL PERFORATION (I) PVT.LTD., Kolkata	Approved
		PREMIER POWER PRODUCTS (CAL) PVT. LTD., Howrah	Approved
		UNITECH FABRICATORS and ENGINEERS PVT LTD	Approved
		PATNY SYSTEMS (P) LTD	Approved
		RATAN PROJECTS & ENGINEERING CO. PVT.LTD., Howrah	Approved
		RABI ENGINEERING KOLKATA	Approved
		HOWRAH	Approved
66	ABOVE GROUND EARTHING MATERIALS	INDUSTRIAL PERFORATION (I) PVT.LTD., Kolkata	Approved
		PREMIER POWER PRODUCTS (CAL) PVT. LTD., Howrah	Approved
		PATNY SYSTEMS (P) LTD, HYDERABAD	Approved
		UNITECH FABRICATORS and ENGINEERS PVT LTD	Approved
		RATAN PROJECTS & ENGINEERING CO. PVT.LTD., Howrah	Approved
		RABI ENGINEERING WORKS PVT. LTD.	Approved
67	CABLE TERM.& JOINT KITS	3M Electro and Communication India P.Ltd	Approved
		RAYCHEM RPG PRIVATE LIMITED	Approved
68	FIRE SEALING SYSTEM	3M INDIA LIMITED, Bangalore	Approved
		HILTI India Pvt. Ltd.,New Delhi	Approved
		LLOYD INSULATIONS (INDIA) LIMITED, Chennai	Approved
		MULTI KILFIRE PVT LTD, VADODARA	Approved
		VIJAY SYSTEMS ENGINEERS PVT.LTD.,MUMBAI	Approved
69	ELECTRICAL - HEAT TRACING	THERMOPADS PVT.LTD.,	Approved
		XICON INTERNATIONAL LTD.	Approved
		THERMON INDIA PVT. LTD.	Approved
		RAYCHEM RPG LIMITED	Approved
70	HT XLPE CABLES	CABLE CORPORATION OF INDIA LTD.	Approved
		UNIVERSAL CABLES LTD.	Approved
		KEC INTERNATIONAL LIMITED	Approved
		RAVIN CABLES LIMITED	Approved
		KEI INDUSTRIES LTD., ALWAR	Approved
		POLYCAB WIRES PVT. LTD. Daman	Approved
		UNIVERSAL CABLES LTD., SATNA	Approved
71	LT XLPE POWER CABLE	GEMSCAB INDUSTRIES LTD.	Approved
		SUYOG ELECTRICALS LTD.	Approved
		RAVIN CABLES LIMITED	Approved
		CORDS CABLE INDUSTRIES LTD., BHIWADI DIST.	Approved
		CMI LTD.	Approved
		CRYSTAL CABLE INDUSTRIES LTD., HOWRAH	Approved
		KEI INDUSTRIES LTD., ALWAR	Approved
		KEC INTERNATIONAL LIMITED, Silvassa	Approved

	POLYCAB WIRES PVT. LTD., Daman	Approved
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72	LT PVC CONTROL CABLE	Advance Cable Technologies (P) Ltd., Bengaluru	Approved
		CORDS CABLE INDUSTRIES LTD., BHIWADI DIST.	Approved
		CMI LTD.	Approved
		CRYSTAL CABLE INDUSTRIES LTD., HOWRAH	Approved
		KEI INDUSTRIES LTD., ALWAR	Approved
		KEC INTERNATIONAL LIMITED, Silvassa	Approved
		POLYCAB WIRES PVT. LTD., Daman	Approved
		RAVIN CABLES LIMITED	Approved
		UNIVERSAL CABLES LTD., SATNA	Approved
73	SCREENED CONTROL CABLES	CORDS CABLE INDUSTRIES LTD., BHIWADI DIST.	Approved
		DELTON CABLES LTD. FARIDABAD	Approved
		KEI INDUSTRIES LTD. , ALWAR	Approved
		POLYCAB WIRES PVT. LTD., Daman	Approved
		THERMO CABLES LTD. HYDERABAD	Approved
74	LT XLPE FIRE SURVIVAL CABLES	KEI INDUSTRIES LTD., ALWAR	Approved
		POLYCAB WIRES PVT. LTD., Daman	Approved
75	DC LEAD ACID BATTERIES	EXIDE INDUSTRIES LTD, KOLKATA	Approved
		HOPPECKE BATTERIEN GMBH & CO.KG,	Approved
76	DC Ni-Cd BATTERIES	HBL Power Systems Ltd Hyderabad	Approved
77	DC BATTERY CHARGER	CHHABI ELECTRICALS PVT.LTD.(.)	Approved for Capacity < 100 AH
		AMAR RAJA POWER SYSTEMS, TIRUPATHI	Approved for Capacity < 100 AH
		Chloride Power Systems & Solutions Ltd., Kolkata	Approved
		HBL POWER SYSTEMS LTD ,	Approved
		STATCON ENERGIAA PRIVATE LIMITED,Hapur	Approved
78	MS ROD FOR BELOW GROUND EARTHING	RASHTRIYA ISPAT NIGAM LIMITED	Approved
		STEEL AUTHORITY OF INDIA LTD.	Approved
79	STATION LIGHTING SYSTEM	BAJAJ ELECTRICALS LTD., PUNE	Approved
		CROMPTON GREAVES LTD.	Approved
		PHILIPS INDIA LTD.	Approved
80	LIGHTING TRANSFORMERS	SUDHIR TRANSFORMERS LIMITED	Approved
		INDCOIL TRANSFORMERS PVT LTD	Approved
81	LIGHTING MAST	BAJAJ ELECTRICALS LIMITED	Approved
		CROMPTON GREAVES CONSUMER ELECTRICALS LIMITED	Approved

82	LIGHTING POLE	BOMBAY TUBE & POLES CO..	Approved
		BAJAJ ELECTRICALS LTD.	Approved
83	LIGHTING WIRE	CORDS CABLE INDUSTRIES LTD	Approved
		DELTON CABLES LTD.	Approved
		KEC	Approved
		KEI INDUSTRIES LTD.	Approved
		NICCO CORPORATION LTD.	Approved
		POLYCAB WIRES PVT.LTD	Approved
		TORRENT CABLES LTD.	Approved
		UNIVERSAL CABLES D.	Approved
		Finolex	Approved
		CMI Energy India Pvt. Ltd.	Approved
		Elkay Telelinks Ltd.	Approved
		Havells India Ltd	Approved
		Paramount Communications Ltd.	Approved
		Ravin Cables Ltd	Approved
		Special Cables Pvt. Ltd.	Approved
		Anchor	Approved
CABLE CORPORATION OF INDIA	Approved		
RR Kabel Limited	Approved		
Thermo Cables Limited	Approved		
84	HVR Transformer and EC Panel	ADOR POWERTRON LTD.,	DR
		BHARAT HEAVY ELECTRICALS LIMITED	Approved
		KRAFT POWERCON INDIA PRIVATE LTD	DR
85	Rubber Bellow for Bus Duct	Cori Engineers Pvt. Ltd., Chennai	Approved
		Resistoflex Pvt. Ltd., Noida	Approved
		United Rubber Industries, Mumbai	Approved
86	Epoxy Insulator for Bus Duct Package	A-Bond Strands Pvt. Ltd., Chennai	Approved
		Baroda Bushing & insulator, Vadodara	Approved
		Baroda Mould & Dies, Vadodara	Approved
		Ganpati Fibertech India (P) Ltd.	Approved
87	Epoxy Seal Off Bushing for Bus Duct Package	A-Bond Strands Pvt. Ltd., Chennai	Approved
		Baroda Bushing & insulator, Vadodara	Approved
		Baroda Mould & Dies, Vadodara	Approved
88	Current Transformer for Bus Duct Package	Instrans Engg & Mfg, Bangalore	Approved
		Pragati Electricals Pvt. Ltd., Thane	Approved
		Prayog Electricals Pvt. Ltd., Pune	Approved
		Silkaans Electrical Mfg. Co. Pvt. Ltd., Bangalore	Approved
89	Voltage/ Potential Transformer for Bus Duct Package	Instrans Engg & Mfg, Bangalore	Approved
		Pragati Electricals Pvt. Ltd., Thane	Approved
		Prayog Electricals Pvt. Ltd., Pune	Approved
		Silkaans Electrical Mfg. Co. Pvt. Ltd., Bangalore	Approved

90	Hot Air Blowing Equipment for Bus Duct	Elmech Pneumatic Industries	Approved
		Melcon Engg, New Delhi	Approved
		Powergear Ltd	Approved
91	Air Pressurization Equipment for Bus Duct Package	Elmech Pneumatic Industries, New Delhi	Approved
		Mellcon Engineers Pvt. Ltd., New Delhi	Approved
		Powergear Ltd	Approved
92	LAVT & NG Cubicle Assembly for Bus Duct Package	BHEL-RUDRAPUR	Approved
		Pyrotech Electronics Pvt. Ltd., Udaipur	Approved
		RSI Switchgear Pvt. Ltd., Gurgaon	Approved
		Busbar Systems India Ltd.	Approved
		Powergear Ltd.	Approved



93	Copper Strip Flexible/Copper Braided Flexible for Bus Duct Package	B.B. Electro Technique, Mumbai/Thane	Approved
		Shree Cable & Conductors Pvt. Ltd., Bhopal	Approved
94	DG SET ENGINE	CUMMINS	Approved
		MITSHUBISHI	DR
		CATERPILLAR	Approved
95	ALTERNATOR	NIDEC-LEROY SOMER	Approved
		CATERPILLAR	Approved
		KIRLOSKAR ELECTRIC	Approved
		CUMMINS GEN TECH.(STAMFORD)	Approved
96	DG SET ASSEMBLERS	JAKSON LTD.	Approved
		POWERICA LTD.	Approved
97	DG SET BATTERY BANK	EXIDE	Approved
		HBL	Approved
		CUMMINS	Approved
98	DG SET CONTROL PANELS / AUX.DIST. BOARD	JAKSON LTD	Approved
		PYROTECH	Approved
99	ALUMINUM TUBE	Hindaico Industries Limited	Approved
		Jindal Aluminium Ltd Bangalore Karnataka	Approved
		Balco	Approved
		Alom Extrusions Ltd.	Approved
100	CLAMPS & CONNECTORS	Electromech & Transtech Private Limited Kolkata West Bengal	Approved
		Klemmen Engineering Corporation Chennai Tamil Nadu	Approved
		Peevee Engineering Enterprises Bangalore Karnataka	Approved
		Utsav Electro-Mech Pvt Ltd Vadodara Gujarat	Approved

101	SWITCHYARD CONTROL PANELS	ABB India Limited	Approved
		GE T&D India Limited Noida Uttar Pradesh	Approved
		Schneider Electric Infrastructure Limited Noida Uttar Pradesh	Approved
		Siemens Ltd	Approved
102	SPACER COUPLING (REGIFLEX TYPE)	SIEMENS LTD	Approved
		ESCO COUPLING NV	Approved
		KTR Couplings (India) pvt.ltd	Approved
		UNIQUE TRANSMISSION INDIA P LTD.	Approved
		ESCO COUPLING & TRANSMISSION PVT LTD.	Approved
		Cubic Transmission pvt ltd unit-II	Approved
		RATHI TURBOFLEX PVT LTD	Approved
		Dipl.ing.Herwarth Reich GMBH	Approved
		Reich India ltd	Approved
KTR KUPPLUNGSTECHNIK Gmbh	Approved		
103	BAY CONTROL UNIT	ALSTOM	Approved
		SIEMENS	Approved
		ABB	Approved
104	FRP JUNCTION BOXES/ JUNCTION BOXES(POWER/CONTROL), LIGHTING JB	Jakson Engineers Limited	Approved
		Jasper Engineers Private Limited	Approved
		Mika Engineers	Approved
		Popular Switchgears Pvt Ltd	Approved
		Pyrotech Electronics Pvt Ltd	Approved
		RSI Switchgear Private Limited	Approved
		Sarvana Switchgears	Approved
		Unilec Engineers Ltd	Approved
105	MARSHALLING KIOSK	Mika Engineers Thane Maharashtra [MSE: MICRO]	Approved
		Popular Switchgears Pvt Ltd Nashik Maharashtra	Approved
		Pyrotech Electronics Pvt Ltd Udaipur Rajasthan	Approved
		RSI Switchgear Private Limited Bhiwadi Rajasthan	Approved
		RST Electricals Pvt. Ltd. Sahibabad Uttar Pradesh	Approved
		Sarvana Switchgears Bangalore Karnataka	Approved
		Unilec Engineers Ltd Gurgaon Haryana	Approved
106	PIPE STRUCTURE	Advance Steel Tubes Ltd. Ghaziabad Uttar Pradesh	Approved
		Associated Power Structures Pvt. Ltd. Vadodara Gujarat upto 400 kV System	Approved
		Goodluck India Limited Sikandrabad Uttar Pradesh	Approved
		Vijay Transmission Pvt. Ltd Raipur Chhattisgarh	Approved
		New Modern Technomech Pvt Ltd	Approved
		Rs Infraprojects Pvt. Ltd. Noida Uttar Pradesh	Approved
		UTKARSH TUBES & PIPES LIMITED Kolkata	Approved
		DEEPAK FASTNERS LTD	Approved

107	STRUCTURE HARDWARE	NAVEEN METAL INDUSTRIES, KOLKATA	Approved
		NEW INDIA ENGINEERING CORPORATION	Approved
		TECHMAN (INDIA)	Approved
108	SHIELD WIRE	Bharat Wire Ropes Ltd	Approved
109	STRING INSULATOR HARDWARE	Asbesco ( India ) Pvt. Ltd.	Approved
		Electromech & Transtech Private Limited	Approved
		EMC	Approved
		ITPPL	Approved
		TYCO	Approved
		Tag Corporation, Chennai	Approved
		IAC	Approved

110	400 KV SF6 BREAKERS	ABB	Approved
		CGL	Approved
		SIEMENS	Approved
		GE T&D India Limited	Approved
111	400 KV SWITCHYARD CURRENT TRANSFORMER	ABB	Approved
		CGL	Approved
		GE T&D India Limited	Approved
		BHEL	Approved
		SIEMENS	Approved
112	400 KV SWITCHYARD PT/POTENTIAL TRANSFORMER/VOLTAGE TRANSFORMER	ABB	Approved
		CGL	Approved
		SIEMENS	Approved
		ALSTOM	Approved
		BHEL	Approved
113	400 KV ISOLATOR	SIEMENS	Approved
		ABB	Approved
		GE T&D India Limited	DR
114	400 KV EARTH SWITCH	SIEMENS	Approved
		ABB	Approved
115	400 KV LATTICE STRUCTURE	GOOD LUCK STEEL TUBES LTD., BULANDSHAHAH (UP)	Approved
		UTKARSH TUBES AND PIPES LIMITED, KOLKATA, WEST BENGAL	Approved
		Richardson & Cruddas (1972) Ltd, NAGPUR	Approved
116	ACSR CONDUCTOR	HINDUSTAN VIDYUT PRODUCTS LTD., HARYANA	Approved
		GUPTA POWER INFRASTRUCTURE LTD., BHUBANESWAR	Approved
		HIREN ALUMINIUM Ltd., SILVASSA DADRA & NAGAR HAVELI	Approved
117	RAIL POLE	SAIL	Approved
		RINL	Approved
		TATA	Approved
118	CABLE for ROLLED -E-CHAIN BAY CONTROL UNIT	IGUS	Approved
		ALSTOM	DR
		SIEMENS	DR
		ABB	DR

119	Control and Relay Panel / SAS	ABB India Limited	Approved
		GE T&D India Limited	Approved
		Siemens Ltd	Approved
120	400KV LIGHTNING ARRESTOR	Crompton Greaves Ltd	Approved
		Elpro International Ltd	Approved
		Oblum Electrical Industries Pvt Ltd	Approved
121	400 kV DISC INSULATOR/ LONG ROD INSULATOR (120KN)/ BUS POST INSULATOR( For Switchyard)	BHEL	Approved
		NGK BIRLA, JAYASHREE	Approved
		W.S. INDUSTRIES LTD,CHENNAI	Approved
		INDIAN POTTERIES	Approved
		Saravana Global Energy Limited	Approved
		Aditya Birla Insulators (A unit of Aditya Birla Nuvo Ltd.)	Approved
		Modern Insulators Ltd.	Approved
<b>ESP/HVR (Jhansi Works)</b>			
122	CRGO Steel-ESP/HVR TRANSFORMERS UPTO 95 KVP, 1400 mAmps	Bralco Resources,Canada (Mill-A K Steel, USA)	Approved
		Nippon Steel Corporation , Japan	Approved
		Kawasaki Steel , Japan	Approved
		TKES , Germany	Approved
		POSCO, Korea	Approved
		Viz Stal, Russsia	Approved
123	PICC (PAPER INSULATED COPPER CONDUCTOR)Conductor-ESP/HVR TRF	Shree Cables & Conductor, Bhopal	Approved
		BCPL , Raisen / Mandideep	Approved
		Shakti Insulated Wires, Ankleshwar / Mumbai	Approved
		Delta Trans Conductors Pvt. Ltd. Mumbai	Approved
		KSH Internationa,l Mumbai	Approved
		Signet Conductors, Rewa	Approved
		NKM Sales, Mandideep	Approved
		Electromech, Rewa	Approved
		Chandra Metals, Allahabad	Approved
		Malwa Strips, Dewas	Approved
		Precision Wires India Ltd,	Approved
		Mimani Indore.	Approved
		RIMA TRANSFORMER	Approved
124	Press Board	Senapathy Whitley, Bangalore	Approved
		Raman Boards, Mysore	Approved
		H Weidman / Weidman Systems, Switzerland	Approved



125	Transformer Oil (Mineral Oil)-ESP/HVR TRF	Apar Industries, Mumbai	Approved
		Savita Oil Tech. Ltd. Mumbai	Approved
		Raj Petro Specialties Mumbai	Approved
		COLOMBIA PETRO CHEM, INDIA	Approved
		Savita Chemicals India Pvt. Silvasa	Approved
126	Transformer Oil (Silicon Oil)	GE Momentive Silicon, USA	Approved
		DOW Corning, USA	Approved
		Shin-ETSU, Singapore	Approved
127	Synthetic Rubber Bonded Cork Sheet	James Walker, UK	Approved
		NU Cork Product, Gurgaon	Approved
		Gujrat Cork And Rubber, Valsad	Approved
		Indian Cork Industries	Approved
128	OTI	Perfect Control, Chennai	Approved
		Precimeasure, Bangalore	Approved
129	Buchholz Relay	ATVUS Industries, Kolkata	Approved
		Press-N-Forge, Mumbai	Approved
		A.J Service, Mumbai	Approved
130	MOG	Sukrut Udyog, Pune	Approved
		ATVUS Industries, Kolkata	Approved
		Yogya Enterprises, Jhansi	Approved
		Press-N-Forge, Mumbai	Approved
<b>Power Transformers Oil Filled( JHANSI WORKS)</b>			
131	CRGO STEEL (Supplier)	AK STEEL, Netherlands/ USA	Approved
		NIPPON STEEL, JAPAN	Approved
		VIZSTAL, RUSSIA (Only M4 grade)	Approved
		POSCO, KOREA	Approved
132	PAPER INSULATED COPPER CONDUCTOR (PICC)	SHREE CABLES & CONDUCTORS BHOPAL	Approved
		KSH INTERNATIONAL CHAKAN,PUNE	Approved
		RIMA TRANSFORMER & CONDUCTORS BANGALORE	Approved
		BCPL, MANDIDEEP	Approved
		PRECISION WIRES INDIA LTD, SILVASSA.	Approved
		SHAKTI INSULATED WIRES PVT LTD, ANKLESHWAR	Approved
		CHANDRA METALS LTD. TELIARGANJ	Approved
		DELTA TRANS CONDUCTORS(P)LTD. MUMBAI	Approved



133	CONTINUOUSLY TRANSPOSED CONDUCTOR	ASTA INDIA PVT LTD	Approved
		KSH INTERNATIONAL PVT LTD	Approved
		PRECISION WEIR INDIA LTD	Approved
		SAMDONG	Approved
134	PRECOMPRESSED PRESSED BOARDS	ABB INDIA LIMITED, MYSORE	Approved
		ABB AB, SWEDEN.	Approved
		SENAPATHY WHITELEY PVT.LTD. BANGALORE	Approved
135	INSULATING OIL	Apar Industries, Mumbai	Approved
		Savita Oil Tech. Ltd. Mumbai	Approved
		Raj Petro Specialties Mumbai	Approved
		BPCL	Approved
136	BUCCHOLZ RELAY	P&B WEIR ELECTRICAL-UNIT 10, U.K	Approved
		PRESS-N-FORGE, MUMBAI	Approved
		A.J .SERVICES ( PRAYOG), MUMBAI	Approved
		SUKRUT ELECTRIC CO.PVT.LTD. PUNE	Approved
		VIAT INSTRUMENTS PVT. LTD. KOLKAT/AHMEDABAD	Approved
137	PRESSURE RELIEF VALVE	MESSKO GMBH GERMANY	Approved
		QUALITROL COMPANY LLC USA	Approved
		RAJSHI ENGINEERS JHANSI	Approved
		Atvus, Kolkata	Approved
		SUKRUT UDYOG PUNE	Approved
138	AIR CELL	PRONAL ASIA MANUFACTURING MALAYSIA	Approved
		UNIRUB TECHNO INDIA PVT. LTD. PUNE	Approved
139	MOLG	QUALITROL COMPANY LLC, USA	Approved
		MESSKO GMBH GERMANY	Approved
		Atvus, Kolkata	Approved
		PRESS-N-FORGE, MUMBAI	Approved
		YOGYA ENTERPRISES, JHANSI	Approved
		SUKRUT UDYOG PUNE	Approved
140	OTI / WTI/ RTD	PRECIMEASURE CONTROLS (PVT.) LTD., BANGALORE	Approved
		PERFECT CONTROL, CHENNAI	Approved
141	OFI/WFI	SUKRUT UDYOG	Approved
		VIAT INSTRUMENTS PVT LTD	Approved



142	CONDENSER BUSHING-OIP	BHEL	Approved
		CGL	Approved
		GE T&D	Approved
143	ON LOAD TAP CHANGER	M/S BHEL BHOPAL	Approved
144	RADIATORS	TTP TECHNOLOGIES PVT LTD	Approved
		CTR MANUFACTURING INDUSTRIES LTD	Approved
		GURURAJ RADIATORS PVT LTD	Approved
		HI-TECH RADIATORS PVT LTD	Approved
		P.E. ENGINEERS PVT LTD	Approved
		TRANSPARES LIMITED	Approved
		BHEL, BHOPAL	Approved
145	N2 FIRE PROTECTION SYSTEM	As per Approved Vendors of Fire Detection system Package for the Main Plant.	
146	BUSHING-RIP	NANJING, CHINA	DR
		HSP, GERMANY	DR
		TRENCH, CHINA	DR
		ABB, SWITZERLAND	DR
		MOSER GLAZER, SWITZERLAND	DR
		YASH HIGH VOLTAGE INSULATORS (up to 145 kV), VADODARA	DR
<b>Dry Type Transformers( JHANSI WORKS)</b>			
147	CRGO STEEL (Supplier)	Mill-A K Steel, USA/ Netherlands	Approved
		Metal One Corp.( Mill-Nippon Steel, Japan)	Approved
		TKES , Germany	Approved
		Novex Trading, Switzerland ( Mills - Viz Stahl	Approved
		POSCO IPPC, Pune (Mill-Posco, Korea)	Approved
148	COPPER CONDUCTOR	Mimani Wires, Indore	Approved
		Malwa Strips, Dewas	Approved
		Copral Insulated, Hosur	Approved
		BCPL, Raisen/ Mandideep	Approved
		M P Cupro metals, Bhopal	Approved
		SCR Wires, Tunkur	Approved
		Chandra Metals, Allahabad	Approved
		Pearl, Bangalore	Approved
		COSMOS Conductors, Tunkur	Approved
		Vimlesh Industries, Sonipat	Approved
		Permali Wallace Ltd. Bhopal	Approved
		Mica Ply, Bhopal	Approved

149	Fiber Glass Sheet	Glass Fiber Ltd. Mumbai	Approved
		Surendra Engg. Bhopal	Approved
		Texplas, Haridwar	Approved



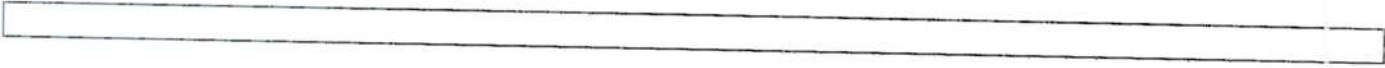
150	Epoxy Insulators	Baroda Mould and Die, Vadodara	Approved
		Baroda Bushing, Baroda	Approved
		India Insulator, Miraj	Approved
		Epothane Civelec, Ghaziabad	Approved
		Quality Engg. & In sulation products, Bhopal	Approved
		A-Bond Strands PVI. Ltd, Chennai	Approved
151	Epoxy Casting Materials	Huntsmann Chennai	Approved
		Atul Ltd, Val sad	Approved
152	Sheet Metal Enclosure	Electro Auto Bhopal	Approved
		Shrao Engg. Bhopal	Approved
		Bansal Fabwel, Jhansi	Approved
		Anupam Industries, Jhansi	Approved
		R Industries, Bhopal	Approved
		Bharat Fabricators, Bhopal	Approved
		Mahadev Ind. Bhopal	Approved
153	Temperature Scanner	Pecon, Ahemdabad	Approved
		Precimeasure, Bangalore	Approved
<b>Power Transformer (Bhopal Works)</b>			
154	PRECOMPRESSED PRESSED BOARDS	ABB INDIA LIMITED, MYSORE	Approved
		ABB AB, SWEDEN.	Approved
		KOKUSAI PULP AND PAPER CO. LTD. JAPAN	Approved
		KREMPEL GMBH GERMANY	Approved
		OJI F-TEX CO. LTD. JAPAN	Approved
		SENAPATHY WHITELEY PVT.LTD. BANGALORE	Approved
		WEIDMANN ELEC.TECHNOLOGY A.G. SWITZERLAND	Approved
		ENPAY ENDUSTRIYEL PAZARLAMA VE YATIRIM A.S. TURKIYE	Approved

155	TRANSFORMER TANK	BHARAT HEAVY ELECTRICALS LTD BHOPAL	Approved
		BHOPAL ENGINEERING GOVINDPURA BHOPAL	Approved
		DUNHIL PRODUCTS GOVINDPURA BHOPAL	Approved
		ELECTRO AUTO INDUSTRIES GOVINDPURA BHOPAL	Approved
		E.M. ELECTRO MECHANICALS PVT.LTD GOVINDPURA BHOPAL	Approved
		GTV ENGINEERING LTD. GOVINDPURA BHOPAL	Approved
		MECH & FAB INDUSTRIES GOVINDPURA BHOPAL	Approved
		SIGMA HEAVY ENGG. INDUSTRIES GOVINDPURA BHOPAL	Approved
		SATYAM (FAB) INDUSTRIES PVT. LTD., BHOPAL	Approved
		SHRAO ENGG.WORKS GOVINDPURA BHOPAL	Approved
156	STEEL PLATE	STEEL AUTHORITY OF INDIA LTD	Approved
		IISCO	Approved
		RINL	Approved
		TISCO	Approved
157	CRGO STEEL (Supplier)	AK STEEL INTERNATIONAL B.V., USA (Regd. office at Netherlands)	Approved
		JFE SHOJI TRADE CORPORATION, JAPAN (Auth. Agent POSCO PUNE)	Approved
		NIPPON STEEL, JAPAN (Auth. Trader METAL ONE JAPAN)	Approved
		VIZSTAL, RUSSIA (Auth. Trader NOVEX TRADING	Approved
		POSCO KOREA (Auth. Agent POSCO-PUNE)	Approved
158	INSULATING OIL	APAR INDUSTRIES LTD., CHEMBUR, MUMBAI	Approved
		RAJ PETRO SPECIALITIES PVT LTD MUMBAI	Approved
		SAVITA OIL TECHNOLOGIES LTD. MUMBAI	Approved
159	PAPER INSULATED COPPER CONDUCTOR (PICC)	SHREE CABLES & CONDUCTORS BHOPAL	Approved
		KSH INTERNATIONAL CHAKAN,PUNE	Approved
		RIMA TRANSFORMER & CONDUCTORS BANGALORE	Approved
		BCPL, MANDIDEEP	Approved
		BHANDARY POWER LINE, MANIPAL	Approved
		PRECISION WIRES INDIA LTD, SILVASSA.	Approved
		SHAKTI INSULATED WIRES PVT LTD, ANKLESHWAR	Approved
		CHANDRA METALS LTD. TELIARGANJ	Approved
		M.P.CUPRO METALS PVT.LTD.BHOPAL.	Approved
DELTA TRANS CONDUCTORS(P)LTD. MUMBAI	Approved		

160	CONTINUOUSLY TRANPOSED COPPER CONDUCTOR (CTC)	KSH INTERNATIONAL CHAKAN,PUNE	Approved
		PRECISION WIRES INDIA LTD, SILVASSA.	Approved
		SAMDONG KOREA	Approved
		ASTA, INDIA VADODARA	Approved
161	UNIMPREGNATED DENSIFIED WOOD	PERMALI WALLACE PVT. LTD. GOVINDPURA, BHOPAL	Approved
		SURENDRA COMPOSITES PVT LTD RAISEN	Approved
162	ON LOAD TAP CHANGER/ OFF CIRCUIT TAP CHANGER	BHEL BHOPAL	Approved
		ABB AB COMPONENTS SWEDEN	Approved
		MASCHINENFABRIK REINHAUSEN GERMANY	Approved
163	OIL CONDENSOR BUSHING	BHEL BHOPAL	Approved
		GE T&D INDIA LIMITED, HOSUR	Approved
		GRID SOLUTIONS, A GE AND ALSTOM JOINT VENTURE, ITALY	Approved
		ABB AB COMPONENTS, SWEDEN	Approved
		CG POWER & INDUSTRIAL SOLUTIONS LTD, NASHIK	Approved
164	BUCHLOZ RELAY	P&B WEIR ELECTRICAL-UNIT 10, U.K	Approved
		SUKRUT ELECTRIC CO.PVT.LTD. PUNE	Approved
		VIAT INSTRUMENTS PVT. LTD. KOLKATA	Approved
		VIAT INSTRUMENTS PRIVATE LIMITED UNIT- II SANAND	Approved
165	OTI / WTI/ RTD	PRECIMEASURE CONTROLS (PVT.) LTD., BANGALORE	Approved
		PERFECT CONTROL, CHENNAI	Approved
166	PRESSURE RELIEF VALVE	MESSKO GMBH GERMANY	Approved
		QUALITROL COMPANY LLC USA	Approved
		RAJSHI ENGINEERS JHANSI	Approved
		SUKRUT UDYOG PUNE	Approved
167	AIR CELL	PRONAL ASIA MANUFACTURING MALAYSIA	Approved
		UNIRUB TECHNO INDIA PVT. LTD. PUNE	Approved
168	MOLG	QUALITROL COMPANY LLC, USA	Approved
		MESSKO GMBH GERMANY	Approved
		SUKRUT UDYOG PUNE	Approved
169	OIL FLOW INDICATOR	SUKRUT UDYOG, PUNE	Approved
		VIAT INSTRUMENTS PRIVATE LIMITED UNIT- II AHMEDABAD	Approved

170	OIL PUMP	FLOW OIL PUMPS PVT. LTD. BANGALORE	DR
		NXL FLOW INSTRUMENTS BANGALORE	DR
		SPP PUMPS LIMITED ENGLAND	DR
171	COOLING FAN & MOTOR ASSLY	EPC ELECTRICAL PVT.LTD. KOLKATA	Approved
		MARATHON ELECTRIC MOTORS(INDIA)LTD KOLKATA	Approved
172	RADIATOR	BHEL BHOPAL	Approved
		CTR MANUFACTURING INDUSTRIES LTD. PUNE	Approved
		TTP TECHNOLOGIES PVT. LTD. BANGALORE	Approved
173	MARSHALLING BOX / CONTROL CABINET/RTCC	ASHOKA ELECTRONICS, BHOPAL	Approved
		ENTERPRISING ENGINEERS,BHOPAL	Approved
		PURNIMA ELECTRICAL INDUSTRIES , BHOPAL	Approved
		PYROTECH ELECTRONICS PVT. LTD. (UNIT-IV), UDAIPUR	Approved
		R.S.I.SWITCH GEAR PVT LTD. BHIWADI	Approved
174	TERMINAL CONNECTOR	KLEMMEN ENGINEERING CORPN., CHENNAI	Approved
		PEE VEE ENGG.ENTERPRISES, BANGALORE	Approved
175	GAS COLLECTING DEVICE	SUKRUT UDYOG, PUNE	Approved
		YOGYA ENTERPRISES, JHANSI	Approved
176	N2 BASED FIRE PROTECTION SYSTEM	CTR MANUFACTURING INDUSTRIES LTD. NAGPUR	DR
		EASUN-MR TAP CHANGERS (P) LTD, CHENNAI	DR
		SERGI TRANSFORMER EXPLOSION PREVENTION, GURGAON (HARYANA)	DR
		VENDERE SALES SERVICES (I) PVT. LTD. AURANGABAD	DR
		GK POWER TRANSMISSION COMPANY PVT. LTD., NAGPUR	DR
177	FIBRE OPTIC HOT SPOT TEMP MONITORING SYSTEM	LUXTRON CORPORATION DBA LUMASENSE TECHNOLOGIES, USA	DR
		MACHTECH ENGINEERING SOULUTIONS LLP, VASAI	DR
		PRECIMEASURE CONTROLS (PVT.) LTD, BANGALORE	DR
		QUALITROL COMPANY LLC, USA	DR

178	ONLINE DGA	A.EBERLE GMBH AND CO. KG GERMANY	DR
		MTE METER TEST EQUIPMENT AG SWITZERLAND (Installation & Commissioning of DGA by MTE-INDIA, New Delhi)	DR
		MORGAN SCHAFFER INC CANADA (M/S Doble)	DR
		GE KELMAN (Auth. Agent PCI PRECISION CASTING LIMITED DELHI)	DR
		QUALITROL COMPANY LLC USA	DR
		CHROMATOGRAPHY & INSTRUMENTS COMPANY, VADODARA	DR
179	INSULATOR	M/S BHEL ELECTRO-PORCELAIN DIVN. BANGALORE	Approved
		M/S CJI PORCELAIN PVT. LTD. KHURJA	DR
		M/S KHYATI CERAMICS. KALOL	DR
<b>HT MOTOR COMPONENTS (Bhopal Works)</b>			
180	CACA COOLER	FITWELL CORPORATION	Approved
		KARNATAKA ENGINEERING ENTERPRISES	Approved
		LAXMI ENGG. IND.	Approved
		MEHTA INDUSTRIES	Approved
181	CACW COOLER	FITWELL CORPORATION	Approved
		KARNATAKA ENGINEERING ENTERPRISES	Approved
		LAXMI ENGG. IND.	Approved
		MEHTA INDUSTRIES	Approved
182	ANTIFRICTION BEARING	SKF	Approved
		FAG	Approved
183	COPPER SECTION/ ROUND/FLAT ROTOR BAR	BHANWARDEEP COPPER STRIPS(P)LTD	Approved
		COPPER STRIPS PVT LTD	Approved
		CHANDRA METALS LTD.	Approved
		MALWA STRIPS PVT.LTD.	Approved
		OMEGA ROLLING MILLS PVT LTD.	Approved
184	FORGED SHAFT	BHARAT FORGE LIMITED	Approved
		BAY-FORGE LTD.	Approved
		BHARAT HEAVY ELECTRICALS LTD	Approved
		GHAZIABAD ISPAT UDYOG LTD	Approved
		KISCO CASTINGS (INDIA) LTD.	Approved
		KISAAN STEELS PVT.LTD	Approved
		PUNJAB HAMMERS PVT.LTD.	Approved
		PAHLADRAI STEEL FORGING WORKS, STEEL AUTHORITY OF INDIA LIMITED	Approved
185	ENAMELLED MICA TAPED COPPER CONDUCTOR.	M.P.CUPRO METALS PVT.LTD.	Approved
		NKM CABLES & STRIPS(PVT)LTD.	Approved
		SHREE CABLES & CONDUCTORS (P) LTD	Approved
		VIMLESH INDUSTRIES(P)LTD.	Approved



186	MICA TAPED CONDUCTORS	BHANWARDEEP COPPER STRIPS(P)LTD	Approved
		BCPL CONDUCTORS PVT.LIMITED	Approved
		COSMOS CONDUCTORS PVT.LTD.	Approved
		COPRAL INSULATED CONDUCTORS PVT.,LTD.	Approved
		CHANDRA METALS LTD.	Approved
		MIMANI WIRES PVT LTD	Approved
		MALWA STRIPS PVT.LTD.	Approved
		M.P.CUPRO METALS PVT.LTD.	Approved
		NKM CABLES & STRIPS(PVT)LTD.	Approved
		SHREE CABLES & CONDUCTORS (P) LTD	Approved
		VIMLESH INDUSTRIES(P)LTD.	Approved
187	RTD/BTD	JINDAL ELECTRONICS PRIVATE LIMITED	Approved
		TECHNO INSTRUMENTS	Approved
Note:-			
1	SUB ITEMS (not covered specifically in the Vendor List) for Power Transformer, DTT and HVR Transformer from BHEL Units.		BHEL Approved sources
2	SUB ITEMS (not covered specifically in the Vendor List) for HT Motors to be supplied from IS Motors.		BHEL Approved sources
3	SUB ITEMS (not covered specifically in the Vendor List) FOR Busduct package, supplies from BHEL-Rudrapur Unit		BHEL Approved sources



SAGARDIGHI THERMAL Power EXTENSION PROJECT PHASE-III, UNIT#5 (1 x660 MW)			
SI No	Item	Vendor Name	Status
1	Severe Service Control Valve for BFP Re-Circulation / SH & RH Attenuation Control Valve	DRESSER VALVE INDIA PVT. LTD, Coimbatore	Approved
		CONTROL COMPONENTS INC.	Approved
		KSB MIL CONTROLS LIMITED	Approved but only for 9000 Series Valves
2	Oil Trip Valves ( FUEL OIL SYSTEM)	INSTRUMENTATION LTD., KERALA	Approved
		KSB MIL CONTROLS LIMITED, THIRISSUR DIST	Approved
		Kuehne Armaturen GmbH, Germany	DR
		SAMSON CONTROLS PRIVATE LIMITED	Approved
		MASCOT VALVES PVT. LTD, AHMEDABAD	Approved
3	NORMAL SERVICE CONTROL VALVE	DRESSER VALVE INDIA PVT. LTD, Coimbatore	Approved
		EMERSON PROCESS MANAGEMENT CHENNAI LIMITED, Chennai	Approved
		INSTRUMENTATION LTD., PALAKKAD	Approved
		Koso India Private Limited, Nashik	Approved
		PARCOL S.P.A.	Approved
		SEMPELL GmbH.	Approved
		DAUME REGELARMATUREN GMBH	DR
		KSB MIL CONTROLS LTD. Thrissur	Approved
		Valvitalia S.P.A. , Italy	Approved
		WALDEMAR PRUSS ARMATURENFABRIK GMBH, Germany	Approved
4	Severe Service Control Valve for AUX PRDS	Control Component India Pvt. Ltd. Chittoor	Approved
		Daume Regelarmaturen GmbH, Isernhagen, Germany	Approved
		HOLTER REGELARMATUREN GmbH & CO., HOLTESTUKENBR OCK	Approved
		Koso India Private Limited, Nashik	Approved
		PARCOL S.p.A Canegrate MI, ITALY	Approved
5	VALVE:SOOT BLOWER PR	DRESSER VALVE INDIA PVT. LTD, Coimbatore	Approved
		CONTROL COMPONENTS INC.	Approved
		KSB MIL CONTROLS LIMITED	Approved
6	LP STARTUP CONTROL VALVES	CONTROL COMPONENT INDIA PVT LTD	Approved
		INSTRUMENTATION LTD.,	Approved
		EMERSON PROCESS MANAGEMENT CHENNAI	DR
		WELLAND & TUXHORN AG	Approved
		KOSO INDIA PRIVATE LIMITED.	Approved
		KSB MIL CONTROLS LIMITED	Approved

SI No	Item	Vendor Name	Status
7	HIGH PR. STARTUP SCV	CONTROL COMPONENT INDIA PVT LTD, Bangalore	Approved
		SEMPELL GmbH., Germany	Approved
		KOSO INDIA PRIVATE LIMITED., Nashik	Approved
		PARCOL S.P.A., Milan Italy	Approved
8	HPBP Control Valve	SULZER-CCI AG, SWITZERLAND	Approved
		CONTROL COMPONENT INDIA PVT LTD, Bangalore	Approved
9	LP BYPASS SYSTEM	SULZER-CCI AG, SWITZERLAND	Approved
		CONTROL COMPONENT INDIA PVT	Approved
		WELLAND & TUXHORN AG	Approved
		HOLTER REGELARMATUREN GMBH & CO.	DR
10	SEAL STEAM VALVE/ LEAK STEAM VALVE WITH PNEUMATIC ACTUATOR	SAMSON CONTROLS PVT. LTD.	Approved
		INSTRUMENTATION LIMITED	Approved
		KSB MIL CONTROLS LIMITED	Approved
		GE OIL & GAS INDIA PRIVATE LIM	Approved
		WELLAND & TUXHORN AG	Approved
		HOLTER REGELARMATUREN GMBH & CO.	Approved
11	Air Filter Regulator  [Either from OEM/Authorised Source]	Parker Hannifin, Lebonon	Approved
		SHAVO NORGREN(INDIA)PVT LTD, BANGALORE	Approved
		JRU INSTRUMENTS (Formerly PLACKA)	Approved
12	HPT STEAM EVACUATION VALVE	GE OIL & GAS INDIA PRIVATE LTD	Approved
		HOLTER REGELARMATUREN GMBH & CO., GERMANY	Approved
		KSB MIL CONTROLS LIMITED, INDIA	Approved
		INSTRUMENTATION LIMITED	Approved
13	SOLENOID VALVE	ASCO (I) LTD.	Approved
		ROTEX AUTOMATION LTD.	Approved
		NUCON INDUSTRIES PVT LTD	Approved
		IMI NORGREN HERION PVT. LTD.	Approved
14	Bypass Rotameter	EUREKA INDLEQUIPMENT PVT., LTD., PUNE	Approved
		FLUIDYNE INSTRUMENTS PVT. LTD., CHEMBUR, MUMBAI	Approved
		PLACKA INSTRUMENTS INDIA PVT LTD, CHENNAI	Approved

SI No	Item	Vendor Name	Status
		INSTRUMENTATION ENGINEERS PVT LTD,JEEDIMATLA,HYDERABAD	Approved
		TRANSDUCER & CONTROL PVT LTD, HYDERABAD	Approved
15	C&I Laboratory Furniture/ Computer Furniture	ADARSHA CONTROL SYSTEMS PVT. LTD., BANGALORE	Approved
		COSMOS MEDIA PRODUCTS PVT. LTD,GREATER NOIDA,UP	Approved
		FEATHERLITE OFFICE SYSTEMS PVT. LTD,BANGALORE	Approved
		GODREJ AND BOYCE MANUFACTURING CO.,ROORKEY, UTTARAKAND.	Approved
		HARMONY SYSTEMS, GREATER NOIDA, UP	Approved
		OTS OFFICETECH SYSTEMS (P) LTD,BANGALORE	Approved
		PYROTECH WORKSPACE SOLUTIONS PVT. LTD, UDAIPUR	Approved
16	CBLM Sys (3D Type)	APM, Israel	Approved
		EIP TECHNOLOGIES PVT. LTD.NOIDA/ Process Management Mumbai	Approved
17	CBLM Sys (Ultrasonic Or RADAR Type) Panel	ENDRESS + HAUSER INDIA PVT. LTD. MUMBAI	Approved
		KISTLER MORSE AUTOMATION LTD.,HYDERABAD	Approved
		KROHNE MARSHALL PVT LTD.,PUNE	Approved
		VEGA INDIA LEVEL & PRESSURE MEASUREMENT PVT LTD.,MUMBAI.	Approved
		EMERSON PROCESS MANAGEMENT ,MUMBAI.	Approved
		SIEMENS LIMITED, BANGALORE	Approved
18	CBLM Sys(StrainGauge Type) Sensor & Panel	KISTLER - MORSE AUTOMATION LTD., HYDERABAD	Approved
		VENTURE MEASUREMENT,US	Approved
		THERMO RAMSEY INC ,CHICAGO,US	Approved
19	CO Analyser	CHEMTROLS INDUSTRIES LIMITED, POWAI, MUMBAI	Approved
		FORBES MARSHALL CODEL PVT. LTD., PUNE	Approved
		SICK INDIA PVT LTD,MUMBAI.	Approved
		MARVEL ENGG COMPANY, CHENNAI	Approved

SI No	Item	Vendor Name	Status
20	Compression Fittings	PARKER HANNIFIN INDIA PVT. LTD.,CHENGAL PATTU,TAMILANADU	Approved
		PRECISION ENGG INDUSTRIES, MUMBAI	Approved
		SWAGELOCK,USA	Approved
		TROUVAY & CAUVIN FRANCE	Approved
		HOKE	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	DR
21	Condensate Pots	BALDOTA VALVE AND FITTING COMPANY PVT LTD,MUMBAI	Approved
		FLOWTECH, KOLKATA	Approved
		PRECISION ENGG INDUSTRIES, MUMBAI	Approved
		EXCEL HYDRO-PNEUMATICS PVT LTD,MUMBAI	DR
		PMT ENGINEERS,N.H.NO.-8, NARODA, AHMEDABAD	DR
		HP VALVES & FITTINGS (INDIA) PVT. L,MOGAPPAIR WEST, CHENNAI	DR
		ARCELLOR CONTROLS (INDIA), Ahmedabad	DR
22	Dust Density (Opacity) Monitor(Analyzer)	CODEL INTERNATIONAL LTD ,UK	Approved
		DURAG GMBH AND CO KG, HUMBURG,GERMANY	Approved
		LAND INSTRUMENTS INTERNATIONAL, ENGLAND (UK)	Approved
		SICK MAIHAK GMBH,GERMANY	Approved
23	Dust Density (Opacity) Monitor(panel)	CHEMTROLS INDUSTRIES LIMITED, POWAI,	Approved
		DURAG INDIA INSTRUMENTATION PVT LTD,BANGALORE	Approved
		SICK INDIA PVT LTD,MUMBAI.	Approved
		MARVEL ENGG COMPANY, CHENNAI	Approved
24	E/P Convertor(if required)	FAIRCHILD INDIA PRIVATE LIMITED, NOIDA	Approved
		WATSON SMITH LTD ,UK	Approved
25	Smart Positioner	EMERSON PROCESS MANAGEMENT	Approved
		SIMENS	Approved
		ABB	Approved
		ASTEC VALVE & FITTINGS PVT. LTD,MUMBAI	Approved
		AURA INC, NEW DELHI	Approved
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI	Approved
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI	Approved
		FLOWTECH, KOLKATA	Approved

SI No	Item	Vendor Name	Status
26	Erection Material	FLUID CONTROLS PVT. LTD,PUNE	Approved
		HP VALVES & FITTINGS (INDIA) PVT LTD, CHENNAI	Approved
		MET LOK HYDRO PENUMATICS PVT LTD,MUMBAI	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	Approved
		PANAM ENGINEERS LTD,MUMBAI	Approved
		PMT ENGINEERS,AHMEDABAD	Approved
		PRECISION ENGG INDUSTRIES, MUMBAI	Approved
		V.K.INDUSTRIES, BANGALORE	Approved
		VIKAS INDUSTRIAL PRODUCTS, NOIDA	Approved
		PAUL INDUSTRIES,HOWRAH	Approved
		NAV DURGA FORGING AND FITTINGS,THANE,MAHARASTRA	Approved
		SANDEEP INDUSTRIES,JALANDHAR,PUNJAB	Approved
27	FGA Insitu (SOX/NOX/CO/CO2)(Analyzer)	CODEL INTERNATIONAL LTD ,UK	Approved
		SICK MAIHAK GMBH,GERMANY	Approved
		CODEL INTERNATIONAL LTD ,UK	Approved
		SICK MAIHAK GMBH,GERMANY	Approved
28	FGA Insitu (SOX/NOX/CO/CO2)(panel)	CHEMTROLS INDUSTRIES LIMITED, POWAI, MUMBAI	Approved
		FORBES MARSHALL CODEL PVT. LTD., PUNE	Approved
		SICK INDIA PVT LTD,MUMBAI.	Approved
		ICE (ASIA) PRIVATE LIMITED, MUMBAI	Approved
29	FGA Sys(SOX/NOX/CO)Samplg Type(Analyzer)	ABB INSTRUMENTATION LTD,GLOUCESTERSHIRE,UK	Approved
		EMERSON PROCESS MANAGEMENT INDIA PVT LTD, MUMBAI	Approved
		FUJI ELECTRIC SYSTEMS CO. , LTD,SHINAGAWA-KU, TOKYO	Approved
		SICK MAIHAK GMBH,GERMANY	Approved
		SIEMENS LIMITED, BANGALORE	Approved
		YOKOGAWA ELECTRIC CORPORATION,TOKYO,JAPAN	Approved
30	FGA Sys(SOX/NOX/CO)Sampling Type(panel)	ABB LTD, Bangalore	Approved
		ADAGE AUTOMATION PRIVATE LIMITED, KHAIRANE MIDC, NAVI MUMBAI	DR
		CHEMTROLS INDUSTRIES LIMITED, POWAI, MUMBAI	Approved
		EMERSON PROCESS MANAGEMENT INDIA PVT LTD, MUMBAI	Approved

Sl No	Item	Vendor Name	Status
		YOKOGAWA INDIA LIMITED, BANGALORE	Approved
31	H <sub>2</sub> GAS ANALYSER CABINET	SIEMENS LTD.	Approved
		YOKOGAWA INDIA LIMITED	Approved
		ABB INDIA LTD	Approved
32	GI Pipes	BALDOTA VALVE AND FITTINGS PVT LTD, MUMBAI	Approved
		BHUWALKA PIPES LIMITED, BANGALORE.	Approved
		FLOWTECH, KOLKATA	Approved
		JINDAL INDUSTRIES LIMITED, NEW DELHI	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	Approved
		NATHMAL DAGA & CO, BANGALORE	Approved
		PIPE CORPORATION PVT LTD, BANGALORE	Approved
		PRECISION ENGG INDUSTRIES, MUMBAI	Approved
		SURYA ROSHNI LTD, BAHADURGARH, HARYANA.	Approved
		V.K. INDUSTRIES, BANGALORE	Approved
		VIKAS INDUSTRIAL PRODUCTS, NOIDA	Approved
		SANDEEP INDUSTRIES, JALANDHAR, PUNJAB	Approved
		MKK METAL SECTIONS PVT LTD, VELLORE, TAMILANADU	Approved
		RIDDHI STEEL AND TUBE LIMITED, AHMEDABAD	Approved
		INDUS TUBES LTD, GHAZIABAD, UP	Approved
33	Impulse Pipes (Alloy steel)	BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI, TAMILANADU	Approved
		EVERGREEN SEAMLESS PIPES & TUBES PVT LTD, BANGALORE	DR
		GANPAT METALS PVT. LTD., MUMBAI	DR
		JINDAL SAW LTD, CHENNAI	Approved
		RIDHI SIDDHI STEEL CORPORATION, MUMBAI	DR
		TROUVAY CAUVIN, GULF	Approved
		SUMITOMO CORPORATION, JAPAN.	Approved
		TPS TECHNITUBE ROHREN WERKE	Approved
		BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI, TAMILANADU.	Approved
		EVERGREEN SEAMLESS PIPES & TUBES PVT LTD, BANGALORE	DR
		GANPAT METALS PVT. LTD., MUMBAI	DR
		HEAVY METAL AND TUBES LTD, AHMEDABAD/MUMBAI	DR

SI No	Item	Vendor Name	Status
34	Impulse Pipes(Carbon Steel)	INDIAN SEAMLESS METAL TUBES LTD,PUNE.	Approved
		JINDAL SAW LTD,CHENNAI	Approved
		RIDHI SIDDHI STEEL CORPORATION,MUMBAI	DR
		TROUVAY CAUVIN,GULF	Approved
		SUMITOMO CORPORATION,JAPAN.	Approved
		SUMITOMO CORPORATION ASIA & OCEANIA PTE. LTD.,SINGAPORE	Approved
		TPS TECHNITUBE ROHREN WERKE GMBH,DAUN,GERMANY	Approved
35	Impulse Pipes(Stainless Steel)	RATNAMANI METALS & TUBES LTD, AHMEDABAD	Approved
		SUMITOMO CORPORATION,JAPAN.	Approved
		TPS TECHNITUBE ROHREN WERKE	Approved
		EVERGREEN SEAMLESS PIPES & TUBES PVT	DR
		GANPAT METALS PVT. LTD.,MUMBAI	DR
		RIDHI SIDDHI STEEL CORPORATION,MUMBAI	DR
		SUMITOMO CORPORATION,JAPAN.	Approved
TROUVAY CAUVIN,GULF	Approved		
36	Instrument Valve	BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI	Approved
		BHARAT HEAVY ELECTRICALS LTD, TIRUCHIRAPALLI,TAMILANADU.	Approved
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI	Approved
		INSTRUMENTATION LIMITED, PALGHAT	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	Approved
		PRECISION ENGG INDUSTRIES, MUMBAI	Approved
37	Lab Items Mechanical	FLUKE TECHNOLOGIES PVT. LTD., ANDHERI( EAST ), MUMBAI	Approved
		GE OIL AND GAS INDIA PVT. LTD,PUNE.	Approved
		ISOTHERMAL TECHNOLOGY PVT. LTD., DELHI	Approved
		NAGMAN INSTMTS. & ELECTRONICS (P) L, CHENBARAMBAKKAM,CHENNAI.	Approved
		WIKA INSTRUMENTS INDIA PVT. LTD., VILLAGE KESNAND, PUNE	Approved
		CHEMTROLS ENGG. (P) LTD.	Approved
		LEVCON INSTRUMENTS (P) LTD.	Approved
		S. B. ELECTRO-MECHANICALS PVT. LTD.	Approved
		V. AUTOMAT & INSTRUMENTS PVT. LTD.	Approved

SI No	Item	Vendor Name	Status
38	LEVEL GAUGE	DK INSTRUMENTS	Approved
		SIGMA INSTRUMENTS COMPANY	Approved
		IGEMA GMBH	Approved
		ASIAN INDUSTRIAL VALVES AND	Approved
		CESARE BONETTI S.P.A	Approved
39	Level Switch Capacitance Type	LEVCON INSTRUMENTS PVT. LTD.	Approved
		ENDRESS & HAUSER	Approved
40	Level Switch Conductivity Type	EMERSON PROCESS MANAGEMENT(I)PVT. L, M.I.D.C.PAWANE,NAVI MUMBAI	Approved
		IGEMA GMBH,MUNSTER,GERMANY.	Approved
		LEVELSTATE SYSTEMS LTD,U.K	Approved
		SOLARTRON TRANSDUCER, U.K	Approved
41	Level Switch Float Type	CHEMTROLS INDUSTRIES LIMITED, POWAI, MUMBAI	Approved
		IGEMA GMBH,MUNSTER,GERMANY.	Approved
42	Level Switch Top mounted	CHEMTROLS INDUSTRIES LIMITED, POWAI, MUMBAI	Approved
		D.K.INSTRUMENTS PVT. LTD., DHAKURIA, KOLKATA	Approved
		LEVCON INSTRUMENTS Pvt LTD, KOLKATA	Approved
		PUNE TECHTROL PVT LTD,PUNE	Approved
		IGEMA GMBH,MUNSTER,GERMANY.	Approved
		SBEM PRIVATE LIMITED, PUNE	Approved
		SIGMA INSTRUMENTS COMPANY,BHANDUP(WEST),MAHARASTRA.	Approved
		V.AUTOMAT & INSTRUMENTS PVT. LTD., NEW DELHI	Approved
43	LIE/LIR	CHEMIN CONTROLS AND INSTRUMENTATION, PONDICHERRY	Approved
		PYROTECH ELECTRONICS (P) LTD.,UDAIPUR	Approved
44	LOCAL GAUGE BOARD (LGBs)	PANAM CONTROLS - HYDERABAD, INDIA	Approved
		NAGARJUNA FABRICATORS - HYDERABAD, INDIA	DR
		INSTRUMENTATION LTD. - KOTA, INDIA	Approved
		PYROTECH ELECTRONICS PVT.LTD. - UDAIPUR, INDIA	Approved
		PROCON INSTRUMENTATION PVT.LTD - CHENNAI, INDIA	Approved

SI No	Item	Vendor Name	Status
45	Oxygen Analyser (LT)	EMERSON PROCESS MANAGEMENT INDIA PVT LTD, MUMBAI	Approved
		EMERSON PROCESS MANAGEMENT INDIA PVT LTD, MUMBAI	Approved
46	Oxygen Analyser (LT) Panel & Accessories	EMERSON PROCESS MANAGEMENT INDIA PVT	Approved
47	Pneumatic Actuator	EMERSON PROCESS MANAGEMENT CHENNAI, CHENNAI	Approved
		INSTRUMENTATION LIMITED, PALGHAT	Approved
		MIL CONTROLS LIMITED, ALWAYE , KERALA	Approved
48	SNUBBERS	LISEGA SE	Approved
		MAURER SOHNE GMBH & CO.KG	Approved
		JIANGSU ROAD DAMPING TECHNOLOGY CO.	Approved
		PIPE SUPPORT SYSTEMS GMBH INTL.	Approved
		QUIRI HYDROMECHANIQUE,	Approved
		SANWA TEKKI CORPORATION	Approved
49	Pressure & Differential Pressure Gauges	A.N.INSTRUMENTS PVT LTD, CHENNAI	Approved
		PRECISION MASS PRODUCTS PVT. LTD,GANDHI NAGAR,GUJARAT.	Approved
		BAUMER TECHNOLOGIES INDIA LTD,VAPI	Approved
		FORBES MARSHALL(HYD) LTD., HYDERABAD	Approved
		GAUGES BOURDON (INDIA) PVT. LTD, MUMBAI.	Approved
		GOA THERMOSTATIC INSTRUMENTS, GOA	Approved
		MANOMETER (INDIA) PVT. LTD.,, MUMBAI	Approved
50	Pressure & Differential Pressure Switch (Critical/Tripping applications of Boiler & Turbine)	DELTA CONTROLS LTD	Approved
		SOR INC.	Approved
		ASCROFT, USA	Approved
		DRESSER INDUSTRIES INC.	Approved
51	Pressure & Differential Pressure Switch (Non Critical applicaion)	PRECISION MASS PRODUCTS PVT. LTD,GANDHI NAGAR,GUJARAT.	Approved
		SWITZER PROCESS INSTRUMENTS PVT. LT, T Nagar, CHENNAI	Approved
		ASHCROFT INDIA	Approved
		TRAFAG CONTROLS INDIA PVT. LTD., IMT MANESAR, GURGAON	Approved
		CHEMTROLS SAMIL (INDIA) PVT. LTD., POWAI , MUMBAI	Approved
		INSTRUMENTATION ENGINEERS PVT LTD	Approved

SI No	Item	Vendor Name	Status
52	Sight Flow Indicator	SIGMA INSTRUMENTS CO.	Approved
		D.K.INSTRUMENTS PVT. LTD.	Approved
		LEVCON INSTRUMENTS Pvt LTD, KOLKATA	Approved
		V.AUTOMAT & INSTRUMENTS PVT LTD.	Approved
		FORBES MARSHALL LTD.	Approved
53	FLOW SWITCH	GENERAL INSTRUMENTS CONSORTIUM	Approved
		KROHNE MARSHALL	Approved
		SWITZER INSTRUMENT CO.	Approved
54	FLOW ELEMENTS (ORIFICE/NOZZLE)	MICRO PRECISION PRODUCTS	Approved
		M/S ESPL KOLKATA	Approved
		IL PALGHAT	Approved
55	IMPACT HEAD TYPE ELEMENT	DETRIECH / EMERSON PROCESS	Approved
		MIDWEST	Approved
		STARMECH	Approved
		SWITZER INSTRUMENT CO.	Approved
		VERIS INC.	Approved
		EMERSON PROCESS MANAGEMENT ( INDIA) PVT. LTD.	Approved
56	RRI FOR CVP	BRAUN GMBH INDUSTRIE - ELEKTRONIK	Approved
		SHINKAWA ELECTRIC CO LTD.,	Approved
		BENTLY NEVADA, LLC	Approved
57	Socket Weld Fittings	BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	Approved
		V.K.INDUSTRIES, BANGALORE	Approved
		MULTIMETAL INDUSTRIES,	DR
		COMFIT & VALVES PVT LTD.	DR
		DYNAFLUID VALVES AND FLOW	DR
		PRESHZINGER ENGINEERING CO PVT LTD.	DR
		FLUID CONTROLS PRIVATE LTD.,	DR
		VALTEX INDIA,	DR
		H.P.VALVES & FITTINGS INDIA PVT LTD	DR
VIKAS INDUSTRIAL PRODUCTS, NOIDA	Approved		
58	Steam and Water analysis Sys(Analyzer)	ABB INDUSTRIES ,SWITZERLAND.	Approved
		ABB INDUSTRIES ,SWITZERLAND.	Approved
		HACH LANGE S.A.R.L,VESENAZ,SWITZERLAND.	Approved
		METTLER-TOLEDO INDIA PVT. LTD., POWAI, MUMBAI	Approved
		EMERSON PROCESS MANAGEMENT,USA	Approved

SI No	Item	Vendor Name	Status
		SWAN ANALYTISCHE INSTRUMENTE AG, SWITZERLAND.	Approved
		THERMO ORION INC., CHELMSFORD	Approved
59	Steam and Water analysis System(Panel)	ABB LIMITED, PEENYA INDL. AREA, BANGALORE.	Approved
		EMERSON PROCESS MANAGEMENT INDIA PVT LTD,MUMBAI.	Approved
		FORBES MARSHALL PVT LTD, PUNE	Approved
60	THERMOWELL	INDUSTRIAL INSTRUMENTATION	Approved
		GENERAL INSTRUMENTS CONSORTIUM	Approved
		MICRO PRECISION PRODUCTS (P) LTD.	Approved
		DETRIV INSTRUMENTATION &	Approved
		TEMPESENS INSTRUMENTS (I) PVT.LTD.,	Approved
		GOA INSTRUMENT INDUSTRIES PVT LTD.	Approved
		BAUMER TECHNOLOGIES INDIA PVT.LTD,	Approved
61	Temperature Elements	DETRIV INSTRUMENTATION AND ELECTRONICS	Approved
		OKAZAKI MANUFACTURING COMPANY,JAPAN.	Approved
		PYRO ELECTRIC INSTRUMENTS GOA PVT.LTD,GOA.	Approved
		TECHNO INSTRUMENTS,GANDHINAGAR,GUJARAT.	Approved
		TEMPESENS INSTRUMENTS (I) PVT LTD,UDAIPUR,RAJASTHAN	Approved
		BAUMER TECHNOLOGIES INDIA LTD,MUMBAI/VAPI	Approved
		WIKA INSTRUMENTS INDIA PVT. LTD,PUNE	Approved
62	Temperature Gauges	A.N.INSTRUMENTS PVT LTD, CHENNAI	Approved
		PRECISION MASS PRODUCTS PVT. LTD,GANDHI NAGAR(Earlier Aschcroft)	Approved
		BAUMER TECHNOLOGIES INDIA LTD,MUMBAI/VAPI	Approved
		FORBES MARSHALL(HYD) LTD., HYDERABAD	Approved
		GOA THERMOSTATIC INSTRUMENTS, GOA	Approved
		WIKA INSTRUMENTS INDIA PVT. LTD,PUNE	Approved
		BALDOTA VALVE AND FITTINGS PVT LTD,MUMBAI	Approved
		EXCEL HYDRO-PNEUMATICS PVT LTD, MUMBAI	Approved
		FLOWTECH, KOLKATA	Approved

SI No	Item	Vendor Name	Status
63	Valve Manifolds	Parker HANNIFIN INDIA PVT. LTD,LEBANON (M/s Super technical dealer for Parker)	Approved
		METPRESS ENGINEERING WORKS, KOLKATA	Approved
		MICRO PRECISION PRODUCTS PVT LTD, FARIDABAD	Approved
64	Vibration Monitoring System (Sensors, Monitors & Panel)	BENTLY NEVADA INC, MINDEN, U.S.A.	Approved
		MEGGITT SA,SWITZERLAND.	Approved
		SHINKAWA ELECTRTIC CO., LTD, TOKYO, JAPAN	Approved
65	Mercury Analyzer	DURAG ,BANGALORE(MAKE OF DURAG GERMANY)	Approved
		THERMO FISHER INDIA ,MUMBAI(MAKE OF THERMO FISHER SCIENTIFIC CONTROL,USA)	Approved
		ANALYSER INSTRUMENTATION CO PVT LTD,KOTA,RAJASTHAN(MAKE OF PS ANALYTICAL ,UK)	Approved
		SICK INDIA PVT LTD,MUMBAI.(MAKE OF SICK GMBH,GERMANY)	Approved
66	24 V DC SMPS based Battery Charger	CHHABI ELECTRICALS PVT. LTD.,JALGAON	Approved
		VERTIV ENERGY PVT LTD (FORMERLY EMERSON NETWORK POWER INDIA), Ambernath	Approved
67	24 V DC thyristor based Battery Charger	CHHABI ELECTRICALS PVT. LTD.,BANGALORE	Approved
		CHLORIDE POWER SYSTEMS & SOLUTIONS LTD, Kolkata	Approved
		STATCON POWER CONTROLS LTD.,KULICHNAGAR, DHAULANA, HAPUR	Approved
68	Cable trays	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
69	Electronic Transmitter - Pr. / Diff. Pr.	EMERSON PROCESS MANAGEMENT, Navi Mumbai	Approved
		FUJI ELECTRIC CO., LTD,OSAKI 1-CHOME, SHINAGAWA-KU, TOKYO	Approved
		HONEYWELL AUTOMATION INDIA LTD.,PUNE	Approved
		YOKOGAWA ELECTRIC CORPORATION,TOKYO 180	Approved

SI No	Item	Vendor Name	Status
		YOKOGAWA INDIA LIMITED,BANGALORE	Approved
70	Nickel-Cadmium Battery (Fiber type/Pocket type) for UPS and Charger	HBL POWER SYSTEMS LTD,Hyderabad	Approved
71	Flexible conduit (Lead Coated)	BANSAL LABORATORIES AND,GOVINDPURA INDL. AREA, BHOPAL	Approved
		PLICA INDIA PVT LTD,GHAZIABAD, U.P.	Approved
72	Flexible conduit (Zinc Coated)	BANSAL LABORATORIES AND,GOVINDPURA	Approved
		PLICA INDIA PVT LTD,GHAZIABAD, U.P.	Approved
73	HART Communicator	ABB LIMITED,PEENYA INDL. AREA, BANGALORE.	Approved
		EMERSON PROCESS MANAGEMENT, Navi Mumbai	Approved
		HONEYWELL AUTOMATION INDIA LTD.,PUNE	Approved
		YOKOGAWA INDIA LIMITED,BANGALORE	Approved
74	Instrumentation & Control cables (PVC, FRLS Type)	ADVANCE CABLE TECHNOLOGIES (P) LTD.,GEDDALAHALLI,ASWATHNAGAR,BANGAL ORE	Approved
		DELTON CABLES LIMITED, FARIDABAD	Approved
		KEI INDUSTRIES LIMITED,BHIWADI	Approved
		LAPP INDIA PVT. LTD.,PHASE II, ANEKAL TALUK, BANGALORE	Approved
		POLYCAB WIRES PVT. LTD, DAMAN	Approved
		THERMO CABLES LIMITED, HYDERABAD	Approved
75	Junction Box (Explosion Flame Proof)	CHEMIN CONTROLS AND INSTRUMENTATION,PONDICHERRY	Approved
		ELECTRO MECHANICAL (INDIA),KOLKATA	Approved
		FLAMEPACK, Mumbai	Approved
		K.S.INSTRUMENTS PVT LTD,Yeshwantpur, Bangalore	Approved
		KHODAY CONTROL SYSTEMS PVT. LTD.,PEENYA INDUSTRIAL ESTATE, BANGALORE	Approved
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
		PRAMMEN INDUSTRIES,PUDUKKOTTAI	Approved
		PYROTECH ELECTRONICS (P) LTD.,UDAIPUR	Approved
76	Junction Box (FRP )	K.S.INSTRUMENTS PVT LTD,Bangalore	Approved
		CHEMIN CONTROLS AND INSTRUMENTATION,PONDICHERRY	Approved

SI No	Item	Vendor Name	Status
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
77	Junction Box (Metal)	CHEMIN CONTROLS AND INSTRUMENTATION,PONDICHERRY	Approved
		ELECTRO MECHANICAL (INDIA),KOLKATA	Approved
		K.S.INSTRUMENTS PVT LTD,BANGALORE	Approved
		KHODAY CONTROL SYSTEMS PVT. LTD, BANGALORE	Approved
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
		PRAMMEN INDUSTRIES,PUDUKKOTTAI	Approved
		PYROTECH ELECTRONICS (P) LTD.,UDAIPUR	Approved
78	Junction Boxes (Die cast aluminium)	PYROTECH ELECTRONICS (P) LTD.,UDAIPUR	Approved
		K.S.INSTRUMENTS PVT LTD,Yeshwantpur, Bangalore	Approved
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
79	Lead Acid - Plante Battery for UPS and Charger	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
80	Lead Acid - Tubular Battery for UPS and Charger	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
81	ULTRASONIC FLOW METERS	FLEXIM Flexible Industriemesstechnik GmbH	Approved
		NIVUS GMBH	Approved
82	Level Transmitter (RADAR type)	EMERSON PROCESS MANAGEMENT, Navi Mumbai	Approved
		ENDRESS + HAUSER (I) PVT. LTD.,L.B.S. Marg, Vikhroli (West), Mumbai	Approved
		MAGNETROL INTERNATIONAL NV,BELGIUM	Approved
		VEGA GRIESHABER K.G,SCHILTACH	Approved
83	Level Transmitter (Ultrasonic type)	SIEMENS,BANGALORE	Approved
		EMERSON PROCESS MANAGEMENT, Navi Mumbai	Approved
		ENDRESS + HAUSER (I) PVT. LTD.,L.B.S. Marg, Vikhroli (West), Mumbai	Approved
		ENDRESS+HAUSER GMBH+CO.KG,WEIL AM RHEIN	Approved

SI No	Item	Vendor Name	Status
84	LT Power Cables (PVC / XLPE Insulation)	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
85	Maintenance & Calibration Equipments (Electrical Package)	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
86	Rigid Conduit	shall be as per approved sources listed in Electrical Equipment list in Main Plant Package area.	
87	RTD - TT Junction Box (FRP)	K.S.INSTRUMENTS PVT LTD,Yeshwantpur, Bangalore	Approved
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
88	RTD - TT Junction Box (Metal)	CHEMIN CONTROLS AND INSTRUMENTATION,PONDICHERRY	Approved
		ELECTRO MECHANICAL (INDIA),KOLKATA	Approved
		K.S.INSTRUMENTS PVT LTD,Yeshwantpur, Bangalore	Approved
		KHODAY CONTROL SYSTEMS PVT. LTD.,PEENYA INDUSTRIAL ESTATE, BANGALORE	Approved
		MANISHA COMPOSITEK PVT. LTD.,PUNE	Approved
		PRAMMEN INDUSTRIES,PUDUKKOTTAI	Approved
		PYROTECH ELECTRONICS (P) LTD.,UDAIPUR	Approved
89	Thermocouple extension cables (PVC, FRLS Type)	ADVANCE CABLE TECHNOLOGIES (P) LTD.,GEDDALAHALLI,ASWATHNAGAR,BANGALORE	Approved
		DELTON CABLES LIMITED,FARIDABAD	Approved
		KEI INDUSTRIES LIMITED,BHIWADI	Approved
		POLYCAB WIRES PVT. LTD, DAMAN	Approved
		THERMO CABLES LIMITED HYDERABAD	Approved
89	UPS System with ACDB	VERTIV ENERGY PRIVATE LIMITED	Approved
		HITACHI HI-REL POWER ELECTRONICS,Gandhinagar	Approved
90	UPS System with ACDB ((3Ph I/p, 1Ph O/p) IGBT based Rectifier	VERTIV ENERGY PRIVATE LIMITED	Approved
		HITACHI HI-REL POWER ELECTRONICS,Gandhinagar	Approved

SI No	Item	Vendor Name	Status
91	CCTV SYSTEM (IP BASED-OEM ) WITH ACCESSORIES .	PELCO, USA	Approved
		BOSCH	Approved
		HONEYWELL, USA	Approved
92	CCTV SYSTEM (IP BASED) SYSTEM INTEGRATORS	HARITASA CHECKMATE ELECTRONICS, BANGALORE	Approved
		SCHNEIDER ELECTRIC, BANGALORE	Approved
		TYCO FIRE AND SECURITY, BANGALORE	Approved
		HONEYWELL AUTOMATION, BANGALORE	Approved
		Siemens, BANGALORE	Approved
		SCORE INFORMATION TECHNOLOGIES LTD, KOLKATA	Approved
		WIPRO INFOTECH, BANGALORE	Approved
		ECIL, HYDERABAD	Approved
93	Public Addressing System (IP BASED-OEM)	COMMEND, AUSTRIA	Approved
		INDUSTRONICS, GERMANY	Approved
		ARMTTEL, RUSSIA	Approved
		ZENITEL, SWEDEN	Approved
94	Public Addressing System (IP BASED) SYSTEM INTEGRATORS	AISHAN TECHNOLOGIES INDIA PVT LTD, BANGALORE	Approved
		INDUSTRONIC & INDCOM ENGINEERS	Approved
95	Large Video Screen	BARCO ELECTRONICS ,NOIDA	Approved
		PLANER-USA /PYROTECH-UDAIPUR	Approved
		CHRISTIE-USA	Approved
96	MODULAR DESK/CRT Desk	PYROTECH WORKSPACE SOLUTIONS PVT LTD , UDAIPUR	Approved
		CHEMIN CONTROLS AND INSTRUMENTATION , PONDICHERRY	Approved
		COSMOS MEDIA PRODUCTS PVT LTD ,NOIDA	Approved
		HARMONY SYSTEMS ,NEWDELHI	Approved
97	CONTROL PANEL/RACK	PYROTECH	Approved
		RITTAL	Approved
		BHEL	Approved
98	Dot matrix Printer	WIPRO	Approved
		EPSON	Approved
		TVS	Approved
		LEXMARK	Approved
99	WORKSTATIONS , SERVER, PC'S	DELL	Approved
		HP	Approved

SI No	Item	Vendor Name	Status
100	PRINTERS (Laser/Inkjet)	HP	Approved
101	TFT MONITOR	DELL	Approved
		HP	Approved
102	MINI UPS FOR HMI	HITACHI HI-REL POWER ELECTRONICS, BANGALORE	Approved
		POWERTRONIX SYSTEMS LTD., BANGALORE.	Approved
		SCHNEIDER ELECTRIC, BANGALORE	Approved
		EMERSON NETWORK INDIA, BANGALORE	Approved
		EMERSON NETWORK, PUNE	Approved
103	GIU	DIGITAL INSTRUMENTS & CONTROL SYSTEMS	Approved
		SSM INFOTECH SOLUTIONS PVT LTD.	Approved
		SCHNEIDER ELECTRIC INDIA PVT LTD, BANGALORE	Approved
		ROCKWELL AUTOMATION INDIA PVT LTD.	Approved
		ADVANCE TECH CONTROLS PVT. LTD.	Approved
104	STATION LAN EQUIPMENT	BHEL Approved Makes	
105	OFC	AKASH SOLAR	Approved
		SYSTIMAX	Approved
		BIRLA ERICSSON, REWA	Approved
		MOLEX	Approved
		TYCO	Approved
106	Turbine Supervisory System	MEGGITT SA, SWITZERLAND.	Approved
		BENTLY NEVADA INC. (GE OIL & GAS), U.S.A.	Approved
		SHINKAWA ELECTRIC CO. LTD., JAPAN	Approved
107	FEP insulated cables	DELTON CABLES, NEW DELHI	Approved
		HABIA CABLES, SWEDEN/CHINA	Approved
		LAPP CABLES, GERMANY	Approved
		LEONI KERPEN, GERMANY	Approved
		THERMOELECTRIC, USA	Approved
108	PTFE insulated Cables	ADVANCE CABLES TECHNOLOGIES, BANGALORE	Approved
		DELTON CABLES, NEW DELHI	Approved
		THERMOCABLES LIMITED	Approved
		CORDS CABLE INDUSTRIES LIMITED.,	Approved
		TEMPESENS INSTRUMENTS (I) PVT LTD, UDAIPUR	Approved
		UNIVERSAL CABLES LIMITED, SATNA	Approved

SI No	Item	Vendor Name	Status
109	CONVERTERS/ INVERTORS AC, DC DRIVES	ROCKWELL AUTOMATION INDIA PVT., LTD.,	Approved
		SIEMENS INDIA LTD.	Approved
		KIRLOSKAR ELECTRIC COMPANY LIMITED.,	Approved
		LARSEN & TOUBRO LIMITED	Approved
		HIREL ELECTRONICS, GANDHINAGAR	Approved
		ABB LIMITED	Approved
110	PULSE JET CONTROLLER	SWITCHING CIRCUIT	Approved
		ADVANCE CONCEPT	Approved
		VOLTCRAFT	Approved
		SQUARE M	Approved
		MICRO SYSTEM	Approved
111	PLC / SCADA	ROCKWELL AUTOMATION INDIA PVT., LTD.,	Approved
		GE INTELLIGENT PLATFORMS PVT LTD	Approved
		SIEMENS INDIA LTD.	Approved
		LARSEN & TOUBRO LIMITED	Approved
		ABB LIMITED	Approved
		SCHNEIDER ELECTRIC INDIA PVT.LTD.	Approved
112	LIMIT SWITCHES	KA SCHMERSAL, GERMANY	Approved
		JOHAN VOLLENBROICH, GERMANY	Approved
		IFM ELECTRONIC, GERMANY	Approved
		JAYASHREE ELECTRON PVT. LTD,	Approved
		SIEMENS INDIA LTD.	Approved
		BCH ELECTRIC LIMITED	Approved
		PEPPERL+FUCHS(INDIA) PVT LTD	Approved
		JAI BALAJI & CO., CHENNAI	Approved
		ELECTRO MECHANICAL INDIA, KOLKATA	Approved
		AG SYSTEMS, (AG ELECTRONICS )MUMBAI	Approved
		BETA SYSTEMS ENGINEERING	Approved
113	PULLCHORD SWITCHES/BELT SWAY SWITCHES ( BELT MONITORING / CONVEYOR SAFETY SWITCHES , AC/DC TACHOGENERATORS , SERVOMOTORS, DIGITAL DRIVES AND SELSYN MOTORS )	JAYASHREE ELECTRODEVICES PVT. LTD.,	Approved
		BETA SYSTEMS ENGINEERING	Approved
		PROTOCONTROL INSTRUMENTS (I) PVT LTD	Approved
		KANTA RUBBER PVT. LTD	Approved
		MAHAVEER ENGINEERING	Approved
		SUMAN CONTROLS, BANGALORE	Approved
		JYOTHI RUBBER UDYOG, GHAZIABAD	Approved
		SLN ENTERPRISES,BANGALORE	Approved

SI No	Item	Vendor Name	Status
114	SAFETY ITEMS (RUBBER MATS,DANGER BOARDS ETC.)	PROGRESSIVE RUBBER WORKS	Approved
		VARDHAMAN HOSES PRIVATE LIMITED	Approved
		PREMIER POLYFILM LTD	Approved
		RMG POLY VINLY INDIA LTD	Approved
		KAN POWER RUBBER INDUSTRIES, BANGALORE	Approved
		ARADHANA AGENCY	Approved



**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

SL. NO.	Item Description	Vendor Name	Remarks
1	FIRE PROTECTION, FIRE DETECTION AND ALARM SYSTEM PACKAGE	TECHNICO (INDIA) PVT. LTD.	Approved
		AGNICE FIRE PROTECTION PVT. LTD.	Approved
		HITEK ENGINEERING SERVICES	Approved
		STERLING AND WILSON PVT LTD	Approved
		MX SYSTEMS INTERNATIONAL PVT. LTD.	Approved
		UTC FIRE & SECURITY INDIA LIMITED.	Approved
		NITIN FIRE PROTECTION INDUSTRIES LI	Approved
		TYCO FIRE & SECURITY INDIA	Approved
		FIREPRO SYSTEMS PVT. LTD.	Approved
		CONSILIUM MIDDLE EAST (FZC)	Approved
		DE S TECHNICO PRIVATE LIMITED	Approved
		THERMOSYSTEMS PRIVATE LIMITED.	Approved
2	HYDRANT VALVES	SHAH BHOGILAL	Approved
		SUKAN	Approved
		NEWAGE	Approved
		VENUS	DR
		WINCO	DR
		ASCO STRUMECH PVT. LTD.	Approved
3	FIRE HOSES	NEWAGE	Approved
		CHATTARIA RUBBER	Approved
		Sukan Equipments Pvt Ltd	Approved
		SHAH BHOGILAL JETHALAL & BROTHERS	Approved
4	WATER MONITOR & WATER-CUM FOAM MONITORS	SHAH BHOGILAL	Approved
		HD FIRE	Approved
		NEW AGE	Approved
5	BRANCH PIPE, NOZZLES, COUPLINGS & FIRE BRIGDAE CONNECTIONS	SUKAN	Approved
		VENUS	Approved
		NEW AGE	Approved
		WINCO	DR
		ASCO STRUMECH PVT. LTD.	Approved
		SHAH BHOGILAL JETHALAL & BROTHERS	Approved
6	DELUGE VALVES	HD FIRE	Approved
		TYCO (GRINELL)	Approved
		KIDDE (I) LTD.	Approved
7	HVW/ MVW SPRAY NOZZLE	KIDDE (I) LTD.	Approved
		TYCO	Approved
		HD FIRE	Approved
		ASCO STRUMECH PVT. LTD.	Approved
		NEWAGE FIRE FIGHTING CO. LTD.	Approved
		SHAH BHOGILAL JETHALAL & BROTHERS	Approved

Sl. NO.	Item Description	Vendor Name	Remarks
8	QUARTZOID BULB SPRINKLERS/DETECTORS	TYCO(GRINELL)	Approved
		HD FIRE	Approved
		NEWAGE INDUSTRIES	Approved
9	HYDRO PNEUMATIC TANK	ARC WELD ENGINEERS	Approved
10	MICROPROCESSOR BASED FIRE ALARM PANEL	SIMPLEX	DR
		SCHRACK	Approved
		DETECTOMAT	Approved
		GENT	DR
11	LHS CABLE (FO Type)	AP SENSING,Germany	Approved
		SENSA,UK	Approved
	LHS CABLE (Intelligent Addressable Thermal Sensor Based)	Listec (Schrack)	Approved
12	FOAM PUMP	DEL PD PUMPS & GEARS	Approved
13	FOAM TANKS	ARC WELD ENGINEERS	Approved
		HD FIRE PROTECT PVT. LTD.	DR
14	ADDRESSABLE MULTISENSOR TYPE DETECTORS	SIMPLEX	DR
		SCHRACK	Approved
		DETECTOMAT	Approved
		GENT	DR
15	ADDRESSABLE PHOTO ELECTRIC TYPE DETECTORS	SIMPLEX	DR
		SCHRACK	Approved
		DETECTOMAT	Approved
		GENT	DR
16	ADDRESSABLE HEAT DETECTORS	SIMPLEX	DR
		SCHRACK	Approved
		DETECTOMAT	Approved
		GENT	DR
17	INFRA RED DETECTORS	PATOL	Approved
		SYSTEM SENSOR	Approved
18	COATING & WRAPPING MATERIAL/ TAPE (COAL TAR BASED)	IWL LTD.	Approved
		RUSTECH	Approved
19	INERT GAS SYSTEM	GINGEKERR	Approved
		ANSUL	Approved
		SRI	Approved
		SIEMENS	Approved
		UTC FIRE & SECURITY INDIA LIMITED. / (KIDDE)	Approved
20	BATTERY	EXIDE	Approved
		AMCO	Approved
		HOPPECKE BATTERIEN GMBH & CO KG	DR
		AMARA RAJA POWER SYSTEMS LTD	Approved

Sl. NO.	Item Description	Vendor Name	Remarks
21	FIRE SURVIVAL CABLES	POLYCAB	Approved
		RRKABEL	Approved
		KEI	Approved
		DELTON	Approved
22	HOSE REEL	SIEMENS	DR
		WINCO	Approved
		NEWAGE FIRE FIGHTING CO. LTD.	Approved
		Sukan Equipments Pvt Ltd	Approved
23	FIRE EXTINGUISHER (BIS APPROVED SOURCES WITH VALID LICENSE)	NITIN FIRE PROTECTION INDUSTRIES LI	DR
		KANADIA FYR FYTER PVT. LTD.	Approved
		SAFEX FIRE SERVICES LTD.	Approved
		KIDDE	Approved
24	PROBE TYPE HEAT DETECTOR	TYCO	Approved
<b>Additional Items</b>			
25	LT MOTORS	As per Approved Electrical Vendor List	
26	H.T. MOTORS (SAFE/HAZARDOUS AREA)	SIEMENS LTD	Approved
		ABB INDIA LIMITED, HYD	Approved
		KIRLOSKAR ELECTRIC CO. LTD.	Approved
		CG POWER & INDUSTRIAL SOLUTIONS	Approved
		BHEL BHOPAL	Approved
27	CABLE TRAYS	As per Approved Electrical Vendor List	
28	LEVEL GUAGES ( MAGNETIC TYPE )	As per Approved C&I Vendor List	
29	PRESSURE GAUGES	As per Approved C&I Vendor List	
30	SAFETY RELIEF VALVES	INSTRUMENTATION LTD	Approved
		FORBES MARSHALL LTD.,	Approved
		UNI KLINGER LTD.	DR
		ANDERSON GREENWOOD CROSBY	Approved
31	GASKETS	BHEL Approved Sources	
32	FLANGES	BHEL Approved Sources	
33	STRAINERS (Y-TYPE / T-TYPE /	As per Approved Mechanical Vendor List	
34	VALVES- GATE/GLOBE/REG.GLOBE/NON- RETURN; MAT: CS/AS/SS; PR.CL.#150,#300,#800	LEADER VALVES LIMITED	Approved
		INTERVALVE POONAWALLA LIMITED	Approved
		MICON VALVES (I) PVT. LTD.	Approved
		WEIR BDK VALVES	Approved
		FLOTEK INDUSTRIES	Approved
		L & T VALVES LIMITED	Approved
		FOURESS ENGINEERING (I)PVT.LTD	Approved
		Any other Vendors as per Approved Mechanical Vendor List	

SL. NO.	Item Description	Vendor Name	Remarks
35	BUTT WELDED PIPE FITTINGS	BHEL Approved Sources	
36	BOLTING MATERIAL	BHEL Approved Sources	
37	WELDED PIPES UP TO 14" (M.S & G.I)	BHEL Approved Sources	
38	FOAM POURER AND GENERATION EQUIPMENTS FOR FIRE PROTECTION SYSTEMS	SHAH BHOGILAL JETHALAL & BROTHERS	Approved
		NEWAGE FIRE FIGHTING CO. LTD.	Approved
		HD FIRE PROTECT PVT. LTD.	Approved
39	BALANCE PROPORTIONER FOR FIRE PROTECTION SYSTEMS	HD FIRE PROTECT PVT. LTD.	Approved
		SHAH BHOGILAL JETHALAL & BROTHERS	Approved
40	FIRE WATER PUMPS	WPIL LIMITED	Approved
		WILO MATHER AND PLATT PUMPS	Approved
		KIRLOSKAR BROTHERS LTD	Approved
41	HOSE CABINETS FOR FIRE PROTECTION SYSTEMS	SHAH BHOGILAL JETHALAL & BROTHERS	Approved
		NEWAGE FIRE FIGHTING CO. LTD.	Approved
		Sukan Equipments Pvt Ltd	Approved
		ASCO STRUMECH PVT. LTD.	Approved
42	AIR RELEASE VALVES FOR FIRE PROTECTION SYSTEMS	SHAH BHOGILAL JETHALAL & BROTHERS	Approved
		NEWAGE FIRE FIGHTING CO. LTD.	Approved
43	CAST IRON VALVES (GATE/SLUICE AND CHECK)	As per Approved Mechanical Vendor List	
44	SOCKET WELDED / SCREWED WELDED PIPE FITTINGS	BHEL Approved Sources	
45	SOLENOID VALVES	As per Approved C&I Vendor List	
46	PRESSURE AND DIFFERENTIAL	As per Approved C&I Vendor List	
47	N2 BASED FIRE PROTECTION SYSTEM	CTR MANUFACTURING INDUSTRIES LTD. NAGPUR	Approved
		EASUN-MR TAP CHANGERS (P) LTD, CHENNAI	DR
		SERGI TRANSFORMER EXPLOSION PREVENTION, GURGAON (HARYANA)	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description		Remarks
1	AIRCONDITIONING SYSTEM	Blue Star Ltd.	Accepted
		ADVANCE VENTILATION PVT.LTD.	DR
		ROOTS COOLING SYSTEMS PVT. LTD.	DR
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		VOLTAS LTD.	Accepted
2	VENTILATION SYSTEM	ADVANCE VENTILATION PVT.LTD.,Sonepat	DR
		C.DOCTOR and CO. PVT.LTD , Kolkata	Accepted
		HYDERABAD POLLUTION CONTROLS LIMITED, HYDERABAD	Accepted
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		ROOTS COOLING SYSTEMS PVT. LTD., Noida	DR
		VOLTAS LTD. , THANE WEST	Accepted
3	AIR WASHER & UAF	HYDERABAD POLUTION CONTROL	Approved
		ADVANCE VENTILATION	Approved
		DRAFT AIR	Approved
		BLUE STAR	Approved
		VOLTAS	Approved
		STERLING WILSON	Approved
		ROOTS COOLING SYSTEM	Approved
		C DOCTOR	Approved
4	CENTRIFUGAL FAN	FLAKT	Approved
		KRUGER	Approved
		DRAFT AIR	Approved
		HYDERABAD POLUTION CONTROL	Approved
		ADVANCE VENTILATION	Approved
		PATEL AIR	Approved
		MARATHON	Approved
		C DOCTOR	Approved
		SARLA	Approved
5	FRESH AIR/ SUPPLY/ EXHAUST/ RE UNIT FANS / PROPELLAR	HYDERABAD POLUTION CONTROL	Approved
		ADVANCE VENTILATION	Approved
		KRUGER	Approved
		NICOTRA	Approved
		MARATHON	Approved
		FLAKT	Approved
		C DOCTOR	Approved
		KHAITAN	Approved
6	PUMPS	BEST & CROMPTON	Approved
		JYOTI	Approved
		SAM TURBO	Approved
		KBL	Approved
		KSB	Approved
		M&P	Approved
		VOLTAS	DR
		WORTHINGTON	Approved
		SULZER PUMPS INDIA LTD.	Approved
			Approved

Sagardighi Extension (PROJ3)

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description		Remarks
1	AIRCONDITIONING SYSTEM	Blue Star Ltd.	Accepted
		ADVANCE VENTILATION PVT.LTD.	DR
		ROOTS COOLING SYSTEMS PVT. LTD.	DR
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		VOLTAS LTD.	Accepted
2	VENTILATION SYSTEM	ADVANCE VENTILATION PVT.LTD.,Sonepat	DR
		C.DOCTOR and CO. PVT.LTD , Kolkata	Accepted
		HYDERABAD POLLUTION CONTROLS LIMITED, HYDERABAD	Accepted
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		ROOTS COOLING SYSTEMS PVT. LTD., Noida	DR
		VOLTAS LTD. , THANE WEST	Accepted
		FLOWSERVE INDIA CONTROL PVT LTD	Approved
7	LV MOTORS (NON FLAME PROOF)	SIEMENS	Approved
		ABB	Approved
		CGL	Approved
		MARATHON	Approved
		KEC	DR
		BHARAT BIJLEE	Approved
		NGEF	Approved
8	AIR FILTER	PUROLATOR	Approved
		FMI	Approved
		ANFILCO	Approved
		JOHN FOWLER	Approved
		SPECTRUM	Approved
		AIR TECH	Approved
		PUROMATIC	Approved
9	INSULTATION MATERIAL	BEARDSHEL	Approved
		ARMAFLEX	Approved
		LLOYDS	Approved
		UP TWIGA	Approved
		AEROCELL	Approved
10	FIRE DAMPER	CARRYAIRE	Approved
		RAVISTAR (SYSTEM AIR )	Approved
11	GRILL/ DIFFUSER/ VOLUME CONTROL DAMPER	CARRYAIRE	Approved
		RAVISTAR (SYSTEM AIR )	Approved
12	HUMIDISTAT	JHONSON CONTROL	Approved
		HONEYWELL AUTOMATION	Approved
		PENN	Approved
		CARRIER	Approved
		BLUE STAR	Approved

Sagardighi Exten. Unit#5 (PROJ3)

HVAC System

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description		Remarks
1	AIRCONDITIONING SYSTEM	Blue Star Ltd.	Accepted
		ADVANCE VENTILATION PVT.LTD.	DR
		ROOTS COOLING SYSTEMS PVT. LTD.	DR
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		VOLTAS LTD.	Accepted
2	VENTILATION SYSTEM	ADVANCE VENTILATION PVT.LTD.,Sonepat	DR
		C.DOCTOR and CO. PVT.LTD , Kolkata	Accepted
		HYDERABAD POLLUTION CONTROLS LIMITED, HYDERABAD	Accepted
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		ROOTS COOLING SYSTEMS PVT. LTD., Noida	DR
		VOLTAS LTD. , THANE WEST	Accepted
13	SCREW CHILLER	VOLTAS	Approved
		MCQUAY (DAIKIN)	Approved
		CLIMAVENETA	Approved
14	PRECISION AC	UNIFLAIR	Approved
		BLUEBOX	Approved
		EMERSON PROCESS MANAGEMENT	Approved
		CLIMAVENETA	Approved
15	SPLIT AC	VOLTAS	Approved
		BLUE STAR	Approved
		CARRIER	Approved
		HITACHI	Approved
		DAIKIN	Approved
16	AIR HANDLING UNITS	ZECO	Approved
		CARRYAIRE (flakt)	Approved
		EDGE TECH	Approved
		SYSTEM AIR	Approved
17	AHU FAN (CENTRIFUGAL FAN)	C DOCTOR	Approved
		FLAKT	Approved
		KRUGER	Approved
		NICOTRA	Approved
		COMEFRI	Approved
		MARATHON	Approved
		ADVANCE	Approved
		DRAFT AIR	Approved
		HYDERABAD POLLUTION	Approved
18	PUMPS	JYOTI	Approved
		SAM TURBO	Approved
		KBL	Approved
		KSB	Approved
		M&P	Approved
		VOLTAS	Approved



Sagardighi Ext. Unit #5 (1 x 660 MW)

HVAC System

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description		Remarks
1	AIRCONDITIONING SYSTEM	Blue Star Ltd.	Accepted
		ADVANCE VENTILATION PVT.LTD.	DR
		ROOTS COOLING SYSTEMS PVT. LTD.	DR
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		VOLTAS LTD.	Accepted
2	VENTILATION SYSTEM	ADVANCE VENTILATION PVT.LTD.,Sonepat	DR
		C.DOCTOR and CO. PVT.LTD , Kolkata	Accepted
		HYDERABAD POLLUTION CONTROLS LIMITED, HYDERABAD	Accepted
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		ROOTS COOLING SYSTEMS PVT. LTD., Noida	DR
		VOLTAS LTD. , THANE WEST	Accepted
		BEACON-WEIR	Approved
		WORTHINGTON	Approved
		SULZER PUMPS INDIA LTD.	Approved
		FLOWERVE INDIA CONTROL PVT LTD	Approved
19	COOLING TOWER	PAHARPUR COOLING TOWER	Approved
20	LV MOTORS (NON FLAME PROOF)	SIEMENS	Approved
		ABB	Approved
		CGL	Approved
		MARATHON	Approved
		BHARAT BIJLEE	Approved
		NGEF	Approved
		JYOTI	Approved
21	AIR FILTER	PUROLATOR	Approved
		FMI	Approved
		ANFILCO	Approved
		TENACITY	Approved
		JOHN FOWLER	Approved
		SPECTRUM	Approved
		AIR TECH	Approved
		PUROMATIC	Approved
22	BALANCING VALVE	ADVANCE	Approved
23	4 WAY MIXING VALVE WITH ACTUATING MOTOR	SIEMENS BUILDING TECHNOLOGY	Approved
		JOHNSON	Approved
		HONEYWELL AUTOMATION	Approved
24	Y / POT STRAINER	MULTITEX	Approved
		GREAVES COTTON	Approved
		JAYPEE	Approved
		OTOKLIN	Approved
		GUJARAT OTOFILT	Approved
		SAROJINI ENTERPRISE	Approved

Sagardighi Extn. Unit#5 (PROJ3)

HVAC System

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Item Description		Remarks
1	AIRCONDITIONING SYSTEM	Blue Star Ltd.	Accepted
		ADVANCE VENTILATION PVT.LTD.	DR
		ROOTS COOLING SYSTEMS PVT. LTD.	DR
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		VOLTAS LTD.	Accepted
2	VENTILATION SYSTEM	ADVANCE VENTILATION PVT.LTD.,Sonepat	DR
		C.DOCTOR and CO. PVT.LTD , Kolkata	Accepted
		HYDERABAD POLLUTION CONTROLS LIMITED, HYDERABAD	Accepted
		STERLING AND WILSON PRIVATE LIMITED	Accepted
		ROOTS COOLING SYSTEMS PVT. LTD., Noida	DR
		VOLTAS LTD. , THANE WEST	Accepted
		FILTRATION ENGINEERS INDIA PVT LTD	Approved
25	STRIP HEATER	ESCORTS	Approved
		RACOLDS	Approved
		ALCO	Approved
		HEATCO	Approved
26	PAN HUMIDIFIER	RAPID COOL	Approved
		HOTSET	Approved
		ALCO	Approved
27	RELIEF / PURGE VALVE	BRASSOMATIC	Approved
28	THERMOSTATS	HONEYWELL AUTOMATION	Approved
		RANCO	Approved
		PENN	Approved
		DANFOSS	Approved
		RANUTROL	Approved
		INDFOSS JHONSON CONTROL	Approved
29	ANTI FREEZE THERMOSTAT	RANCO	Approved
		HONEYWELL AUTOMATION	Approved
		PENN	Approved
		DANFOSS	Approved
		INDFOSS	Approved
30	RH SENSOR/TEMP SENSOR	HONEYWELL AUTOMATION	Approved
		JOHNSON	Approved
		SIEMENS	Approved
		GENERAL INSTRUMENT CONSORTIUM	Approved
31	WATER SOFTENING PLANT	THERMAX	Approved
		ION EXCHANGE	Approved

**SAGARDIGHI THERMAL Power EXTENSION PROJECT  
PHASE-III, UNIT#5 (1 x660 MW)**

Sl. No.	Package Description	Vendor Name	Remarks
1	Civil Sub-structure pkg. (Piling & pile cap)	M/s SIMPLEX INFRASTRUCTURES LIMITED	Approved
		BRIDGE & ROOF CO. (INDIA) LTD.	Approved
		PARESH CONSTRUCTION AND FOUNDATIONS PVT. LTD.	Approved
		L&T GEOSTRUCTURE LLP.	Approved
		AKASHGANGA INFRAVENTURES INDIA LTD.	Approved
		M/s NAVAYUGA ENGINEERING COMPANY LIMITED	DR
2	Civil Super-structure pkg.	M/s JMC PROJECTS (INDIA) LIMITED.	DR
		M/s SIMPLEX INFRASTRUCTURES LIMITED	Approved
		M/s BRIDGE & ROOF CO. (INDIA) LIMITED	Approved
3	Boiler Aux.	M/s POWER MECH PROJECTS LIMITED	Approved
		M/s BRIDGE & ROOF CO. (INDIA) LIMITED	Approved
		M/s INDWELL CONSTRUCTIONS PVT. LIMITED	Approved
		M/s BHAVANI ERECTORS PVT. LIMITED	Approved
4	STG & Aux.	M/s POWER MECH PROJECTS LIMITED	Approved
		M/s INDWELL CONSTRUCTIONS PVT. LIMITED	Approved
5	C&I	M/s POWERTRONIX ENGINEERING PVT. LIMITED	Approved
		M/s EDAC ENGINEERING LIMITED	Approved
6	Electrical	M/s POWERTRONIX ENGINEERING PVT. LIMITED	Approved
		M/s PRV CONSTRUCTIONS PVT LIMITED	Approved
		M/s SIGMA CONSTRUCTION	Approved
		M/s TECHNO ELECTRIC & ENGINEERING CO LIMITED	Approved
		M/s EDAC ENGINEERING LIMITED	Approved
		M/s PACE PROCESS CONTROLS PVT. LIMITED	DR



Sagardighi Extn.U#5(PROJ3)

PSER ERECTION

Ref: SGMPO3/AV/8/047